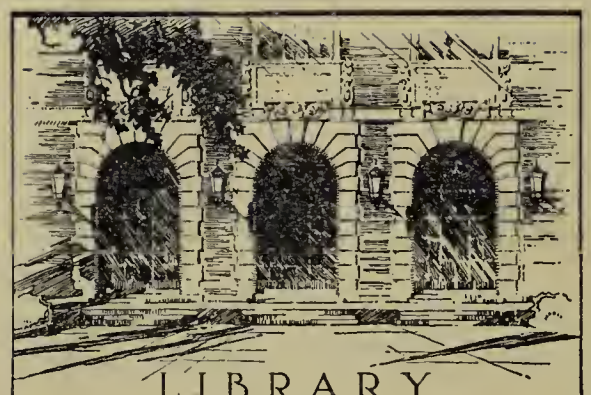


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PUBLIC HEALTH TRAINING IN UNIVERSITIES

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MINNEAPOLIS

The law of social demand and academic supply is far from an exact formula. Sometimes universities offer a training for careers that depend on other things than institutional preparation. For example, a few years ago several universities announced special courses for candidates for the diplomatic service. When it transpired that political pull, an actual speaking knowledge of foreign languages, or a recognized social status were much more likely to gain one a position than the pursuit of courses in comparative government, international law, the history of diplomacy, and a precarious reading knowledge of French and German, the reasons why these university courses were not patronized became evident. On the other hand, academic institutions are often slow to recognize actual vocational needs, and even when attempts are made to meet authentic demands, the first efforts are too likely to be abstract and speculative, and out of relation to the actual concrete problems involved.

The efforts of universities to meet the needs of organized public health have illustrated both of these tendencies. The first courses to be offered were generally in advance of specific demand. There was little response on the part of prospective public sanitarians. The careers in preventive medicine and public hygiene were not sufficiently attractive, and in the absence of a merit system the causal connection between thorough preparation and appointments and promotions was not convincing. Of late, however, the widespread interest in social medicine, the demand for more efficient service, and the multiplication of administrative and specialized positions, governmental and institutional, have given an impetus to public health training. There is now a possibility that in attempts to meet the growing demand, the universities have rather hastily and with inadequate resources organized curriculums which are not thoroughly adjusted to actual needs. It is only what, in the circumstances, was to be expected. The universities which have taken the lead deserve full credit for the initiative and ambition which they have displayed.

It seems clear that successful public health training must be carried on either by universities or by schools in close affiliation with them. Only in a large and well developed institution is it possible economically to provide the various kinds of knowledge and discipline which have a bearing on the preparation of a public sanitarian. Moreover, the university atmosphere of investigation and scientific collaboration offers the most favorable and stimulating environment for the kind of training under discussion. This is not to say that the university can provide all of the necessary conditions. The closest and most sympathetic cooperation with agencies which are carrying on actual public health activities is of fundamental importance. For this no university can in itself provide a substitute. To the universities of the country, however, we must look for leadership in developing thorough and progressive schools or departments for training various types of public health functionaries.

As a matter of fact, except for the apprenticeship opportunities in federal, state and city bureaus, the conscious attempts to provide such training have so far been made by the universities. Much has already been accomplished. The lead was taken by the University of Pennsylvania in 1909. This example was followed by Harvard in 1910, Wisconsin in 1911, Tulane in 1912, Colorado, Michigan and the Detroit College of Medicine and Surgery in 1913, Bellevue and California in 1914, and Ohio State in 1915. In October, 1918, Johns Hopkins University, with the aid of the Rockefeller Foundation, will open a school of hygiene and public health under the most favorable conditions which have as yet been realized for the training of specialists in preventive medicine and health administration. The principles, curriculums, standards and ideals embodied in the plans which have been put in force by these institutions offer the general outlines of a system which in the future will gradually be improved and more nicely adjusted to the actual needs of community and nation.

Of the ten institutions, all but two require for admission to the public health course the degree of Doctor of Medicine. Three universities require both the bachelor's degree and the professional medical degree. The obvious implication is that the full preparation of a medical practitioner is desirable, even essential for successful public health work. In some cases this idea is modified to this extent: In the last year of the medical course, students are permitted to substitute, for certain clinical subjects, courses which have a direct bearing on preventive medicine. How far the fact that the initiative in organizing public health training has been taken by the medical schools of the universities influences the requirement of the M.D. degree, and how far this stipulation is necessary for the end in view will be briefly discussed in a later paragraph.

In seven of the institutions under consideration, the training is given in one year; in three, two years of work are required. This variation is correlated with different forms of recognition, varying from the degree of Doctor of Public Health to a certificate of public health or the title of Graduate of Public Health. The

lack of uniform practice reflects a variation in ideals and marks a difference in the types of functionaries and the kinds of training which are required for these officers. Seven institutions give the degree of Doctor of Public Health, namely, Pennsylvania, Harvard, Wisconsin, Tulane, Colorado, Michigan and Bellevue. Of these schools, Michigan, Colorado and Wisconsin offer two year courses; the other four require only one.

As has already been indicated, the chief recognition takes the form of the degree of Doctor of Public Health. Pennsylvania also confers the degree of Certified Sanitarian after a one year course. Certain graduates of one year courses at Wisconsin and Detroit receive the degree of Master of Public Health. Four schools, California, Colorado, Michigan and Ohio, confer the degree of Master of Arts in Public Health and Master of Science in Public Health after one year of residence. Colorado also grants the degree of Master of Science in Sanitary Engineering after a one year course. There is obviously a tendency to assimilate the public health degrees to the graduate school system which has been uniformly adopted by the leading American universities. Thus, Doctor of Public Health corresponds with the degree of Doctor of Philosophy, while the Master's degrees in Public Health take their position as the recognized second degrees in the higher educational system.

The processes of imitation which so quickly tend to conventionalize American education have not had time to produce a fixed type of public health training. The obvious necessities, the kinds of knowledge, discipline and technic available have inevitably created uniformities. Around these, however, there is a wide field of variation. Laboratory courses in bacteriology, chemistry, protozoology and parasitology are naturally a part of the curriculum in all of the schools. These courses doubtless vary a good deal in content and method of instruction. In only three institutions is special mention made of tropical diseases. The use of different terminology and the grouping of subjects in various forms make it difficult to reach positive conclusions as to precisely what the requirements are. A substratum, however, of laboratory training is prescribed by all the schools.

The next group of courses may be described as specialized public health courses. These are public hygiene, preventive medicine, public health administration, occupational diseases, school inspection, etc. It is not always easy to differentiate these courses from laboratory courses, but in general they seem to be of a more definitely professional character, dealing more concretely with the actual problems of preventive medicine in the field. Although the published programs of three or four of the schools make no explicit mention of teaching of this character, it is fair to assume from the general statements that instruction in courses of this kind is provided.

Five of the ten schools offer courses in sanitary engineering which include water supplies, sewerage and sewage disposal, street cleaning, and housing and ventilation. Harvard, in cooperation with the Massachusetts Institute of Technology, lays stress on the engineering aspects of its curriculum. As has already been indicated, Colorado confers a special degree, that of Master of Science in Sanitary Engineering. It seems to be recognized that the engineering aspects of public health work must find a place in even a general course for the preparation of public sanitarians.

Five out of the ten schools make a place for vital statistics or demography. Sanitary legislation, political science and economics are mentioned in the curriculums of two institutions. The first impression is that the social sciences have not been sufficiently recognized in the organizing of these public health training courses. It is altogether likely, however, that in many of the special courses which have been mentioned above the questions of vital statistics, the legal aspects of public health organization and the recent progress of socialized medicine, health insurance, etc., are included. Even when allowance of this sort has been made, it seems probable that the medical school administration which has been chiefly responsible for organizing these courses of study has not sufficiently recognized the need of the cooperation of departments of economics, political science, sociology and schools of law.

One of the schools, the Detroit College of Medicine and Surgery, requires a definite period of service in a hospital for contagious diseases. Each student of public health courses is apparently required to serve an internship of twelve weeks in such an institution. Undoubtedly the students of other schools are brought into some relation with hospitals for contagious diseases in connection with the field work which is required in the curriculums of all the schools. There is a valuable suggestion in this plan of requiring a regular internship service in the wards of a hospital for contagious diseases. For students specializing in epidemiology this would be a peculiarly useful experience, under proper supervision, with opportunities for laboratory experience.

It is worth noting that all of the schools provide for practical field work. The need of connecting the experience in the laboratory and the material of the lecture room with the actual concrete problems of the profession is universally recognized. The schools have made close working arrangements with municipal and state departments of public health, with school authorities, and with charitable and correctional institutions, so that students may gain vivid first hand impressions of the conditions to be met, of the technic for dealing with them, of the spirit and methods of public health administration, and of the knowledge of human nature essential to firm and tactful control of individuals and groups.

Eight of the ten schools require as a condition of graduation the presentation of a thesis. This ordinarily takes the form of a piece of practical work, as, for example, a health survey of a given area, a study of an epidemic, or an analysis of a public health mechanism and its operation. Two or three of the schools explicity say that the requirements for the degree cannot be stated in terms of class room hours or other conventional credit units. It is the avowed purpose to lay the chief stress on individual power and the abilty to deal intelligently and effectively with the subject matter and problems under consideration. The stress laid on the thesis serves to emphasize the research character of this public health training, and the attempt to make it vital and practical rather than what "the man in the street" is wont to call "academic."

A few phases of public health work seem either to have been overlooked or only incidentally recognized. For example, the function of public health education and publicity is one which deserves study and for which special types of training should be provided. It has become evident of late that the education of public

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opinion in a democratic country is necessary for the progress and stability of public health work. A few individuals have shown in a conspicuous way how much can be accomplished through wise methods of education and publicity. Other types of functionaries, such as public health nurses and sanitary inspectors, of whom it is quite impossible to require a full medical course, will soon demand special forms of training. Whether apprenticeship in public health service will provide the chief means of preparation or whether schools of public health will assume this function is a question for thoughtful consideration.

In an attempt to outline the chief lines of future development it may be well to enumerate the different types of public health functionaries for whom training will have to be provided. These fall into a number of fairly well defined groups: 1. Public health administrators, men with fundamental and thorough training who are capable of serving as federal functionaries, and as state, city and county health officers. 2. Laboratory men who have had sufficient contact with field work to be thoroughly intelligent about their duties. In this group may be included also statisticians whose training in public health enables them to interpret with some intelligence the data with which they deal, and to estimate with reasonable accuracy the coefficient of corruption and the mean of mendacity by which vital statistics are so largely vitiated. 3. Administrative specialists, who, with a background of general training, have become proficient as epidemiologists, authorities in tuberculosis or specialists in venereal diseases. 4. Sanitary engineers who deal with engineering problems not merely from a physical but from a biologic point of view. 5. School medical officers who are more than practitioners and see the health of the school in its wide relations to community life on the one hand, and to individual efficiency on the other. 6. Specialists in public health education and publicity who combine with accurate knowledge the capacity to apply practically the principles of individual and group psychology. 7. Public health nurses with special training and aptitude for the important duties which more and more will devolve on them. These nurses will be differentiated, for example, into the city nurse, the town nurse and the rural nurse. 8. Sanitary inspectors of many kinds, the artisans of the public health service, who nevertheless require a training which will enable them to do their work intelligently and with satisfaction both to themselves and to the community. Doubtless as time goes on the types enumerated above will be still further differentiated, and new functionaries will be added to the list. A system of public health education must consciously take into account the functions to be performed and adapt its methods to the indicated kinds of training required.

A word may be said here about the sanitary engineer. It is sometimes assumed that engineering training with special reference to water supplies, sewage disposal, etc., best fits a man for public health administration. This is far from being true. The sanitary engineer is a specialist whose expert services are essential. But he has not the background of biologic training, the intimate knowledge of infectious diseases, or the mastery of medicine which enables him to assume the general oversight of a municipal or state public health organization. The sanitary engineer is a necessary member but not the responsible head of a modern mechanism of social medicine.

The underlying idea of successful technical training is that it should be in the hands of men thoroughly familiar with the profession involved and completely imbued with its point of view and spirit. This means that no successful course for specialized training can be made by the mere grouping of existing courses and the printing of these in a single catalogue. Business training in American universities affords an illustration in point. Colleges of commerce were created over night. Courses in economics, business law, modern languages, commercial geography, banking, insurance, etc., were grouped into a new curriculum and offered to an admiring public. The failure of these early attempts was inevitable. The courses were taught not by men who were familiar with the actual problems of business, but by instructors whose training and interests were of a wholly different tradition. The recent progress in schools of business administration has been due to the introduction of new types of teachers who, by practical contact with business organizations, have trained themselves for efficient service. The best schools are being brought into close and sympathetic connection with the business world.

This principle applies to public health training in a most obvious way. Laboratory courses, public hygiene courses, and instruction in law, economics and sociology will be of little value unless they are all dominated by public health ideals and are constantly related to public health problems. It is for this reason that the new school at Johns Hopkins University will be in a position to create from the outset the right atmosphere, by securing men who represent public health training, spirit and ideals, and who will inspire in their academic colleagues that intelligent cooperation so essential to a unified and successful course of technical training. In order to insure this unified, purposeful kind of organization the agency for the teaching of public health must have reasonable autonomy. It will not do to make the new curriculum a mere by-product of medical education or subject to its sole control. There should be a special administrative board and a director imbued with the ideals of preventive medicine. Only under such conditions can a public health teaching organization gain the requisite authority, coordinated efficiency and professional spirit.

The conditions for admission to a public health course will require careful consideration. There is an advantage in making the degree of Doctor of Medicine a prerequisite. This degree received from a medical school of the first class guarantees sound training and maturity. Moreover, it gives a public health officer a sense of security and independence, for he feels that he can fall back on the practice of his profession if he proves unadapted to the public career. On the other hand, there is a little danger that a man may gain too much of the physician's individualistic philosophy and therapeutic bent, give too much time to unnecessary medical and surgical technic, and for the very reason that he may take up the practice of his profession, lack the devotion of the person who has committed himself almost irrevocably to a career of service under public auspices. It is altogether likely that requirements will be so modified as to permit a student of medicine, after his first two years, to substitute in the second two years a good deal of public health work for the clinical courses of the regular medical curriculum. It is undesirable, however, for men who are being trained for the highest positions in preventive medicine to have less than the full equivalent of a four

year medical course with two years of graduate work.

If the analysis of functions indicated in an earlier paragraph is valid, it would suggest that courses of different length and different requirements will be prescribed for the several groups. It is quite conceivable, therefore, that curriculums may vary in length from two or four to eight years beyond graduation from high school. The earlier limit might apply to nurses and inspectors, while the latter would have reference to the health executive who assumes responsibility for a large administrative unit. Appropriate certificates and degrees will doubtless be worked out and given, as in the case of other designations, a standardized value, so that the holding of these forms of recognition will be directly related to the securing of positions, promotion, etc., in public health organizations.

Lack of time and my obvious incompetence afford good grounds for not attempting any detailed discussion of curriculums. One or two suggestions may be made in passing: 1. The fundamental public health background should be provided for all specialized functionaries. The unity of the profession, the proper team play, and efficiency can be secured only as each individual sees his special task in the wider relationships of the general theory of preventive medicine and of public health purposes. 2. The practical field work must be done under supervision, and must be carefully checked and reported. There is a good deal of so-called practical work done in connection with educational institutions, but this is likely to be of little significance because it is not made a vital part of the curriculum as a whole. The cooperation with public health agencies, therefore, will have to be worked out in a definite and precise fashion. It is possible also that it will turn out to be wise not to confer the highest degree until a candidate has demonstrated for at least a year his ability to render satisfactory service in connection with some regular agency of public health. This test would correspond to the one year's internship which medical education regards as essential for the completion of a course of thorough general training.

Ordinary laboratory facilities and supplies, in the case of a school of public health, should be supplemented by a statistical laboratory with its proper equipment; by a special public health library and museum, with exhibits of all kinds bearing on public health problems; by a collection of slides and films; by equipment, models, etc., illustrating various phases of sanitary engineering, water supplies, filtration plants, sewage disposal, housing and the like, and by exhibits of public health publicity material, charts, posters, placards, newspaper articles and advertisements. Obviously all the devices for administrative purposes, record cards, blanks, filing systems, etc., would form a part of the illustrative material at the disposal of every public health school.

The social sciences will receive more emphasis. Courses in vital statistics, the history of public health work, in the social philosophy which underlies modern collective undertakings, the economic side of public health, the growth of administrative law in its relation to preventive medicine, and the problems of poverty and of dealing with dependent, defective and delinquent groups will receive increasing attention. This will have a specially important bearing on giving not only the public health point of view but also the attitude toward modern society which is necessary for devoted and loyal public service.

It is to be hoped that some system of fellowship aid may be made available to encourage promising men and women of limited means to enter the profession. It is possible that, in connection with these schools, endowments may be secured for fellowships of this kind. It is also to be expected that subordinate positions in public health departments will be open to students in schools of public health so that these persons may at the same time support themselves and turn their work to account as a part of the training which they are receiving. In many places, arrangements of this kind have been made. It is reasonable to look forward to an extension of this plan. Fellowships might also be made useful in encouraging small communities to engage full-time health officers. Graduates with stipends for a year might in this way find openings, and after demonstrating convincingly the possibilities of modern health administration, might be given permanent positions, wholly sustained by local appropriations.

The outlook for public health in the United States is encouraging. There is an increasing recognition of its economic and social importance as well as its bearing on individual happiness. The new sense of nationality which is being forced on us will accustom us more and more to taking the general rather than the individual point of view. We shall be driven to cooperate and to undertake public services on a new basis. It is, therefore, a time when the subject of training public health officers is peculiarly significant. It is to be hoped that the work will be developed not through institutional and local ambition, but with the welfare of the whole country in view.

It seems clear that not every university which has a medical school can provide a full course of public health training. It is desirable, therefore, that a few centers be recognized, and that for the higher types of training these centers be given the ample funds which are necessary for the right sort of education. This does not mean that in many places courses for public health nurses and inspectors may not be profitably introduced, or that in still others laboratory men may not be trained at least up to a certain point. Standards and ideals, however, should be set by a few institutions which have the resources which will enable them to establish genuine schools well equipped, properly manned, dominated by authoritative leaders, inspired by the public health point of view, and working in close fruitful relations with the public health agencies of the community, the state and the nation.

The University of Minnesota.

Aridity of Indoor Atmospheres in Winter.—S. D. Flora, an observer of the United States Weather Bureau at Topeka, made a series of tests of the indoor and outdoor humidity in his office over a period of forty days, using the standard whirling type of psychrometer at 8, 12 and 4 p. m. each day. The room in which the indoor tests were made was said to be a well ventilated office room, heated by steam and kept at an average of 72 F. For the period named the average indoor relative humidity was said to be 23 per cent., the same as that of the desert in Death Valley, Calif., in the summer of 1891. The outdoor humidity in Topeka during the same period averaged 82 per cent. The average relative humidity during the driest month of the year at Yuma, Ariz., is 35 per cent.; for Santa Fe, N. M., 29 per cent.; for Pueblo, Colo., 38 per cent. Thus, as said in *Public Health Reports,* Feb. 23, 1917, the indoor air in heated houses and buildings is drier than that of the desert.

PUNCTURE HEADACHE*

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The methods of modern medicine have caused not a new disease, but an additional morbid state, namely, the headache and associated symptoms following puncture of the spinal canal and removal of cerebrospinal fluid.

This headache has become so common, and its cause is so well recognized, that the term "puncture headache" has become a colloquialism in the hospitals. It is not a serious condition, and it lasts but a short time, but it is a distinctly new thing in pathogenesis and neurology; hence it is proper to study it, describe it, and, having learned its natural history, to place it in the literature of our specialty. We may incidentally learn how to prevent it, and draw some inferences from its phenomena as to other forms of headache. For we hardly know the cause of any of our ordinary headaches so completely as we do that of this particular semeiological infant.

Symptoms.—The headache rarely begins until the day following the puncture, when the patient usually is allowed to get up. It may start, however, directly after operation or come on three days later, depending on the activities of the patient and the conditions of the cerebrospinal fluid circulation. The patient feels a diffuse, bilateral pain, rather severe over the upper brow, and perhaps somewhat less severe in the back of the head. Occasionally it is worse in the occipital region. The pain may be accompanied with nausea and even violent vomiting, and also with some giddiness, mental confusion and faintness. The symptoms are increased by active exercise, and usually are promptly relieved by lying down. The flatter the patient lies, the better he feels. There may be some changes in the pupils and in the blood pressure.

The condition lasts with remissions for from five or six days to two or three weeks. When the trouble lasts and is obstinate, there is an accompanying cerebral dysthesia and sense of confusion or giddiness, which may cause worry and alarm.

Etiology.—The symptom is more common in patients whose cerebrospinal fluid is negative, and in whom the fluid comes out under low pressure. In other words, the healthy cord reacts badly to puncture. It is more common and severe in young adults, in women, in persons of high-strung nervous temperaments, in the anemic and in the thin blooded. In acute conditions like poliomyelitis and meningitis, in which there is high pressure, puncture often relieves headache, especially in children. In advanced years, and when there is abnormal pressure to the spinal fluid, the reaction is less.

In diagnostic puncture the amount of fluid usually removed is from 4 to 10 c.c. It does not make much difference whether a small or large amount is removed within these limits, though some state that headache rarely occurs if the amount removed is very small and if the fluid is removed very slowly (I. Strauss). The headache results from the acute disturbance of the mechanics of the cerebrospinal fluid circulation. I am told that removal of the fluid from the cerebrospinal ventricles does not cause the headache, probably because in these cases the patients are kept quiet in the horizontal position.

There is no great difference whether the fluid when removed is under a plus or minus pressure within physiologic limits, i. e., from 5 to 8 mm of mercury. As matters go in a hospital, in about half the cases of lumbar puncture there is no headache reaction unless the patient is allowed to get up very early. At one time we thought patients did better if allowed to get up promptly on the day of puncture. This was found sometimes to work, but on the whole was not good practice.

Physiology.—The normal amount of cerebrospinal fluid at any one time is small, probably not over from 2 to 6 drams (from 8 to 24 c.c.); but with brain atrophies it increases in amount to 2 ounces or more.

Ordinarily it is secreted slowly and in small amount, although in fractures of the brain it has been known to drain away at the rate of 600 c.c. daily. The amount can be increased by compression of the abdomen, by horizontal position and by straining, that is, by forced expiration with the glottis closed. The tension is about 5 to 7.3 mm. of mercury, and is about the same as that of the capillaries.

Pathology.—We may suppose that the changes in pressure caused by puncture and removal of fluid take away the water pad of the brain, so that it rests unprotected on the bone, causing an irritation of the dural fibers of the fifth and occipital nerves. The fact of the instant relief caused by the horizontal position supports this view.

On the other hand, the choroid gland can ordinarily secrete in twenty-four hours much more fluid than is removed by puncture. Therefore it must be that the puncture either inhibits the activity of the gland, or causes some block in the normal flow. Most persons with headache feel better in the horizontal position. It is quite possible that in fatigue and toxic states the choroid plexus is disturbed in its functions, and there is a reduction or an excess of flow.

Prevention and Treatment.—The headache can usually be prevented by keeping the patient in a horizontal position for three or more days. After the headache occurs, the effective measure is to return the patient to bed. Possibly the very slow removal of the fluid in minimal amount (2 c.c.) may be effective. Abdominal compresses may also help.

Other Headaches.—Some interesting inferences can be drawn as to the pathology of other headaches from the phenomena of puncture headache.

The location of the pain in puncture headaches is much like that in neurasthenic, and in certain toxic and autotoxic headaches. In these the patient also is more comfortable if he lies down, and physical or mental exertion makes him worse.

Is it not possible that a good many headaches are due to defective action of the choroid gland, to an imperfect cerebrospinal fluid circulation? As stated before, the amount of cerebrospinal fluid is normally rather small, and secreted slowly. This fluid has a normal and steady flow from the lateral ventricles into the third and fourth ventricles through the foramen of Magendie and lateral recesses of the fourth ventricle to the subarachnoid space; thence the most of it passes into the villi of the dura and the venous sinuses and veins. There are various ways in which this flow might be disturbed. It seems to me that the puncture headache may have a genuine value in calling our attention to the pathology and physiology of this third system of circulation in the human body.

53 West Fifty-Third Street.

* Read before the New York Neurological Society, Jan. 2, 1917.

THE AFTER-CARE OF INFANTILE PARALYSIS

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The problem of the treatment of the convalescent stages of infantile paralysis is definite, specific and undisputed. It is to restore the maximum ultimate efficiency to affected muscles. The present paper is a discussion of how this may best be brought about.

Our treatment of the acute stage of the disease has made great strides of late. Meddlesome therapeutics in the way of drugs, counterirritation and massage in the tender stage have been largely abandoned, the general practitioner is guarding against and preventing unnecessary deformity, and rest is being recognized as the best treatment at this time by the intelligent physician. In the later stage, too, an adequate and rational operative plan of treatment has been developed and is being practiced by most orthopedic surgeons. But in the convalescent stage, which may be assumed as lasting for about two years from the time when the tenderness disappears, little real change has been made in methods since the time when those of us now in middle life were medical students.

The treatment of this stage of the affection most in vogue in this country today is to employ massage and electricity, to use braces, and to allow walking when possible. The following quotation from an orthopedic textbook published in 1885 is representative of the view at that time and of today as well:

> But in these cases, after the deformity is corrected and an appropriate instrument applied, frictions, massage, electricity and instructing the patient, if old enough, to exercise frequent voluntary motion must for a long time be resorted to.

It may be well to inquire, therefore, if we cannot make more modern the treatment of the middle stage of this affection when the treatment of the early and late stages has been so radically changed in the last few years. This is the more important because during this period is determined in many cases the degree of recovery of the affected muscles. In no department of surgery does precise, long continued and common sense treatment have a more determining effect on ultimate function than here.

Certain fundamental facts bear strongly on the formulation of the treatment at this stage.

1. The existence of *tenderness* may be assumed to be evidence of the persistence of some degree of the acute process in the cord. The use of massage and manipulation while tenderness lasts will, as a rule, make it more acute and prolong it indefinitely. Theoretically it is not physiologic to irritate and stimulate the peripheral ends of nerves connected with acutely or subacutely inflamed nerve centers. No matter how long the tenderness may legitimately continue, active treatment should not be begun until it has practically disappeared. This event may be assumed to mark the end of the acute and the beginning of the convalescent stage.

2. *Muscular weakening* is much more common than total paralysis, the Vermont figures having shown that partial paralysis is nine times as common as is total paralysis. This must necessarily change our conception of treatment, for the condition is not to be regarded as a more or less hopeless loss of power, but as a muscular weakening with perhaps some total paralysis. If the paralysis were, for the most part, total and hopeless, we should resort to braces and not restrict activity, for there would be no use in so doing. But with a weakening rather than a total paralysis, it should obviously be our effort to strive to strengthen the weakened muscles and to allow no consideration to interfere with this effort.

3. *Spontaneous improvement* does not cease at the end of about six months, as we formerly believed, but continues for at least two years and probably longer, although it is more rapid in the first year than later. This fact is of importance in encouraging us to feel that we have an asset strongly in our favor during these two critical years.

4. *Fatigue* is a detrimental factor of the highest importance to convalescent muscles, and in weakened ones fatigue is brought about with surprisingly little activity. Fatigue of a seriously harmful character can be caused not only by walking too much, but also by the overuse of therapeutic exercises and especially by heavy or prolonged massage. These statements rest on quantitative data already published and on a series of observations on children under treatment when enforced inactivity has been necessitated by illness or operation. Not only may fatigue and overuse delay the favorable progress of convalescing muscles, but also it may lead to a permanent loss of returning power and to permanent and irremediable muscular stretching.

5. *Braces and apparatus* are not what one would desire to put on a weakened leg when one is striving to secure muscular development. They are heavy, they induce an unnatural use of the leg, they prevent free activity, and the bands and lacings constrict the muscle. On the whole they favor muscular atrophy; but there is no evidence to show that they increase shortening of the affected limb. Any one would grant that, other things being equal, a brace was undesirable. But more undesirable than the use of braces is the acquirement of deformity, the stretching of muscles, and the loosening of joints from not using them when necessary. The only statement to be made is that braces should not be used unnecessarily, but that they should be used when needed; that they are not in any way therapeutic, but protective and conservative, and that the so-called "brace treatment" of this stage of infantile paralysis does not exist, because to put on a brace is no more treatment of the disease than is the use of crutches in the treatment of fracture of the leg.

Having discussed these more or less fundamental considerations, we are now in a better position to formulate what should be the modern treatment of the convalescent stage of infantile paralysis.

Diagnosis.—The first requisite for adequate and scientific treatment in this as in other affections is an accurate diagnosis, and such a diagnosis in infantile paralysis demands an examination of every available muscle or muscular group in both arms, both legs, neck, back and abdomen. It must be determined which muscular groups are normal, which weakened and wholly paralyzed. The patient should first be made to walk if he can, as in walking muscular function can be observed and gross defects defined as in no other way. Children should be stripped naked, and adults should wear only a T bandage. Then the voluntary contractile power of the different muscles and muscle groups should be estimated by directing certain movements and seeing if there is response and whether that response is normal or weak. The stronger tests should be used first; next those, when the conditions of

movement are easier, in which the weight of the member to be tested is partly eliminated by position; lastly, the lowest grades of muscular power may be detected by slinging the limb by means of a bandage. To find the faintest possible trace of power is of importance in prognosis. It must be remembered that muscles act in groups (synergically) and that the paralysis of one muscle alone is rare. In the case of babies, the voluntary activities of the child must be watched and reflex stimulation used to provoke the various movements with the child held in different positions. Such examinations are not accurate, and take much time.

In general an adequate examination under the most favorable conditions of cooperation and intelligence on the part of the patient will consume at least twenty to thirty minutes, and in the case of young children from half an hour to an hour. A quantitative test in older children by means of the spring balance method is desirable but not easily available, as its use requires two highly trained assistants.

Developmental Treatment.—Warm saline baths, which have probably been in use toward the close of the acute period, should be continued daily. The affected limbs should never be chilled but warmly protected. Outdoor air and a general physical examination are desirable, as some degree of cardiac involvement is not unknown. Attempts to prevent deformity should continue.

Recumbency and Activity.—Prolonged recumbency is not desirable on general grounds, and long continued sitting favors the formation of the commonest contractions, flexed hips, flexed knees and dropped feet. These should be carefully watched for, especially the former. A large amount of creeping is undesirable in children with good hip flexors and weak hip extensors, as it favors hip flexion deformity by the overdevelopment of the muscles used in creeping. The upright position is the normal one for human beings, and the instinctive effort to balance in this position is, I believe, desirable, by stimulating to activity various muscles not otherwise easily stirred to action. In the case of intelligent parents, when the upright position cannot be assumed otherwise, it is well at the end of two or three months to furnish simple braces, by means of which balance may be practiced and a few steps of walking allowed each day. The braces should be worn only during this time. The children of ignorant parents should not be supplied with braces as soon as this, and young children must needs be kept recumbent.

The surgeon assumes a serious responsibility who allows walking to any extent in the first year, except in cases which are too grave to warrant much hope of recovery; and even in these cases he must be very skilled in prognosis if in the first months after the attack he can forecast the future of all such cases. The avoidance of fatigue is one of the keystones of our arch.

Probably the most dangerous cases, so far as muscular recovery goes, are the cases with paralysis so slight that the patients walk with fair facility and a slight or moderate limp. It is very difficult to induce the parents to keep these children off of their feet for from three months to a year, which must often be done if complete recovery is to be tried for, and these are the cases in which such recovery may often be obtained.

Apparatus and Braces.—Apparatus and braces should be used sooner or later if in attempted standing or walking the upright position is impossible, or if in such position an abnormal attitude is assumed in ankle, knee or spine. Deltoid weakening or paralysis should be treated by a platform splint to elevate the arm at shoulder level or less effectively by a sling.

Abdominal weakening is of all the paralyses the one most frequently overlooked and one capable of doing much permanent harm. It is extremly common and, as a rule, easily treated by a supporting cloth corset.

Deformity.—Fixed deformity, if present, should be removed by stretching, tenotomy or fasciotomy, and no treatment will be of much avail until such deformity is corrected.

There are three therapeutic measures addressed directly to securing muscular improvement:

The first of these, *massage,* stimulates circulation, tends to preserve muscular tone, and promotes the removal of waste products. Properly controlled, it is of use; in excess or unskilfully given, it is dangerous and harmful.

The second, *electricty,* depends for its vogue largely on tradition. By some it is advocated, by others decried. In mild cases it is undoubtedly harmless and perhaps beneficial. On the whole, it has done great harm and caused many needless cripples, because it has been administered on a large scale and often very loosely given, while methods of treatment universally acknowledged as useful have not been used; and the parents have been lulled into a false security, thinking that adequate treatment was being pursued, while invaluable time was being lost and disabling deformities acquired.

Muscle Training.—The third of these measures, in my opinion, is the keynote of modern treatment of infantile paralysis. It is an application of physiology and anatomy to compensation for a pathologic lesion. Every muscle is connected with several nerve centers, every nerve center controls more than one muscle. The predominance of partial paralysis shows that partial rather than total destruction of nerve centers occurs in nine out of ten instances. The method advocated attempts to send an impulse from brain to muscle by establishing through such partially destroyed centers a new route which it tends to find for itself by constant repetition of attempted muscular contraction. Not only is the opening of new paths for efferent impulses highly desirable, but also the repeated contraction of each weakened muscle is of therapeutic value.

The order is given to use a certain muscle and, if necessary, the patient is aided by the surgeon in performing the prescribed movement. This is repeated several times at intervals of a few seconds but never to the point of fatigue. In the stronger muscles the movement should be performed without assistance by putting the limb in a position which gives a favorable leverage for the motion. Muscle training is harmful if inaccurately carried out, because a child inevitably tries to use the strong muscles in any movement rather than the weak, and if they are continually exercised they become stronger while the weak remain as they were and the muscular balance is made worse and deformity results. This is one reason why an accurate muscular diagnosis is so essential. More than this, a knowledge of functional anatomy is required on the part of the one who prescribes the exercise. This required knowledge is not, as a rule, possessed by the ordinary masseur or masseuse, and the formulation of

the exercises must be done by the physician or by a highly trained assistant.

The chief obstacle to the successful employment of this treatment is to make it understood that it cannot be successfully carried out without a precise knowledge and special training which is not common. The benefits of muscle training may be obtained at a late stage of the affection, in one recorded case a gain of 125 per cent. in the gluteus medius muscle having been obtained in a period of six weeks, thirty-six years after the attack.

SUMMARY

The requirements of the modern treatment of the convalescent stage of infantile paralysis as advocated in this paper may be thus summarized:

An accurate muscular diagnosis is an essential prerequisite to treatment.

No active treatment should be begun until tenderness has disappeared.

The upright position with restricted walking has certain advantages over prolonged inactivity in suitable cases. Fatigue is dangerous.

Braces are conservative and protective, and not therapeutic.

Massage, electricity and muscle training are the measures in general use to bring about improvement in the muscles. Of these, the last named rests on the best physiologic and pathologic basis, and must be carried out with great accuracy to be effective.

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AN UNUSUAL BLOOD CRISIS IN HEMOLYTIC ICTERUS

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Hemolytic icterus has been so extensively discussed recently that only the salient features of the disease will be mentioned. In 1900 Minkowski[1] first singled out chronic hemolytic icterus, and several years later Chauffard[2] discovered the characteristic increased fragility of the red blood cells in hypotonic salt solutions. The brilliant results following splenectomy in this disease, as first pointed out by Banti,[3] have given a new interest to the study of chronic jaundice.

Chronic hemolytic icterus, or chronic family jaundice, is ordinarily hereditary, passing to successive generations through either the male or the female line, and is generally familial, many children in the same family or generation being afflicted. There are other instances, such as the one cited here, in which a single isolated congenital case appears. Finally hemolytic icterus may be acquired in adult life following some acute illness.

The jaundice dates from birth, or is noticed during childhood, and remains throughout life. The nutrition and growth of these subjects is unimpaired, and there are none of the disagreeable manifestations which accompany obstructive jaundice, such as pruritus, bradycardia and melancholia. Enlargement of the spleen is almost constantly present, and when this is very marked produces discomfort mechanically. Enlargement of the liver is unusual. Besides the jaundice and splenic tumor, there is present a varying grade of anemia with normal color index. The urine and blood plasma show the presence of urobilin[4] with the absence of bile salts. The red blood cells are less resistant to hypotonic salt solutions. The feces show urobilin and are highly colored, in contradistinction to the light color in obstructive jaundice.

Clinically these subjects do not consider themselves ill, except during their "bilious attacks," when the jaundice deepens, the spleen enlarges, and the anemia increases. These attacks of acholuric jaundice, depending on critical hemolysis, occur every few months or every year or so. After headache for a number of days, nausea and vomiting, with possibly diarrhea, supervene. There is no pain in the absence of gallstones, and usually no fever. Within a week or two the patient is in his usual state of health.

We have recently seen one of these attacks of acholuric jaundice of such severity as to produce a profound and unusual blood crisis:

REPORT OF CASE

J. D. G., man, aged 25, white, married, waiter, seen, Nov. 9, 1916, with Dr. Reid Patterson, to whom we extend thanks for the privilege of reporting the case, had been having headache for three days previous to November 5, when he fainted with blindness and weakness. November 6, 7 and 8, he had had steady nausea and vomiting without pain, and without temperature above 99.6 by axilla. On the morning of November 8, somnolence set in, and when he was seen on the afternoon of November 9, this had become deep stupor. The temperature was 101 by axilla, pulse 126, respiration 30. Whitening of the mucous membrane and deepening of the jaundice had progressed steadily. The man was well nourished, with white mucous membranes and finger nails, and bright lemon colored skin and sclerae. The eyes, throat, heart, lungs, glands and reflexes were negative. The abdomen was soft, and the liver dulness normal. The spleen was four fingerbreadths below the costal margin.

The patient had been persistently jaundiced since 6 years of age; none of his relatives had been so afflicted. His past history brought out only these "bilious attacks," recurring once or twice a year, and an indefinite attack of malaria five years previously. The blood examination revealed: hemoglobin, 30 per cent. (Tallqvist), with 520,000 red cells and 19,600 white cells. The differential count revealed polymorphonuclears, 82 per cent.; small mononuclears, 14.5 per cent.; large mononuclears, 3 per cent.; eosinophils, 0.5 per cent.; no plasmodia. The red cells were of good color with little variation in size, shape or staining reactions. No blasts could be found. Platelets were plentiful. The bleeding time was diminished. The color index was 2.9.

The next day the stupor was clearing up and the temperature varied from 100 to 102. November 11, the patient was mentally clear, taking food, and desirous of returning home. The urine was negative for albumin, sugar, bile and urobilin (ether extract, alcohol method). Hemoglobin was 25 per cent. (Tallqvist). The red cells hemolyzed after standing several hours in the mixing pipet. The white count was 95,000; polymorphonuclears, 67.5 per cent.; small mononuclears, 17 per cent.; large mononuclears, 3.5 per cent.; eosinophils, 0 per cent.; neutrophilic myelocytes, 12 per cent.; eosinophilic myelocytes, 0 per cent.; no plasmodia. The individual red cells were of good color, with little variation in size and shape, but basophilic staining marked. There were 33,000 erythroblasts per cubic millimeter, one third being macroblasts. The spleen now filled the whole left upper quadrant, being 11 cm. below the costal margin.

November 12, the patient was mentally clear, took food well, and was anxious to return to work. The temperature

1. Minkowski, O.: Verhandl. d. inn. Med., 1900.
2. Chauffard, A.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1901, **18**, 444; Semaine méd., 1907, **27**, 25.
3. Banti, referred to by Elliott, C. A., and Kanavel, A. B.: Surg., Gynec. and Obst., 1915, **21**, 21.
4. Tileston, W., and Griffin, W. A.: Am. Jour. Med. Sc., 1910, **139**, 847.

was declining, the jaundice clearing somewhat. Hemoglobin was 45 per cent. (Tallqvist); red cells, 760,000; white cells, 67,000; polymorphonuclears, 87 per cent.; small mononuclears, 8 per cent.; large mononuclears and eosinophils, 0 per cent.; neutrophilic myelocytes, 5 per cent.; no plasmodia. There was considerable variation in size, shape and staining reactions of the red cells. There were 26,364 blasts per cubic millimeter. The ratio of normoblasts to macroblasts was 18:1. Clotting time was reduced one fourth.

November 13, the temperature was normal, the white count 12,000. There was no urobilinuria (Ehrlich's test).

November 14, the white count was 11,800; polymorphonuclears, 63 per cent.; small mononuclears, 32 per cent.; large mononuclears, 0 per cent.; eosinophils, 5 per cent.; myelocytes, 0 per cent.; blasts, 826 per cubic millimeter; no macroblasts. The red cells showed little variation in size and shape, and but slight polychromatophilia.

November 15, the red count was 1,200,000. Fragility tests with whole blood revealed hemolysis starting definitely at 0.72 per cent. and being complete at 0.38 per cent. salt solution in two hours. Stained smear revealed 1 per cent. myelocytes with 9 normoblasts per hundred white cells. There were no macroblasts. The hemoglobin was 35 per cent. Although weak, the patient refused to remain longer in the hospital.

December 3, the patient reported that he was a little weak in the knees yet, but felt fine. He had gained 10 pounds, and his jaundice was so slight as not to be noticeable without close examination. The hemoglobin was 70 per cent.; red count, 3,040,000; color index, 1.3; white count, 11,650; polymorphonuclears, 64 per cent.; small mononuclears, 22 per cent.; large mononuclears, 3 per cent.; eosinophils, 9 per cent.; basophils, 2 per cent.; no myelocytes, no nucleated reds; great variation in size and shape of red cells, but no basophilia.

December 9, the hemoglobin was 75 per cent., and the red count 4,000,000.

SUMMARY OF BLOOD COUNTS

Cases	Hemoglobin	Red Cells	Color Index	White Cells	Differential Count: Polymorphonuclears	Small Mononuclears	Large Mononuclears	Eosinophils	Neutrophilic Myelocytes	Myeloblasts	Erythroblasts	Normoblasts	Megaloblasts
Authors:													
Nov. 9.....	30	520,000	2.9	19,600	82	14.5	3	0.5	..	..	.....	..	..
Nov. 11.....	25	.....	..	95,000	67.5	17	3.5	..	12	..	33,000	66	33
Nov. 12.....	45	760,000	2.9	67,000	87	8	..	..	5	..	26,364	95	5
Nov. 13.....	..	.....	..	12,000	..	..	..	..	..	..	.....	..	..
Nov. 14.....	..	.....	..	11,800	63	32	..	5	..	..	826	100	..
Nov. 15.....	35	1,200,000	1.5	.....	..	..	..	..	..	..	.....	100	..
Dec. 3.....	70	3,040,000	1.3	11,650	64	22	3	9	..	..	.....	..	..
Dec. 9.....	75	4,000,000	0.9	.....	..	..	..	..	..	..	.....	..	..
Leube's.....	..	266,000	..	10,000	44	40	2	..	13	..	Present	..	70
Teeter's: 4th day.	20	1,530,000	0.7	132,800	59	19	4	..	10	..	20,000	90	10
9th day.	20	1,500,000	0.7	36,000	56	20	14	1	5	..	10,800	94	3
Luce's.....	30	1,200,000	1.2	81,000	46	4	..	..	..	49	.....	..	..
Sappington's:													
Nov. 28.....	18	1,300,000	0.8	7,800	22	66		0.8	..	12	3,356	38	62
Dec. 16.....	14	850,000	0.8	163,000	9.2	3.6		..	..	87.2	18,267	58	42
Dec. 20.....	..	1,030,000	..	298,000	4.2	7.2		..	..	88.6	29,334	40	60

LEUKANEMIA

Based on quantitative relationships of the cellular elements of the circulating blood, the blood diseases have been more or less satisfactorily divided into (*a*) the anemias, in which reduction in number and alteration in character of the red cells are characteristic, and (*b*) the leukemias, in which increase in the normal white cells and the appearance of abnormal white cells are dominant findings.

This distinction has served a useful purpose, and is *a priori* reasonable since, for the most part, pathologic agencies, bringing about alterations in the cellular elements of the blood, are either hemolytic, affecting the red cells, or productive, exerting a selective action on the primary leukoblastic tissues. From clinical reports, however, which have appeared from time to time, it is becoming increasingly evident that a combination of these two influences may exist in one and the same case, simultaneously or consecutively. The apparent result of such combined action is to be seen in cases presenting the red count of pernicious anemia and the white count of leukemia. Such findings are not unusual as a terminal event in both pernicious anemia and the leukemias. The difficulty of classifying cases with such a combined blood picture led von Leube to suggest the term "leukanemia." He reported this combined picture in a boy of 10 who suffered apparently from a combination of myelogenous leukemia and pernicious anemia, running a very acute course of about three weeks, with clinical symptoms of an acute infectious disease with hemorrhages (Teeter).[5] The blood showed a red count of 266,000, with 10,000 leukocytes; polymorphonuclears, 44 per cent.; lymphocytes, 40 per cent.; neutrophilic myelocytes, 13 per cent.; large mononuclears, 2 per cent., and many nucleated reds, 70 per cent. of which were megaloblasts. At necropsy the bone marrow was found hyperplastic and red, with myeloid changes in spleen and liver.

Teeter[5] reports a case similar to ours:

A girl, aged 6 years, was taken suddenly ill with malaise, nausea, headache and fever. The second day there was vomiting and fever, no chill, no pain, but great restlessness. The third day she passed a pint of bloody urine and became very anemic and slightly jaundiced. On the fourth day there was a pericardial friction sound, enlargement of liver and spleen, delirium, no vomiting, and neither blood nor bile in the urine. The blood showed hemoglobin, 20 per cent.; red cells, 1,530,000; white cells, 132,000, with 20,000 nucleated red cells per cubic millimeter, 10 per cent. of which were megaloblasts; polymorphonuclears, 58.75 per cent.; small and large lymphocytes, 19.5 per cent.; unclassified, 6 per cent.; mononuclears and transitionals, 4.25 per cent.; basophils, 0.5 per cent.; myelocytes, 10.75 per cent., and Tuerck's cells, 0.25 per cent. By the ninth day the temperature had become nearly normal and the child was much better, the blood showing hemoglobin, 20 per cent.; red cells, 1,500,000; white cells, 36,000, with 5 per cent. myelocytes and 10,000 nucleated red cells, of which 3 per cent. were megaloblasts. Within two weeks the patient was rapidly approaching normal again.

The term "leukanemia" has also been applied to conditions in which the combined blood picture of pernicious anemia and lymphatic leukemia was present.

Luce's case showed a blood picture of hemoglobin, 30 per cent.; red cells, 1,200,000; white cells up to 81,000, with polymorphonuclears, 46 per cent.; large lymphocytes and nongranular myelocytes, 49 per cent., and small lymphocytes, 4 per cent. (Teeter).

5. Teeter, C. E.: Recovery from Leukanemia, THE JOURNAL A. M. A., Feb. 16, 1907, p. 608.

Sappington[6] reports the case of a man, aged 46, who after anemia for six months entered the hospital with hemoglobin, 18 per cent.; red cells, 1,130,000; white cells, 7,800. The differential count revealed: polymorphonuclears, 22 per cent.; lymphocytes, 66 per cent.; eosinophils, 2 per cent.; myeloblasts, 11.8 per cent. There were 3,356 erythroblasts, of which 62 per cent. were megaloblasts. The temperature ranged from 99 to 101. Death occurred three weeks later, with red cells, 1,030,000; white cells, 298,000; myeloblasts, 88 per cent.; nucleated red cells, 29,334; megaloblasts, 60 per cent. The diagnosis was acute myeloblastic leukemia.

It is interesting to find in hemolytic blood disease, such as the case here reported, this combined blood picture of pernicious anemia and myeloid leukemia occurring as a so-called "blood crisis." Although transitory, the picture of "leukanemia" was perfect in every detail.

As the usual paroxysm of hemolysis in these chronic jaundice cases is either a good deal less rapid or less intense, the unusual blood crisis seems to have been dependent on the rapidity of the hemolysis or on the extent to which the red cells were destroyed.

6. Sappington, S. W.: Am. Jour. Med. Sc., 1916, **152**, 238-243.

THE NUTRITIONAL VALUE OF THE BANANA *

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That fruits are entering the dietary of man in this country more largely than ever before has been pointed out editorially in THE JOURNAL.[1] This is of particular interest in view of the increasing importance that is being attached to the rather intangible "accessory food substances" in which fruits are supposed to be especially rich. It was with these facts in mind that a study of the ripening, composition and digestibility of the banana was undertaken. Fruits are frequently looked on primarily from the standpoint of the accessory substances they contain; but it is well to bear in mind in the case of the banana that its caloric value is very high, in fact higher than that of any other common fruit in its natural state. Furthermore, bananas may be readily obtained at any time of the year, and at a cost per calory about half that of other fruits. The condition in which fruits are sold in many of our great cities is certainly far from sanitary, but the peel of the banana affords it almost complete protection in this respect. The banana has been called "the poor man's fruit," and the facts mentioned above would appear to justify this appellation.

Our nutritional studies on the banana indicate that, when thoroughly ripe, it is one of our most valuable fruits; but there are many other reasons why this subject commands interest from a physician's point of view. Our experience indicates, for example, that bananas may be used to advantage in the dietaries of nephritic patients showing nitrogen retention, for the reason that ripe bananas contain small amounts of protein and large amounts of readily assimilable carbohydrates (glucose, fructose and sucrose). The fact that the banana yields these different sugars is of considerable interest for, as Higgins[2] has pointed out, levulose and sucrose appear to be burned more promptly when taken on an empty stomach than glucose, suggesting that they play a slightly different rôle in metabolism.

Raw fruits can be consumed to advantage only when they are thoroughly ripe, and the banana is certainly no exception to this rule. Perhaps the worst criticism that can be made with regard to bananas is that they are frequently sold and eaten when they are not thoroughly ripe. This is in part due to a popular misconception that bananas should not be eaten after the appearance of brownish tints on the peel. The yellow color of the skin is not in itself sufficient evidence of ripeness; in fact, under certain climatic conditions the fruit may be entirely yellow and still be so underripe that its consumption in large amounts would be followed by discomfort. When the yellow of the peel takes on a golden hue and begins to speckle with brown

TABIE 1.—CHANGES IN THE COMPOSITION OF THE BANANA DURING RIPENING *

Days off Boat	Relation of Peel to Pulp	Appearance of Peel	Reducing Sugar in Terms of Glucose	Sucrose in Terms of Glucose	Total Sugar in Terms of Glucose	Starch in Terms of Glucose
2	40	Very green	0.55	1.20	1.75	
4	38.5	Greenish yellow with pea green tip and edges, bitter flavor	1.17	4.60	5.77	15.62
6	35.5	Yellow except extreme edges and tip, beginning of golden yellow, bitter flavor almost gone	2.88	12.52	15.40	7.53
8	31.5	All yellow except extreme of tip, greenish cast to edges	4.09	11.91	16.00	5.02
12	26.1	Golden yellow, greenish cast on edges, occasional brown specks, no herbaceous flavor	5.35	11.72	17.07	
14	25.7	Full golden yellow with brown specks, strong amyl acetate flavor	6.88	11.72	18.60	3.02
15	25.5	Patches of light brown shades	7.08	11.10	18.78	0.71
16	20.6	Largely light brown (incubated 24 hours)	9.09	7.91	17.00	0.60

* The rate of the several ripening processes appears to differ somewhat with the season. The present analyses were made during the winter months. Other analyses show that ripening proceeds more rapidly and more completely during the summer. For further details the reader is referred to Gore, H. C.: Jour. Agric. Research, 1914, **3**, 187.

TABLE 2.—COMPARATIVE COMPOSITION OF SOME COMMON FRUITS *

Fruit	Protein, per Cent.	Fat, per Cent.	Carbohydrate, per Cent.	Calories per Pound	100 Calory Portion, Gm.
Bananas	1.3	0.6	22.0	447	101
Grapes	1.3	1.6	19.2	437	104
Plums	1.0	...	20.1	383	118
Cherries	1.0	0.8	16.7	354	128
Pears	0.6	0.5	14.1	288	158
Apples	0.4	0.5	14.2	285	159
Oranges	0.8	0.2	11.6	233	195
Peaches	0.7	0.1	10.8	213	213
Lemons	1.0	0.7	8.5	201	226
Muskmelons	0.6	...	9.3	180	252
Strawberries	1.0	0.6	7.4	169	269
Watermelons	0.4	0.2	6.7	136	332
Potatoes	2.2	0.1	18.4	378	120
Sweet potatoes	1.8	0.7	27.4	558	81

* Taken from data compiled by Sherman, H. C.: Chemistry of Food and Nutrition, New York, 1912, p. 319; from Bull. 28, Office of Exper. Stations, U. S. Dept. Agriculture.

* From the Laboratory of Pathological Chemistry, Department of Laboratories, New York Post-Graduate Medical School and Hospital.

1. The Ripening of Apples, editorial, THE JOURNAL A. M. A., Feb. 26, 1916, p. 657.

2. Higgins, H. L.: Am. Jour. Physiol., 1916, **41**, 258; The Rapidity with Which Sugars Become Available for Metabolism, editorial, THE JOURNAL A. M. A., Oct. 28, 1916, p. 1306.

shades, it may safely be considered fully ripe. The spread of the brown coloration does not condemn the fruit as overripe so long as the pulp inside shows no signs of fermentative decomposition.

Somewhat more definite information on this point may be obtained from Table 1, showing the composition of the banana at various stages of ripeness. It will be noted that with the progressive increase in the sugar content of the banana, water is gradually absorbed from the peel, and that the percentage of the peel is therefore an excellent index as to its ripeness.

TABLE 3.—ASH CONSTITUENTS OF SOME COMMON FRUITS *

Fruit	Ash Constituents of Fruits in Percentage of the Edible Portion							
	CaO	MgO	K_2O	Na_2O	P_2O_5	Cl	S	Fe
Bananas.....	0.01	0.04	0.50	0.02	0.055	0.20	0.013	0.0006
Grapes.....	0.024	0.014	0.25	0.03	0.12	0.01	0.024	0.0013
Plums.....	0.025	0.02	0.25	0.03	0.055	0.01	.....	0.0005
Cherries.....	0.03	0.027	0.26	0.03	0.07	0.01	.....	0.0005
Pears.....	0.021	0.019	0.16	0.03	0.06	.....	.....	0.0003
Apples.....	0.014	0.014	0.15	0.02	0.03	0.004	0.005	0.0003
Oranges.....	0.06	0.02	0.22	0.01	0.05	0.01	0.013	0.0003
Peaches.....	0.01	0.02	0.25	0.02	0.047	0.01	0.01	0.0003
Lemons.....	0.05	0.01	0.21	0.01	0.02	0.01	0.012	0.0006
Muskmelons...	0.024	0.02	0.283	0.082	0.035	0.041	0.014	0.0003
Strawberries...	0.05	0.03	0.18	0.07	0.064	0.01	.....	0.0009
Watermelons..	0.02	0.02	0.09	0.01	0.02	0.01		
Potatoes.....	0.016	0.036	0.53	0.025	0.14	0.03	0.03	0.0013
Sweet potatoes	0.025	0.02	0.47	0.06	0.09	0.12	.....	0.0005

* Sherman, H. C.: Chemistry of Food and Nutrition, p. 332.

From an inspection of Table 2 it is apparent that bananas are decidedly superior to most of the other common fruits from the standpoint of their caloric value, and not inferior in other respects except possibly in mineral constituents (Table 3). In fact, as regards caloric content the banana is directly comparable with the potato and sweet potato.

The only criticism that can be made regarding the composition of the banana has to do with its salt content. Relative to the calcium the content of magnesium is high. High figures are also found for potassium and chlorin. It will be noted, however, that this relationship is similar to that found in the potato, except that here the magnesium and potassium are combined with phosphorus rather than with chlorin. The high chlorin content would be a possible objection to the use of bananas in quantity in cases of nephritis with edema, but it is generally just this type of case in which the nitrogen retention is low, and there is no great necessity for a restriction in the protein intake. It is of interest that both the banana and the potato yield an alkaline ash and are therefore antagonistic to the development of an acidosis.

As will be noted in Table 4, the utilization of the carbohydrates of the ripe raw banana is excellent—about as good as that of the cooked foods employed in the controls. On account of the lower fat content of the diet on the banana days, more carbohydrate was used to obtain a similar caloric intake. An idea of the type of diets employed may be obtained from Diet 2, given in Table 5. Both the control and the banana diets were given for three days or more.

For the various carbohydrate estimations, both in the banana and in the feces, the simple colorimetric

TABLE 4.—UTILIZATION OF THE CARBOHYDRATE OF THE BANANA

Subject	Age	Sex*	Clinical Diagnosis	Period	Carbohydrate Intake, Gm.	Carbohydrate in Feces, in Terms of Glucose		Apparent Carbohydrate Utilization, per Cent.	Remarks
						Per Cent.	Gm.		
1. A. R.	..	♂	Normal.....	Control.....	266	1.6	1.2	99.6	
				Banana.....	334	4.1	4.2	98.8	
2. F. C.	7	♂	Physiologically normal	Control.....	210	1.8	4.1	98.1	
				Banana.....	320	2.8	5.6	98.3	
				Control.....	210	1.5	2.6	98.8	
3. A. R.	7	♀	Rheumatism with valvular lesion	Control.....	210	1.4	3.1	98.5	
				Banana.....	320	2.8	8.6	97.3	
				Control.....	210	1.2	3.2	98.7	
				Banana.....	320	2.8	7.0	96.8	
4. S. T.	37	♂	Duodenal ulcer.....	Control.....	185	1.0	0.4	99.8	Carbohydrate utilization practically the same during banana periods as during control periods
				Banana.....	261	1.3	0.5	99.8	
5. M. R.	47	♂	Nephritis.....	Control.....	154	1.2	2.6	98.3	
				Banana.....	180	0.8	2.9	98.4	
				Banana.....	180	2.4	3.0	98.4	
6. C. C.	30	♂	Tuberculosis.....	Control,.....	185	0.5	1.2	99.3	Note the improvement in the utilization of the banana as the fruit became more ripe; better than controls in Period 4
				Banana.....	261	1.9	5.6	97.9	
				Banana.....	261	1.1	2.3	99.1	
				Banana.....	261	2.9	0.9	99.7	
				Control.....	185	0.5	1.9	99.0	
7. R. V.	60	♂	Cardionephritis.....	Control.....	154	0.8	0.6	99.6	
				Banana.....	180	1.6	1.3	99.4	
8. J. O.	43	♂	Cardionephritis.....	Control.....	316	0.5	1.1	99.6	
				Banana.....	165	0.9	1.4	99.3	
				Control.....	154	1.4	5.4	98.3	
				Control.....	154	0.9	6.6	95.7	The poorer utilization of the carbohydrate in Control Period 4 and Banana Period 5 was due to diarrhea
				Banana.....	180	2.4	8.2	95.8	
				Banana.....	180	1.6	3.5	98.2	
9. K. F.	54	♀	Acute rheumatism....	Control.....	154	1.9	0.8	99.5	Patient constipated, particularly so during control period
				Banana.....	180	2.3	2.9	98.6	
10. H. M.	54	♂	Cardionephritis.....	Control.....	185	...	1.8	99.0	
				Banana					
				Yellow.....	261	...	13.5	95.0	
				Golden.....	261	...	7.8	97.0	
11. G. S.	49	♂	Nephritis.....	Control.....	185	2.3	3.7	98.0	Note poor utilization with partially ripe fruit
				Banana					
				Golden.....	261	2.3	2.4	99.2	
				Yellow.....	261	6.6	12.6	95.7	

* In this column ♂ denotes male and ♀ female.

method employed by Lewis and Benedict[3] for blood sugar was utilized in somewhat modified form. A description of the technic used in this connection will be given elsewhere.

It is a well known fact that raw starch is poorly utilized, and it seems evident from the data in Table 4 that banana starch is no exception to this rule, since with thoroughly ripe fruit much less starch is present in the stools, microscopically as well as chemically. That considerable starch may be excreted in the feces when the bananas are not fully ripe is evident from the data on Subjects 10 and 11. It may be noted that the bananas sold in the market are frequently less ripe than the fruit employed in these two experiments. When bananas are fully ripe, however, the utilization of the carbohydrate is excellent.

One subject consented to take unripe bananas, but at the end of the second day suffered considerable discomfort and discontinued the experiment, unfortunately without saving the stools for analysis. In

TABLE 5.—DIET 2

Control Diet 2	Grams or C.c.	Calories	Starch, Gm.	Protein, Gm.
Morning:				
Cooked cereal	150	93	19.2	2.75
Bread	30			
Milk	300			
Noon:				
Cream soup	200	199	15.7	6.20
Baked potato	200	225	51.2	5.44
Bread	30			
Cocoa (½ water and ½ milk)	200	125	....	3.30
Evening:				
Steamed rice	100	87	19.1	1.84
Bread	30			
Milk (½ 18.5 per cent. cream)	300			
Corn starch blanc mange	150	199	33.6	4.34
	928	138.8	23.87	
For the day in bread	233	47.4	8.27	
milk	593	.....	18.8	
butter and sugar	210			
	1,964	186.2	51.0	
Banana Diet 2				
Soup, bread, butter and sugar as above. 200 c.c. milk for the morning and 300 c.c. for the evening, and 300 gm. of mashed ripe bananas with each meal				
Parts as above	987	63.1	31.1	
Bananas, 900 gm.	979	198.0*	13.5	
	1,966	261.1	44.6	

* Total carbohydrate.

none of the experiments here tabulated, however, with the possible exception of Case 3, were any discomfort or ill effects noted from the banana diet, and the same might be said of a larger number of experiments not reported. On the last day in Case 3 there was a distaste for the bananas, and they were consumed only after urging. Subject 1 lived on a bread and milk diet for one week and on bananas and milk for a similar period. The subjective sensations experienced were much more favorable to the banana and milk than to the bread and milk diet.

SUMMARY

Bananas have a higher caloric value than any of our other common fruits. Unlike most other fruits, they are always in season.

When fully ripe, that is, when the starch has been almost completely changed to sugar, the experiments here reported show that the carbohydrates of the banana are well absorbed from the intestine. As sold in the market, however, bananas are frequently not sufficiently ripe to be consumed to advantage immediately; and it would seem that gastro-intestinal disturbances when attributed to the banana were referable to this cause. It may be said in general regarding our own experiments that no ill effects, discomfort or distaste were noted even after the consumption of large quantities of the ripe fruit for several days.

Much larger quantities of sugar (glucose, sucrose, levulose) may be given in the form of banana than as pure sugar (sucrose, glucose) without producing gastro-intestinal disturbances.

The composition of the banana and the potato shows an interesting similarity both as regards total carbohydrate and the amounts of the different mineral constituents. While the banana can hardly be regarded as a potato substitute, the fact that it has practically the same caloric value as the potato is worthy of note.

Of even greater importance is the fact that bananas may be eaten uncooked. This is of interest in view of the increasing significance that is being attached to the thermolabile "accessory food substances."

The banana would appear to be a particularly valuable food to employ in the dietetic treatment of nephritic patients with nitrogen retention. Very satisfactory results have been obtained in the rather mild cases of nephritis here reported. So long as the patients exhibit no distaste for the fruit, there would seem to be no reason why bananas should not be employed in considerable quantity. We hope to report in the near future results obtained with this form of diet in cases of advanced nephritis.

3. Lewis, R. C., and Benedict, S. R.: Jour. Biol. Chem., 1915, **20**, 61. Myers, V. C., and Bailey, C. V.: Ibid., 1916, **24**, 147.

MODE OF ABSORPTION OF MERCURY IN THE INUNCTION TREATMENT OF SYPHILIS

PRELIMINARY REPORT *

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The question as to the efficiency of inunctions and just how they exert their effect is an old one. There are those who believe that mercury in an appreciable quantity is rubbed into and through the skin, and thus produces its therapeutic effect, and those who teach that the therapeutic value lies chiefly, if not solely, in its volatilization and in its inhalation through the respiratory system. A third conception accepts both absorption and inhalation as occurring. In the light of investigation this is the most probable view.

Let us consider the facts which bear directly on these opposing views. Those who oppose the idea that mercury can be pushed through the unbroken skin contend that:

The skin is an impervious membrane covered by an impervious protective waxy substance.

It is essentially an excretory organ, and the physical forces operating within it, namely, the excretion of the sweat and sebum, would be against the absorption of any foreign substance.

* President's address, read before the Chicago Dermatological Society, Jan. 16, 1917.

The intercellular epithelial bridges and the basement membrane furnish in the unbroken skin an impassable barrier to the absorption of a heavy metal, even so finely divided as is mercury in the form of a salve.

It is impossible to say after a thorough inunction that the skin has not been traumatized so that it is histologically unbroken.

Absorption, if it occurs through the skin, does so through breaks in its continuity.

The advocates of the volatilization theory point further to the facts that:

Mercury, having a high vapor pressure, is easily volatilized.

For this reason it is spread over a warm surface and over a large surface so that it may be more easily vaporized.

The form of mercury which is used, the mercurial ointment (unguentum hydrargyri), is that form which is most volatile.

Occasionally those who are in the same rooms in which inunctions are given have been known to be mercurialized to the point of salivation.

Those who believe in the absorption of mercury through the skin advance in favor of this view that:

Other substances, such as lithium, sodium borate and iodin, after application on the skin, have been found in the urine.

The cells of the epidermis do not form a barrier to the absorption of mercury.

The basement membrane is not a homogeneous structure.

Following inunction, mercury has been found in the sebaceous glands and in the ducts of the sweat coils, from which absorption into the lymphatics would easily be possible.

The results of experiments with other substances applied to the surface of the skin, in which such substances have been found in the urine and feces, are not conclusive evidence of the absorption through the unbroken skin. In this connection it may be mentioned that whereas such substances as sodium borate and lithium have been found in the urine by certain investigators, others of equal ability have failed to find them. The immersion of the hand or foot in a fluid substance containing a chemical, and the detection thereafter of the chemical substance in the urine is not conclusive evidence that this substance has passed through an unbroken epidermis. The feet and hands are practically invariably traumatized. The slightest break in the skin in the form of a fissure or a cut, however small, leads to a degree of absorption far greater than would be possible through the unbroken skin if this membrane could really absorb.

No one will deny that mercury, a drug with a high vapor pressure, can be and probably is to a certain extent absorbed and active therapeutically by inhalation. In this connection one has merely to recall that the oldest treatment, antedating even the inunction, is the volatilization or inhalation of mercury vapor, so extensively practiced in the latter part of the fifteenth century with the outbreak of epidemic syphilis in Europe.

Much of the previous experimental work is open to two criticisms: Those who have attempted to prove the volatilization theory have confined their efforts to the most volatile of the mercurial compounds, and in the experiments tending to prove the absorption of foreign substances through the skin, the skin may not have been unbroken. It seemed an opportune time, therefore, to attempt to settle this question if possible along new lines of experimentation. We have attacked the problem with entirely open minds, and have sought scientific data which might bear on its solution.

Before submitting the results of our investigations, mention must be made of the exhaustive and excellent work of Welander. This work, more than any other, forms the basis for the view that the therapeutic effect of mercurial inunction is dependent on volatilization. The observations of Welander are so important that we present them somewhat in detail. His investigation extended over several years and included the study of several thousand patients. For the most part he accepted the elimination of mercury in the urine as the index of absorption. In only a few cases did he investigate the blood and feces. He found that the nature of the fatty vehicle did not materially affect the degree of absorption. He found that a salve in which one part of mercury was combined with two parts of fat was best adapted for the purposes of inunction. Welander established that, even with prolonged rubbing, only from 2 to 3 gm. of mercurial ointment could be rubbed into any given site of the usual size selected for inunction. He found that a greater degree of absorption occurred when a certain amount of free ointment was left on the anointed surface; that as great a degree of absorption occurred when the ointment was merely smeared on the skin instead of being rubbed into it, and that if the excess of mercury on an anointed surface was wiped off with soap and water, the degree of absorption was less than if the excess mercury was allowed to remain. In several cases in which mercury had never been taken in any form, Welander found mercury in the urine, and in one case a mercurial stomatitis after such a patient had lived in an ill ventilated room with others taking the inunction cure. He found mercury constantly in the urine of those giving inunctions to others, even when the inunctions were given with the hand covered by a glove. By spreading mercurial salve on a waxed paper and on gutta percha tissue, and by placing such prepared plasters on the skin surface, Welander detected mercury in the urine when no mercury came into contact with the skin.

On the basis of his experiments, Welander believes that the largest part of mercury which is smeared on the skin is absorbed as the result of its volatilization, and this fact led him to advocate smearing the skin with mercury rather than anointing it, as is customarily done. He concludes: Mercury is absorbed through the skin to a certain extent. By smearing the skin with mercury, volatilization occurs which gives rise to a very marked degree of absorption. A comparison of the simple inunction and the simple smearing on of the ointment shows a constantly greater degree of absorption in the latter. The dosage of mercury applied to the skin should be much larger than could possibly be pushed through, to allow for the absorption through inhalation.

In analyzing Welander's work, it is to be noted that his experiments were done solely with pure mercury in the form of an ointment, in which the drug is most volatile. It occurred to us that if we could attempt a series of experiments along the lines of those of Welander, but using salts of mercury of a lower vapor pressure, that is, those which are relatively nonvolatile, we might thus have a more adequate proof of the absorption of mercury through the skin. For example, if we could find mercury in the urine of a patient who was anointed with mercuric salicylate, it would be presumptive proof that mercury was absorbed through the skin rather than by volatilization, as this salt does not break up into metallic mercury except when dissociated by a great degree of heat. The same, then, might be done with the mercuric oxids, which are relatively stable, the oleate of mercury, the sulphate and the

nitrate, all of which release metallic mercury only when decomposed by heat. We have done our experiments with some of these salts of mercury, using as a guide to their absorption the elimination of mercury in the urine. At first we believed that the blood would offer us a more satisfying and conclusive medium in which to detect mercury. For some time we tested out the mercurial content of blood in from 10 to 20 c.c. by decomposing the blood after the method of Willard and Laws. Later we abandoned this in favor of the urine in view of the greater ease with which mercury is detected in the urine.

METHODS

Many tests have been advocated for the detection of mercury in the urine, chiefly as a means of detecting the drug in cases of poisoning. Before embarking on the actual experimentation we investigated several of these methods with a view to ascertaining that one which at one time commended itself for simplicity and for delicacy of result. The principle embodied in most of the methods which we employed consisted in the deposition of mercury on copper. This is the basis of the Reinsch test, of the test advocated in 1912 by Vogel and Lee, and of numerous other qualitative tests for the detection of the drug. After considerable experimentation we finally resorted to three main methods. The first consisted in the simple addition of concentrated hydrochloric acid to the cold urine. In this mixture pieces of copper wire are allowed to remain about twelve hours, after which they are tested for mercury by heating the copper wire in a capillary tube and driving off the mercury on a bit of gold leaf, in which process the mercury is deposited on the gold leaf, forming an amalgam. The second process with which we experimented consisted in a concentration of the urine with the idea of making the test more sensitive, and at the same time adding sulphuric and nitric acid with the idea of destroying whatever organic matter might be present. We soon found that in the process of concentration by heat, a definite amount of mercury was lost, and we further found that the organic material in the urine in no way interfered with the detection of mercury, and it was not necessary, therefore, to destroy it. Lastly, we employed the method of Vogel and Lee, which embodies the concentration of the urine and the breaking up of organic matter by the addition of hydrochloric acid and potassium chlorate. This we found to be less sensitive, as was shown by our failure to detect a small amount of mercury in a known specimen by this method, and our ability to detect the same quantity by the simple method of adding hydrochloric acid to the cold unconcentrated urine.

After having determined, therefore, that the cold method, or the modification of the Reinsch test, which method will be described more in detail in a subsequent publication by Dr. Elliott, was the method of choice as embodying both simplicity and delicacy, we next sought to ascertain how small a quantity of mercury could be determined in solution by this method. For this experiment we added to normal urine known quantities of mercuric chlorid, and found that we could determine mercury as shown by the amalgamation from copper wire on gold in as small a quantity as 0.025 mg. per 300 c.c.[1]

Having determined, then, the sensitiveness of our test, we next began our experiments on the urine of patients who were receiving mercurial inunctions. The point to be determined was how soon after mercurial inunctions were given could mercury be found in the urine; in other words, to determine the rapidity of absorption. In a series of controlled experiments we found that with mercurial ointment, such as is customarily used in the inunction cure, mercury could be determined with a strongly positive test between twelve and twenty-four hours following the inunction.

As this point had been established, our next experiment concerned the detection of mercury in patients who were rubbed with mercurial salts other than the mercurial ointment. Our experiments in this connection were done with oleate of mercury, with red mercuric oxid, with yellow mercuric oxid and with mercuric salicylate. We had these preparations made in exactly the same strength, with the same vehicle which is used in the preparation of the official mercurial ointment.

The mercurial content should be considered in estimating the rapidity of absorption and the amount of mercury absorbed. The mercuric salicylate which we used contained 60 per cent., the red mercuric oxid 92 per cent., the yellow mercuric oxid 92 per cent., and the oleate 23 per cent. of metallic mercury. It is thus seen that the mercurial ointment contains a larger amount of metallic mercury than is found in the other salts.

RESULTS OF INUNCTIONS

1. *Mercuric Salicylate.* — Two patients who had never taken mercury before, and whose urine had first been tested for mercury, were anointed in the usual way with daily inunctions of 4 gm. of 50 per cent. ointment of mercuric salicylate. In both of these, mercury could be determined in the urine seventy-two hours following the inunction. The test was never as strongly positive as was found with the other salts of mercury. In other words, mercuric salicylate seems to be less easily absorbed, the elimination being used as an index, than the other salts which we investigated. This is interesting in connection with Dr. Schamberg's work on the absorption of mercuric salicylate from injections, in which he found that the salicylate was very slowly absorbed.

2. *The Mercuric Oxids.* — Two patients were anointed in the usual way with daily inunctions of 3 gm. of yellow mercuric oxid and red mercuric oxid in the form of 50 per cent. ointment. In the case of the yellow oxid a trace of mercury was found forty-eight hours after the first inunction and definitely seventy-two hours after. Mercury was found in the urine following inunction of the red oxid definitely in forty-eight hours. This experiment would seem to indicate a more rapid absorption of the red oxid over the yellow. Due allowance for such differences must be made in considering the individual cutaneous texture and the thoroughness with which the inunction was applied in each case.

3. *The Oleate of Mercury.* — Two patients were anointed in the usual way with daily inunctions of 4 gm. of a 50 per cent. ointment of the oleate of mercury. It required a lapse of seventy-two hours following the first inunction in both cases before mercury could be detected in the urine. It would seem, therefore, that the oleate of mercury has about the same rapidity of absorption as mercuric salicylate, and is not so rapidly absorbed as either the yellow oxid or the red oxid or the ordinary mercurial ointment.

1. By substituting copper dust for copper wire we made our test far more sensitive.

From these preliminary experiments we may conclude that following the inunction with relatively nonvolatile salts, such as were used herein, it was possible to detect mercury in the urine. It now remained to show that these salts were not volatilized at the ordinary body temperature and that their absorption occurred exclusively through the skin. For this experiment we placed the salves in pasteboard boxes which were tightly covered. On the under surfaces of the covers, but not coming into contact with the ointment, we fastened small pieces of copper wire. These boxes were then placed in a thermostat at 35 C. (95 F.) and left there for two days. In this way we tested out the volatilization of mercury outside of the body, but at approximately body temperature, of mercurial ointment, of ammoniated mercury, of the red and yellow oxids, of the oleate and of calomel. At the end of forty-eight hours the copper wire was placed in glass tubes, a small particle of gold leaf was placed at about 2 cm. distance, and the copper wire then heated as described before. Positive tests were found with the mercurial ointment and with the calomel and with the ammoniate. Negative tests were found with all the remainder.

From this experiment it may be concluded that of those salts tried, only those of the highest vapor pressure, namely, calomel, mercurial ointment and ammoniated mercury, are appreciably volatile at body temperature. This experiment may be regarded as presumptive evidence that the mercury detected in the urine following inunction with the nonvolatile salts, namely, the oxids, the oleate and the salicylate, was absorbed through the skin and not appreciably by volatilization.

If, therefore, mercurial salts are so easily absorbed through the skin, has the usual mercurial ointment, which has all the disadvantages of uncleanliness, any advantage over the cleaner nonvolatile compounds? In other words, is mercury appreciably absorbed by inhalation or diffusion through volatilization as carried out in the ordinary mercurial inunction?

To determine this we smeared the ordinary mercurial ointment and a 40 per cent. calomel ointment, respectively, on waxed paper. This was next covered with two or three layers of gauze, and the plaster thus made was then placed wax paper down on the chest of two patients, care being taken that no salve came into contact with the patient's body. In these experiments mercury was determined definitely in the urine in the case of calomel after ninety-six hours, although the application was made only during the night. In the case of the mercurial ointment, mercury was found in the urine after forty-eight hours. In our first experiment in which we used the mercurial ointment, we found the mercury within twelve hours after the application. In this case, however, it was found that the patient had had an injection of mercury six weeks previously. This was a very positive test, and throws an interesting light on the slow degree of absorption and elimination which takes place following injections. Our subsequent experiments were carefully controlled by first testing the urine before the experiment was done.

We next elaborated the volatilization experiment by placing near a bed patient a warm chamber in which mercurial ointment was kept at a temperature of about 35 C., the apparatus being constructed in such a way that the patient's face was close to the source of heat. As a further corollary to this experiment, small pieces of gold leaf were placed on colored glasses which the patient wore. Additional gold leaf was placed at distant points in the room in order to ascertain whether the mercury was diffused in the room in a sufficient quantity to amalgamate. In this experiment mercury was determined in the patient's urine within twenty-four hours after the experiment had begun. The gold leaf at distant points in the room was not amalgamated. In this connection, however, we found that when exposed to the air the mercury soon disassociated itself from the gold, and it may well be possible that the free mercury vapor in the room volatilized from the gold leaf about as fast as it could amalgamate.

A second experiment bearing on the absorption of mercury through volatilization in a large room was made possible by examining the urine of a nurse who had been giving inunctions to patients over several weeks. These inunctions had been given in large, well ventilated rooms with the gloved hand. We were able in this case to detect mercury in the urine; even though no inunctions had been given by the nurse for nine days previous to the test. Successful experiments of this nature are also reported by Welander.

From the last experiments it may justly be concluded that in the case of both calomel and mercurial ointment, mercury is volatilized at body heat to such a degree that an appreciable absorption and elimination takes place in the urine. As a corollary to this it may further be concluded that the absorption of mercurial ointment and calomel following inunction is necessarily greater than can occur with the less volatile salts. The therapeutic effect of these two may thus be regarded as greater in view of the greater degree of absorption. In this connection we should like to state that it was Dr. Schamberg who more than a year ago, in conversation, suggested the obvious advantage of calomel over the more offensive mercurial ointment as a possible substitute for it.

In connection with that portion of the mercury which is volatilized, the question now arises as to just how this is absorbed. Two possibilities must be considered. In the first place, a certain amount, at least, must be inhaled through the lungs and absorbed in this way. Regarding the skin surface as an animal membrane, it seems not unlikely that a certain portion, at least, however small, may combine with the surface moisture of the skin to form a chlorid and be absorbed through the skin in this way. Unfortunately there are as yet no experiments which bear immediately on this question as regards mercury itself, although the diffusion of heavy metals through animal membrane is the subject of well known experiments.

CONCLUSIONS

1. The mode of absorption of mercury in the inunction cure is both by volatilization and by direct absorption through the skin.

2. Nonvolatile salts of mercury are absorbed through the skin, but their elimination and their absorption are far slower than is the absorption of those salts having a high vapor pressure.

3. The more rapid appearance of mercury in the urine in the case of the volatile salts is probably due to the combined action of volatilization and inhalation through the lungs and absorption through the skin.

4. In the order of rapidity of absorption, mercurial ointment ranks over calomel, although the latter is appreciably absorbed through volatilization.

5. As the therapeutic effect of mercury is probably in proportion to the rapidity and degree of absorption,

there can be no question that the volatile salts should not be superseded in the inunction cure by the non-volatile salts, even though the latter have the advantage of cleanliness.

6. As calomel is obviously a cleaner preparation, and further, as it is absorbed both by volatilization and directly through the skin, further study should be undertaken to determine whether its therapeutic effect may not justify its substitution for mercurial ointment.

REMOVAL OF URETERAL CALCULUS BY CYSTOSCOPIC METHOD

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Miss E. E., aged 22, fairly well nourished, referred to me, Oct. 7, 1916, by Dr. P. C. Rietz of Evansville, Ind., had had colicky pains on the right side for about two years. Roentgenoscopy eighteen months before, while she was under the care of another physician, had revealed a shadow in the ureter about 5 cm. above the bladder. At the time of my examination, the Roentgen ray revealed a shadow in the same position. The urine contained a few pus and blood cells, and oxalate crystals. There was a decided tenderness in the right iliac region, and a dull pain was almost always present. Cystoscopic examination revealed a normal bladder but very small ureter orifices. A No. 5 catheter was with much difficulty introduced into the right ureter about 4 cm., when it encountered an obstruction which could not be passed.

We decided that the stone must be removed, and having recently seen Dr. Bransford Lewis do some of his ureter work, we determined to try this method before resorting to the open operation.

The Lewis operating cystoscope was introduced and the meatus slit for the distance of 0.75 cm. with the scissors. This was followed by the introduction of catheters, increasing in size, until a Garceau catheter seemed to dislodge the stone and was then passed as far up as was desired. The ureter dilator then entered without trouble and the ureter was dilated to the size of the shadow of the stone. This, of course, was done gently and gradually, the ureter being dilated four times at intervals of one week.

About two weeks after the last dilatation the patient had a slight colic, and the stone passed into the bladder. Since that time the patient has been without any symptoms.

The anaesthetic used was morphin, one-fourth grain, with atropin half an hour before cystoscopy and alypin, 4 per cent., injected into both the urethra and the ureter.

I should like to bring out a few points about this method in reply to some objections which have been raised. First, why has not this method, at least in removal of the smaller stones, supplanted the open operation? It was in 1904 that Dr. Lewis first brought the method to the attention of the profession, and I know of no urologist who has attempted to follow it. I will quote from a letter from Dr. Lewis which will be self explanatory: "I have met with a considerable degree of skepticism for various reasons. Some of the profession thought the work was too refined and difficult to prove practicable; others, I believe, have thought that I might have been drawing on my imagination with reference to the satisfactory results attained." In regard to these objections I would say that while there are few of us who may hope to attain the skill with the use of the cystoscope that Lewis has developed, still, my successful performance of the operation is proof that any competent cystoscopist may do the same.

The matter of hemorrhage has been mentioned. In this case there was none; but had there been, a little epinephrin injected into the ureter would probably have controlled it, and if not, the cauterization from the d'Arsonval current would certainly have done so.

It is important always to dislodge the stone and push it back at least 1 or 2 cm. so that the dilator may reach the point of narrowing which first caused the stone to stop in its passage.

Before open operation is resorted to, this method should always be tried in cases in which the stones are within 4 or 5 inches of the bladder, because of its simplicity, because of the comparative lack of danger, and because of saving the patient the unpleasantness of a major operation and a tedious convalescence.

THE CULTIVATION OF A MICROCOCCUS FROM BLOOD IN PRE-ERUPTIVE AND ERUPTIVE STAGES OF MEASLES*

RUTH TUNNICLIFF, M.D.
CHICAGO

In 1905, Hektoen[1] produced measles in two men by injecting blood collected early in the disease from measles patients. Aerobic ascites broth cultures of the injected blood remained sterile. In 1911, Anderson and Goldberger[2] demonstrated that the rhesus monkey is susceptible to inoculation with the blood of measles early in the eruptive stage. Their results pointed to a "period of infectivity of the blood beginning at least before and continuing for about twenty-four hours after the first appearance of the exanthem. At the end of about twenty-four hours from the appearance of the eruption, the infectivity of the blood for the rhesus monkey already appears very greatly reduced and becomes progressively less thereafter." The blood of each patient and of the monkeys showed no growth in aerobic glucose broth cultures. Later experiments indicated that the desquamating epithelium[3] of measles in itself did not carry the virus, and that the nasal and buccal secretions of uncomplicated cases might at times, but not always, be infectious for the monkey. through a Berkefeld filter, (2) resist desiccation for They[4] found that the virus in measles may "(1) pass twenty-five and one-half hours; (3) lose its infectivity after fifteen minutes at 55 C.; (4) resist 'freezing' for twenty-five hours, and (5) possibly retain some infectivity after twenty-four hours at 15 C."

From these experiments it is evident that the virus of measles is present in the blood early in the disease, but apparently cannot be grown in ordinary aerobic cultures. Blood cultures, therefore, have been made during the pre-eruptive and early eruptive stages of the disease by the newer anaerobic cultures as well as aerobic methods.

The blood was drawn with a sterile syringe from the vein at the elbow, after carefully washing with alcohol or tincture of iodin and alcohol. Generally whole

* From the Memorial Institute for Infectious Diseases.

1. Hektoen: Jour. Infect. Dis., 1905, **2**, 238.
2. Anderson, J. F., and Goldberger, Joseph: Pub. Health Rep., 1911, **26**, 847, 887; The Period of the Infectivity of the Blood in Measles, THE JOURNAL A. M. A., July 8, 1911, p. 113.
3. Anderson, J. F., and Goldberger, Joseph: The Infectivity of the Secretions and the Desquamating Scales of Measles, THE JOURNAL A. M. A., Nov. 11, 1911, p. 1612.
4. Goldberger, Joseph, and Anderson, J. F.: The Nature of the Virus of Measles, THE JOURNAL A. M. A., Sept. 16, 1911, p. 971.

blood was added to the medium, but sometimes it was collected in sodium citrate solution. The cultures were incubated at 36 C.

Anaerobic cultures have been made in semicoagulated horse serum; on anaerobic Krumwiede[5] plates as used by Dick and Henry[6] in blood cultures in scarlet fever; in ascites fluid and horse serum alone or with plain and dextrose broth, with and without tissue. Anaerobic cultures have also been made of hemolyzed blood and lately of whole blood in ascites dextrose agar shake cultures as used by Plotz[7] in isolating the typhus bacillus.

The coagulated horse serum was prepared by heating the serum, about 10 c.c. in each tube, at 56 C. for one hour on three successive days, the temperature at last being raised slowly to 70 C. and kept there until the serum became semicoagulated. The tubes were incubated four or five days before being used. About 1 c.c. of blood was added to each tube directly from the syringe and forced toward the bottom of the tube with a sterile pipet. When the cultures were examined, some of the contents from different parts of the tube were removed with a pipet, and smears and subcultures made.

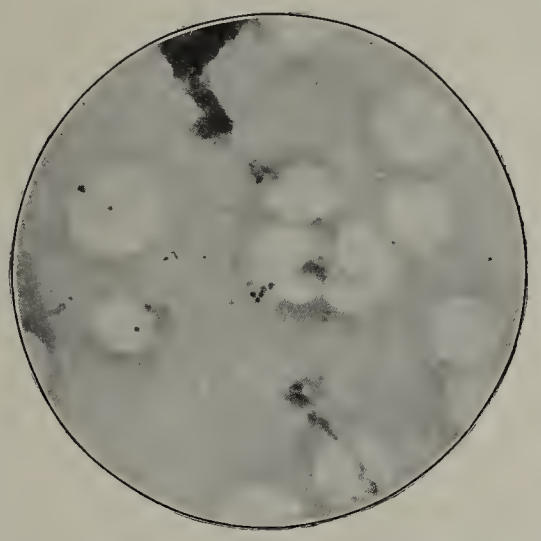


Fig. 1.—Micro-organisms in original semicoagulated horse serum culture; five days' growth; Gram stain; × 1,000. The organism often is much smaller than these in the photomicrograph.

In using the Plotz method only 0.5 c.c. of blood was added to the ascites dextrose agar on account of the difficulty of otherwise seeing the colonies. Large test tubes containing 20 c.c. of dextrose agar were employed so that the contents could be mixed without being poured into another tube. Aerobic cultures were made in the fluid mediums mentioned.

All mediums were always thoroughly tested for sterility. As the experiments have been carried on during a period of four years, a large number of specimens of ascites fluid and horse serum have been used. Subcultures from the various inoculations were made on ascites goat blood agar slants, in semicoagulated horse serum and various fluid mediums. The original cultures and subcultures were made anaerobic by the use of pyrogallic acid and sodium hydroxid, the stoppers being paraffined. Occasionally sterile fluid paraffin was used on fluid cultures.

Successful cultures were not obtained in any of the anaerobic fluid mediums or in the aerobic cultures. The absence of growth in anaerobic fluid cultures may be due to the medium being more aerobic than the solid and semisolid mediums. The largest number of positive cultures were obtained in semicoagulated horse serum and the whole blood ascites dextrose agar shake cultures. The anaerobic plates and the hemolyzed blood ascites dextrose shake cultures were fairly satisfactory, but the chances of contamination are slightly greater than with the other methods.

5. Krumwiede: Jour. Infect. Dis., 1913, **12**, 199.
6. Dick, G. F., and Henry, G. R.: Jour. Infect. Dis., 1914, **15**, 85.
7. Plotz: Jour. Infect. Dis., 1915, **17**, 1; Baehr: ibid., 1917, **20**, 201.

Blood cultures have been made from fifty patients in the pre-eruptive and eruptive stages and from five when the rash was fading. In every instance it concerned true measles — rubeola. A small micrococcus was observed in the original anaerobic cultures in forty-two of the early cases. The cocci were found in all of the last fifteen cases studied. In the earliest culture, obtained a few hours after the appearance of the Koplik spots and twenty-four hours before the eruption, there were only a few organisms. Cocci were present in large numbers in the cultures of three patients made a few hours before the appearance of the exanthem; two in ascites dextrose shake cultures showed innumerable colonies. Similar shake cultures made in a case when the rash was just appearing showed about one-half as many colonies. The organisms now become less numerous and disappear from the blood as soon as the rash begins to fade.

Twenty-eight of the forty-two positive cultures grew slightly for two or three generations only. One strain remained strictly anaerobic, growing only on blood agar and not in fluid mediums. Thirteen strains became aerobic in the second generation and grew fairly abundantly. The subcultures from the coagulated horse serum may not have been made always at the most favorable time, as it is impossible to see the growth in this medium. In the shake cultures the colonies could generally be seen, so that the tubes could be opened as soon as growth occurred. Sometimes, however, the colonies are so small they can be seen only with difficulty after the tube is broken and the medium sliced with a sterile scalpel. Growth appears in the original tubes in from one to twenty-two days, generally in from five to fifteen days. The cultures in which the organisms were first found in the second and third week may have grown out earlier and not been observed. Subcultures generally grow in twenty-four hours after growth is established. Growth in the strictly anaerobic strain occurs on about the ninth day.

Successful subcultures on plain blood agar plates show small greenish colonies giving a decidedly green color to the medium. The growth on dextrose blood agar is more profuse and more moist. After growing a few days the culture has a burnt appearance. Four of the strains gave larger, moister colonies. These four do not decolorize milk; the others produce acidity and some coagulation. They all grow on plain agar as a colorless growth. In ascites dextrose broth the growth is flocculent, the fluid often remaining clear. They grow a little in plain broth. All ferment dextrose and saccharose and all but one maltose. An occasional strain ferments mannite and lactose. None ferment inulin, salicin and raffinose. None are soluble in bile. None liquefy gelatin.

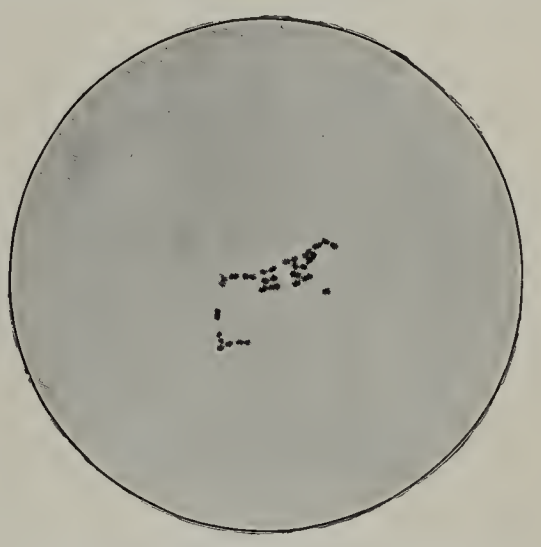


Fig. 2.—Forty-eight-hour growth on ascites goat blood agar of a strain producing small colonies; Gram stain; × 1,000.

In smears from the original culture, the organism appears as a very small, round, sometimes flattened

diplococcus or in short chains, sometimes as clumps of cocci of varying sizes. In the coagulated horse serum they are so small and sometimes so few in number that considerable search is necessary to find them. They are perfectly distinct, however, when they are found. In subcultures the organisms appear larger, generally as a diplococcus, sometimes in short chains, but sometimes in long chains or in clumps like staphylococci. The cocci at the ends of chains are occasionally smaller than those in the center. This is especially noticed in the anaerobic strain. Large forms are occasionally seen. The organism is gram-positive and stains with ordinary stains. Carbol-gentian-violet was used in staining the original cultures on account of its penetrating power.

A similar diplococcus was isolated from the throats of all the patients examined on aerobic blood plates, and was the organism most frequently found in anaerobic cultures from the nose and eye. It was isolated in pure culture from discharge from the ear. The organism was not found in similar blood cultures from five measles patients with fading eruptions, five normal persons, two suspected measles cases and three scarlet fever patients. It is not described by Dick and Henry in their exhaustive work on anaerobic blood cultures in scarlet fever.

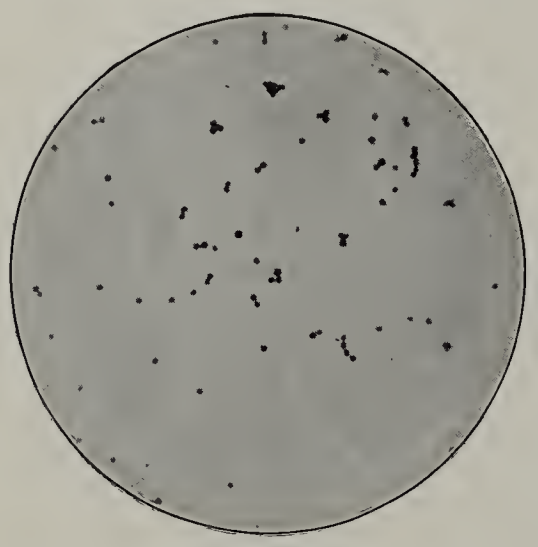


Fig. 3.—A forty-eight-hour growth on ascites goat blood agar of a strain producing larger colonies; Gram stain; × 1,000.

Cultures of the diplococcus pass through Berkefeld filter "N." They resist drying twenty-four hours, none being alive in forty-eight. Swabs were soaked in a horse serum dextrose broth culture, allowed to dry in sterile test tubes at room temperature for varying periods and then cultured. The organism is killed by heating at 57 C. for forty-five minutes. It resists a temperature of —2 C. for at least fourteen days, and 50 per cent. glycerin two months at least.

In scarlet fever, Dick and Henry found that at the height of the attack a variety of bacteria are present in the blood. The same occurs in measles. Before the eruption the diplococci I describe were found alone in the blood and alone also in twenty-one cases soon after the appearance of the exanthem. At the height of the fever, however, various other bacteria were isolated from the blood in twenty cases: Aerobic (ten cases) and anaerobic diphtheroid bacilli (twelve), filamentous organisms (six), gram-negative spirilla (four), a black pigment producing bacillus (one), spore forming large bacilli (four), and staphylococci (three). With the exception of the gram-negative spirilla, similar organisms were also cultivated from the throat, nose or eye. It is possible that some of these growths came from contaminations, but surely not all.

The special points of interest in this work are: the almost constant presence of a diplococcus in the blood of measles patients during the pre-eruptive and eruptive stages; its presence alone and in large numbers before the appearance of the eruption and alone also in a large proportion of cases at the height of the infection, and its presence at the same time in the throat, nose and eyes.

AN ABNORMAL PERITONEAL FOLD OVER THE FIRST PORTION OF THE JEJUNUM

C. A. ROEDER, M.D.
OMAHA

The rarity of this condition makes it interesting from an embryologic and surgical standpoint. The colon in its embryologic course from left to right brings the original right leaf of the mesocolon across the duodenojejunal angle, and in so doing leaves this portion as the inferior layer of the transverse mesocolon, covering this area of the small intestine with a crescent shaped part of the original right leaf of the mesocolon, and in turn forming the duodenojejunal fold. In the case to be reported, the inferior layer of the transverse mesocolon covered the first 6 inches of the jejunum, resulting in making the projection of the small intestine into the peritoneal cavity near the pelvic brim instead of at the inferior border of the transverse mesocolon (Fig. 1).

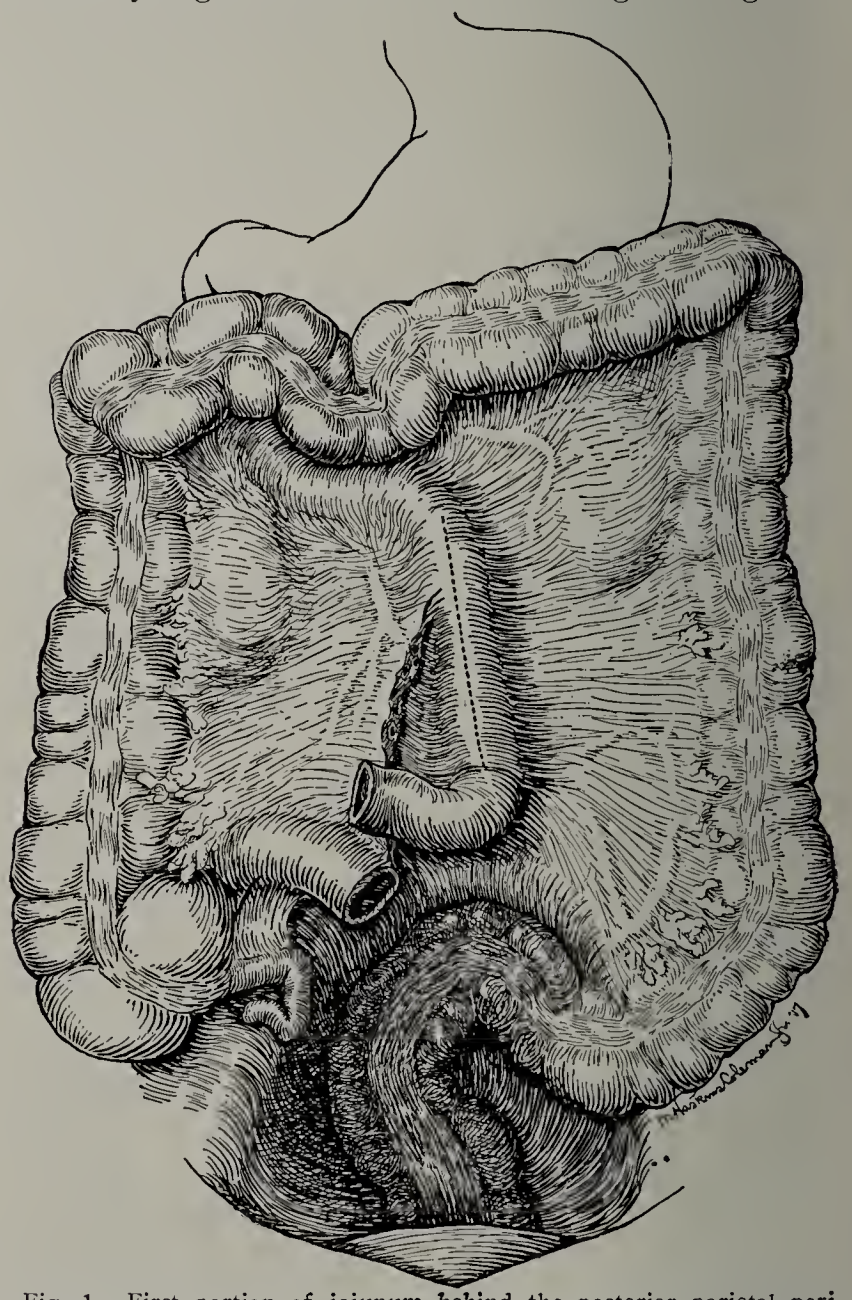


Fig. 1.—First portion of jejunum behind the posterior parietal peritoneum. When the transverse colon was lifted back, this covered portion was not so prominent as in the illustration.

W. J. N., man, aged 45, for six years had had epigastric pain coming three or four hours after meals, relieved by food,

alkalies and later vomiting. Further details and examination elicited a typical duodenal ulcer syndrome. Operation, May 18, 1911, revealed a large duodenal ulcer on the anterior surface, blocking three fourths of the lumen. When the colon was raised in order that the first portion of the jejunum might be located for a Mayo no loop posterior anastomosis, this portion was not to be found. After a few minutes' search, a ridge of peritoneum suggesting the covering of bowel beneath was noticed (Fig. 1), and after I incised it the jejunum was easily liberated to the extent of about 2 inches from its posterior abdominal bed. This ridge, on being traced down, was found to cover the jejunum to the pelvic brim. Owing to the lack of excursion of this part of the jejunum, it was attached to the stomach vertically without clamps, resembling a Moynihan anastomosis (Fig. 2). To date, five and one-half years later, the patient has been perfectly well, relative to his former complaint.

A rather cursory search of the literature has not revealed another similar case. Malcolm[1] reports the nearest example, to my knowledge, with one operative case in his experience, and mentions two postmortem records. These folds or membranes were a great deal more extensive and perhaps of a different origin. Malcolm says:

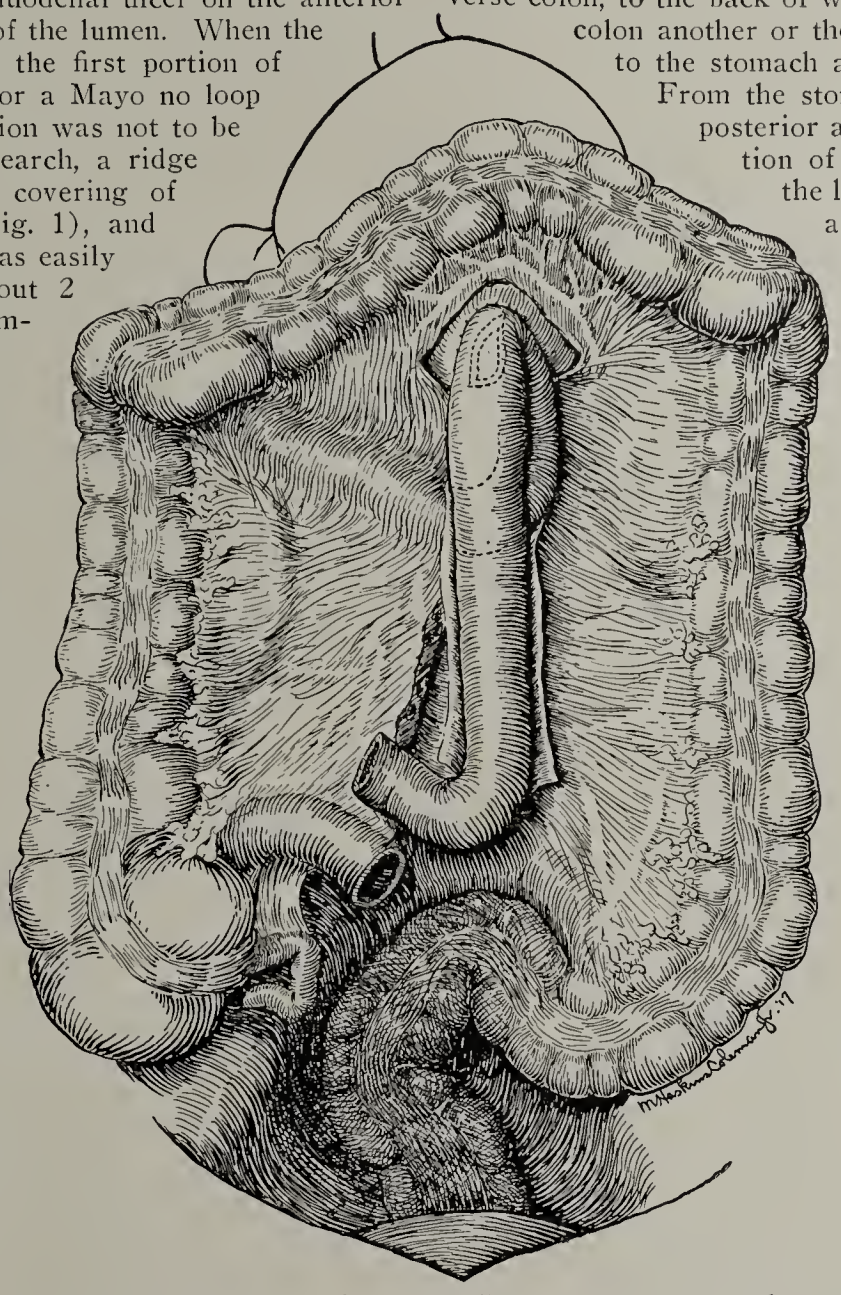


Fig. 2.—First portion of jejunum liberated and anastomosed vertically to the posterior wall of the stomach. The illustration exaggerates upward the excursion of this portion.

The ascending, transverse, and descending colons appeared normal, but when the omentum was turned up there were no small intestines visible anywhere. In their place there was a soft elongated oval mass lying more or less parallel with the long axis of the body. When its lower end which dipped into the pelvis was brought through the incision this mass assumed a rounded shape. It consisted of a thin membrane of peritoneum covering the whole of the small intestines and bulged by them into all parts of the peritoneal sac which they usually occupy. The membrane was attached to the posterior abdominal wall transversely above the sacral promontory, and close to this attachment there was a gap in it (Fig. 3) through which the small bowel passed just before it joined the colon. This opening had a diameter of about an inch and its edge was thickened. The abnormal membrane was incised and afterward cut away and then the small intestines were exposed and appeared to be in all respects normal. The relations of the upper end of the jejunum were those usually found. The membrane which had been incised extended up to the transverse colon, to the back of which it was attached. Above the colon another or the same membrane was continued to the stomach across a space of quite 2 inches. From the stomach a membrane passed to the posterior abdominal wall in the usual position of the lower limiting boundary of the lesser sac of the peritoneum. The abnormal membrane was attached at the sides (Fig. 3) to the posterior wall of the abdomen inside the attachments of the ascending and descending colons, which were rather more loosely fixed than usual. Figures 3 and 4 show the relations of the parts diagrammatically in longitudinal and in cross sections as well as it was possible to define them in the living body.

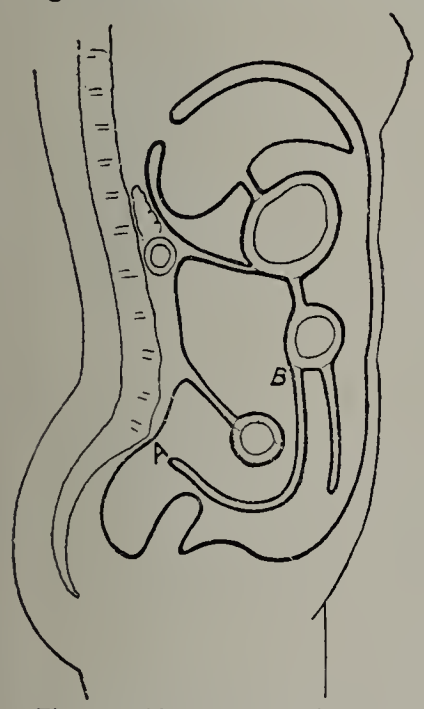


Fig. 3.—Abnormal membrane: *A B*, in longitudinal section; *A* marks the nearly central round opening in the membrane.

Professor Cleland in 1868 described a condition observed postmortem which closely resembled that described above. When the abdomen was opened "the entire mass of the small intestine remained concealed from view, being lodged within a secondary sac bounded by omentum and mesocolon and communicating with the general sac by means of a small aperture at the upper margin of the ileocecal junction only large enough to admit the passage of a finger. . . . On making incisions from this natural inlet to the arch of the colon the normal arrangement of peritoneum may be said to have been produced."

Another example of a somewhat similar abnormality was found in the postmortem rooms of the University of Manchester by Dr. J. D. Hickley and Dr. J. Cameron. In this case the enveloping membrane did not have any opening, and it was quite separate from the colon. It contained in its upper anterior part the lower portion of the duodenum, which lay in front of the superior mesenteric artery.

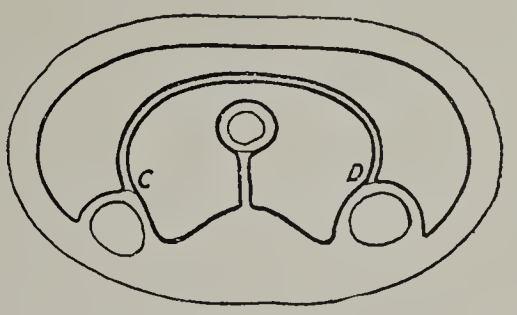


Fig. 4.—Abnormal membrane: *C D*, in cross section.

The relations of the abnormal membrane to the colon and the duodenum in this case appear to have been quite different from those which were found in the other two cases.

834 Brandeis Theatre Building.

1. Malcolm, J. D.: Two Rare Abnormalities Observed in the Course of Operations, Lancet, London, 1911, **2**, 1401.

A NEW OPERATION FOR HYPOSPADIAS

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CHICAGO

I desire to place on record a new operation for hypospadias for that group of cases in which the abnormal opening is close to the glans, say within an inch. In my surgical work I have tried out a number of operations for hypospadias and found none entirely satisfactory. The nearest approach to a satisfactory operation, I think, for the particular group of cases under discussion is the operation introduced by Beck in which he dissects up the urethra for some distance, bores a hole through the glans, and carries the free urethra up through this opening and stitches it in position. The Beck operation is not satisfactory for several reasons: 1. It shortens very much the undersurface of the organ, putting this under great tension. 2. It produces a lot of scar tissue around the urethra for a considerable distance which also has a tendency to contract. 3. If the operation does not succeed, it does a good deal of damage.

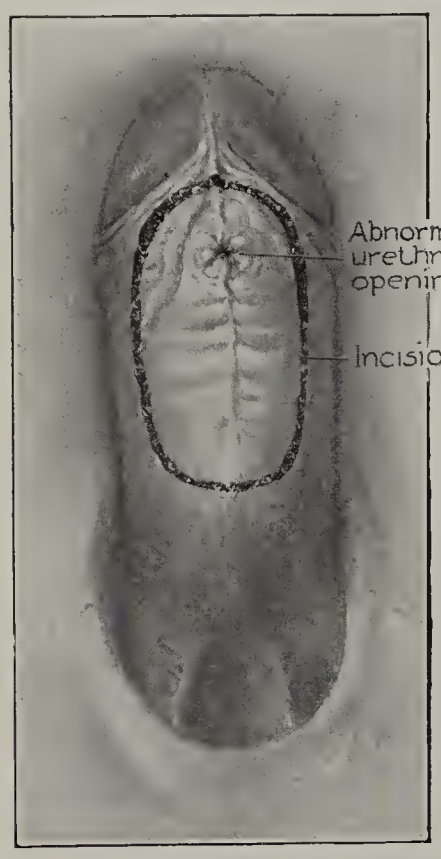


Fig. 1.—Dissection of an oblong flap of skin from around the abnormal opening, the lower part of the flap being longer than the upper.

some time been advising these patients, especially those with an opening close to the glans, to have nothing done in an operative way. Lately, however, in studying over one of these cases I devised a plan which seems to meet the indications admirably and carry with it no disadvantages, and in the one case in which it has been employed the result was perfect in the sense that the urethra was restored from the abnormal opening to the center of the glans with no tendency to contract and with excellent function. The operation can be best understood by reference to the illustrations.

I have likened this skin plastic to an umbrella which has been blown inside out by the wind. The parallel would be closer if we imagined that the handle of the umbrella was a tube like the urethra and that our skin flap when drawn up through the glans is like the umbrella turned inside out.

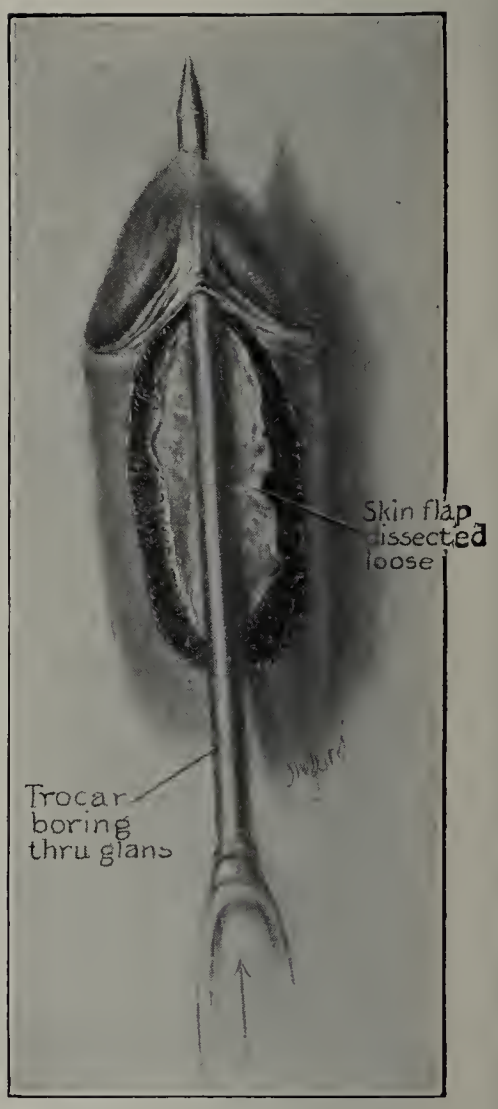


Fig. 2.—Hole bored through the glans with a trocar. This is enlarged by a closed pair of artery forceps passed up through it, and quite a free opening is made through the center of the glans—so free that there will be no tendency to constrict the flap, which is later introduced into this opening, and cut off its circulation.

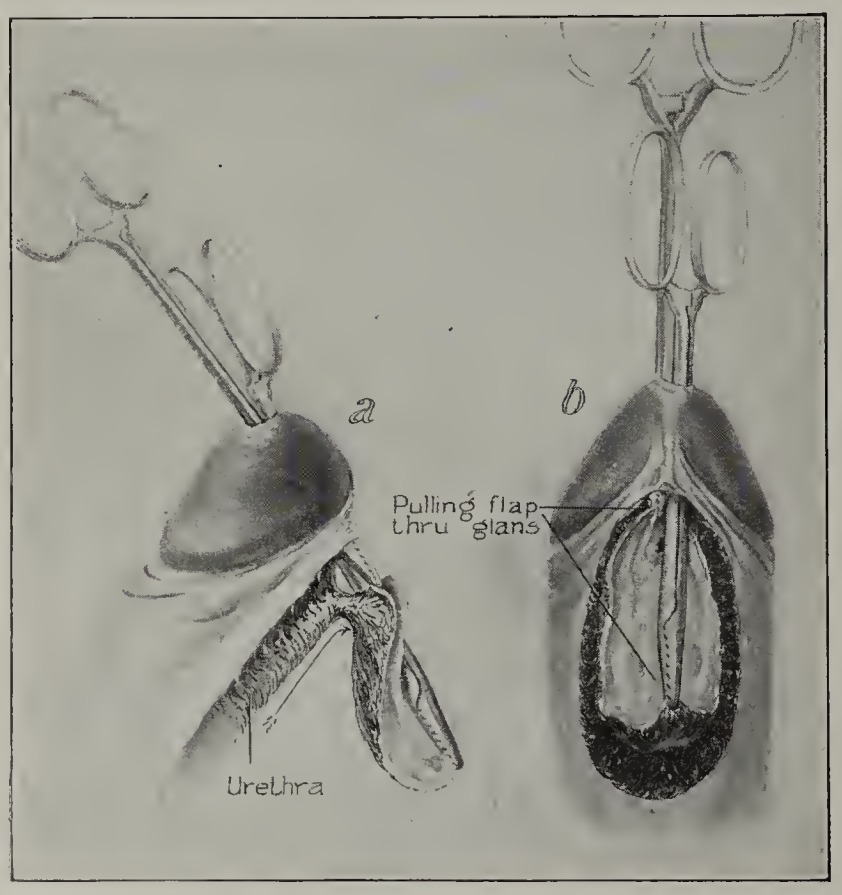


Fig. 3.—Oblong skin flap drawn up through the opening bored in the glans with two very small pairs of artery forceps.

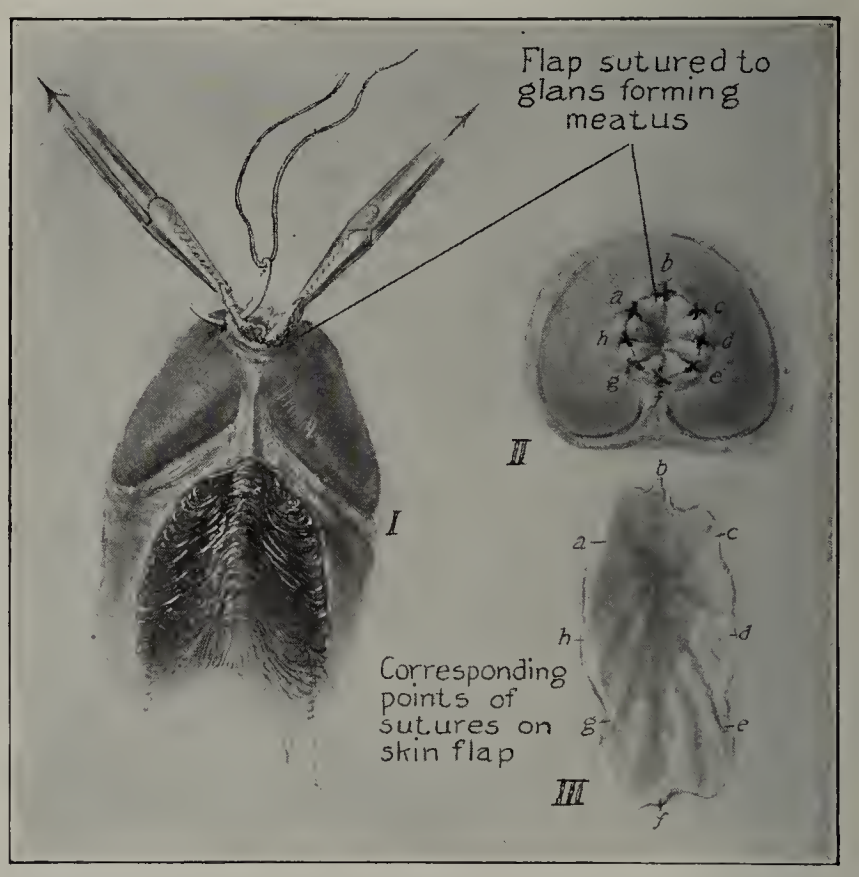


Fig. 4.—Stitching the circumference of the skin flap to the opening in the glans.

The amount of improvement obtained from operation in a number of these cases was so small that I have for

This introduces a new principle in operating for hypospadias in that it makes the new part of the ure-

thra entirely out of the skin flap without buried sutures of any kind, the skin flap being so formed as to make a tube of large caliber which is very elastic and which in time contracts down to a tube of moderate and appropriate size. There is no necessity of using a catheter or of draining the bladder through a stab wound in the perineum. There is no possible damage done to the existing part of the urethra, as this is interfered with in no way.



Fig. 5.—Closure by interrupted sutures of the skin defect left by dissecting up the skin flap.

How wide an application this new operation may be given remains to be proved by actual use in clinical cases. I am inclined to believe, however, that it can be employed in openings 1½ or 2 inches from the normal meatus by modifying slightly the technic. The fact remains that in the single case in which it has been employed it produced the most perfect restoration and the most satisfactory result that I have seen in any hypospadias operation. I present this as a new operation involving a new but very simple principle which I believe should be extended and tried out in a considerable group of cases.

122 South Michigan Avenue.

PECULIAR POISONING IN A CONSTRUCTION CAMP

REPORT OF DEATHS AND PROSTRATIONS

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COLUMBUS, OHIO

The physician is almost constantly confronted with perplexing problems, prominent among which are the sudden deaths and prostrations which occur from obscure causes. In view of this fact it seems proper to call attention to three deaths and a number of prostrations and illnesses which occurred under unusual circumstances in a construction camp, and which I had occasion to investigate. As the investigation was made almost eight days after the first death occurred, the account is to a large extent dependent on hearsay.

At about 8:30 p. m., Monday, Dec. 18, 1916, a member of the construction gang, consisting of about thirty white and thirty colored men, discovered one of the colored waiters lying in an unconscious condition on the floor in the bunk house, where he had apparently fallen from the second-tier bunk which he had occupied. The superintendent was notified, and with several others attempted to revive the unconscious man. His respirations were rapid and shallow and his pulse weak and rapid. A physician was called, and by the time he arrived another colored waiter had fallen unconscious and the superintendent and several others were suffering from throbbing temporal headache, dizziness, palpitation, epigastric pain, and weakness, especially of the lower extremities, to such a degree that they were forced to seek their beds. When the physician arrived he concluded that all had eaten poisoned food, and administered apomorphin and other emetics and also cathartics. The physician stayed at the camp for an hour or two and left, thinking that everything possible had been done. The two unconscious men had not regained consciousness, however, but the other afflicted men had fallen asleep and were apparently in good condition.

About 1 a. m. it was noticed that both unconscious men were vomiting and that the one was apparently near death. The physician was again called but was unable to come at that time and sent another physician instead. When he arrived, the waiter was dead, five other men were unconscious, and five more were suffering from dizziness, headache, palpitation, nausea and general weakness to such an extent that they were forced either to sit or to lie down. The physician, also assuming that they had eaten poisoned food, and knowing that the other physician had administered emetics, thought it best to get them to a hospital, and accordingly called ambulances and taxicabs and sent ten of them (six white and four colored) to a hospital, a distance of about 12 miles. Two of the unconscious men regained consciousness during the journey, and several others who had suffered from headache, dizziness, weakness, etc., felt much better by the time the hospital was reached. Physicians at the hospital were agreed that the men were poisoned, probably by contaminated food, and accordingly thoroughly lavaged the stomachs of the afflicted men, and by means of the stomach tube administered a large dose of castor oil to each man. One of the unconscious men died later (December 22)



Fig. 1.—Construction camp in which the men were poisoned.

without regaining consciousness (second death). The others gradually recovered, and in three or four days were apparently none the worse for their experience. The physician who was responsible for sending these men to the hospital informed the investigator that, after returning to his home from the camp, he himself suffered from a severe headache and drowsiness, the headache persisting for the greater part of the day.

At 2 a. m., Friday, December 22, the superintendent and three other men returned to the camp, which had been deserted since the night of the experience recorded above. The superintendent and the cook occupied one room while the other two men occupied a room separated from their room by the "white" dining room and the kitchen. All retired feeling well, but at 4 a. m., when the cook rose to prepare breakfast, he had a violent headache, and was so "weak in the knees" and dizzy that he was forced to go back to bed. He so informed the superintendent, who thought it best to call a physician, but he fell to the floor unconscious before he reached the telephone. One of the men in the other room also became unconscious about this time, and when a physician reached the camp, three were unconscious, and the other was suffering from headache, dizziness and general weakness. All were sent to the hospital and all recovered in a short time except one white man, who died Monday evening, December 25, from what was apparently pneumonia (third death).

To determine the poison responsible for these deaths and prostrations, the stomach and its contents were removed from the body of the man who died first and sent to a physician in a neighboring city for analysis. Feeling certain that such an analysis would reveal the cause of death, the two physicians who removed the stomach did not complete the necropsy, although the heart was opened and found filled with very red liquid blood. The necropsy was performed twenty-four hours after death. A careful analysis of the stomach contents did not reveal the presence of any poison, and it was concluded that ptomains were responsible.

Necropsies on the bodies of the other two men who died revealed, in one, the right lung in a state of general red hepatization and some small petechial patches in the stomach, and in the other the right lung bound down with adhesions laterally and both lungs congested posteriorly and moist on section.

The camp buildings were located approximately 150 yards from the nearest building (the shear room) used by a rolling mill company. The men were housed in three buildings (Fig. 1), the largest of which contained a "colored" bunk room, "colored" dining room, store room, kitchen, "white" dining room, office and two other small bunk rooms used by overseers and kitchen help. The other two buildings were the "white" and "colored" bunk houses (Fig. 2). Each room was equipped with a coal stove except the store room, and all stoves were new and in good condition, and equipped with pipes, without dampers, extending through the roof. No attempt was made to keep fires all night in the bunk rooms, and it was stated that windows were invariably opened at night. The buildings were clean and well kept, and the food in the store room was of good quality and in good condition. The kitchen was equipped with a sink from which a waste pipe led through the floor, and all wastes were allowed to accumulate under the floor to be absorbed by the earth. Several of the men stated that they had noticed some odor as a result of this arrangement, and were inclined to think that they might have suffered from poisoning by "sewer gas."

No gas was used in the building, and it was stated that no gas mains or pipes were situated near the camp. The buildings were located on an old fill or dump, where dirt, slag, scrap, mill wastes, ashes and cinders had been deposited for a period of about five years, but where none had been deposited for the last six months. This fill covered an area of about 1½ or 2 acres, and was from 10 to 15 feet deep.

About ten days previous to the time of the occurrence related above, an employee of the mill noticed what seemed to be a little steam arising from the edge of the fill about 50 feet from the camp building. It was thought that the dump might be on fire, and by means of teams and scoops a trench was dug around the part thought to be on fire in an effort to isolate it. The dump was found to be frozen to a depth of about 2 feet, but at a depth of 5 feet red hot cinders were encountered, and a second trench was started 10 feet back of the other trench. Hot cinders were found in this one, and when the investigator left, the fourth trench was being dug, which extended under the camp building, and in which hot cinders were found at a depth of about 5 feet (Fig. 3). While working in one of these trenches, six men suffered from headache, dizziness, and "weakness in the knees" to such an extent that it was necessary to help them from the trench, and two were taken to the plant hospital of the

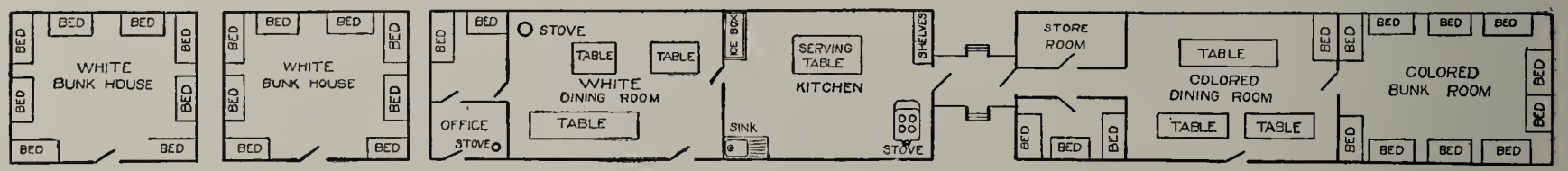


Fig. 2.—Plan of camp.

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The deaths, prostrations and toxemias undoubtedly occurred as the result of the inhalation of carbon monoxid. This gas was formed as a result of the smoldering, incomplete combustion of cinders and other material in the dump, and owing to the frozen surface, found its only outlet beneath the camp buildings where the surface was not frozen, having been protected by the building, which was equipped with stoves. The hot water which came through the kitchen sink was probably also a factor in keeping the cinders soft and porous, allowing for free outlet of these gases, acting as a sort of flue for the smoldering fire beneath. Gases passing through earth lose their impurities and odors as they pass onward.[1]

The symptoms and complaints of the men affected were typical of carbon monoxid poisoning, with practically no symptoms pointing toward poisoning by contaminated food or ptomains. It must be remembered, however, that this camp had been occupied for a period of about three months with no trouble, and this can be explained only by the fact that the dump might have been on fire only for a short length of time, or that the gas had never found its way to the surface in

1. Oliver, Thomas: Diseases of Occupation, London, Methuen & Co., 1908.

quantities sufficient to produce poisoning. The latter explanation is probably correct, as the extent of the fire and the fact that nothing had been added to the dump for a period of more than six months would indicate that the burning process had been going on for some time. It is unfortunate that more complete necropsies and chemical tests were not performed, as the presence of carbon monoxid could undoubtedly have been shown by the spectroscope or various chemical tests. Unfamiliarity with carbon monoxid poisoning clinically and the prejudicing theory of food or ptomain poisoning were mainly responsible for the failure of accurate diagnosis.

The company made preparations immediately to move the buildings to a point at which there would be practically no danger. Canaries were placed in the various apartments in order that traces of poisonous gases might be detected early. This was done because of the fact that, with the wind in the right direction, and under certain other atmospheric conditions, harmful amounts of the gas might prevail when the dump was torn up in an attempt to extinguish the fire.

Carbon monoxid causes more cases of industrial illness and death than any other gas, and is a constant danger in thirty or more industries.[2] The gas is colorless, odorless and tasteless, and is found as a by-product wherever combustion of carbon-containing material occurs. It has been said that a volume of air containing 0.01 per cent. may cause headache, dizziness, weakness and other phenomena, while two to three parts per thousand of air are dangerous to life. The gas is toxic by virtue of its power to unite itself with the hemoglobin, replacing the oxygen and forming a stable compound known as carboxyhemoglobin. The affinity of hemoglobin for carbon monoxid is 300 times greater than the affinity for oxygen (Haldane). It probably also has a distinct toxic action on tissues.



Fig. 3.—Camp after dump was torn up. The photograph was taken after it had rained, and clouds of steam are seen rising from the hot cinders.

Bronchopneumonia is found to have been a frequent complication in those who died several days after being poisoned by the gas. It will be remembered that the last two deaths recorded above were probably directly due to a pneumonic condition of the lungs. Postmortem, the blood usually flows freely, is a bright, cherry-red, and has a characteristic appearance as seen by the spectroscope.

In some cases of carbon monoxid poisoning the victim may succumb instantly, while in others there are often prodromal symptoms, as throbbing or feeling of pressure in the temples; epigastric distress, nausea, vomiting; weakness in the legs, often described as "caving in"; severe, bursting headache, or coma.

Carbon monoxid poisoning may become chronic, under which condition the patients will become anemic, irritable and neurasthenic, and complain of headache, anorexia, loss of weight, backache, vertigo, and gastrointestinal disorders. There will also exist a polycythemia and a leukocytosis of the eosinophil forms.

Carbon monoxid (CO) poisoning should not be confused with carbon dioxid (CO_2) poisoning, symptoms of which begin with pressure in the head, vertigo, ringing in the ears, sparks before the eyes, disturbances of respiration, such as air hunger and pain in the chest, and sometimes convulsions. Chronic carbon dioxid poisoning probably does not exist. This gas must be in much greater concentration to be poisonous, about 4 per cent. causing distress symptoms and approximately 10 per cent. causing death.[3] Carbon monoxid is a dangerous poison because of its odorless, colorless and tasteless properties, and its presence should alway be suspected in such cases of sudden prostration and death as here related.

2. Kober and Hanson: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916.

3. Rambousek, J.: Industrial Poisoning, London, Edward Arnold, 1913.

A COMPARISON OF TRICRESOL AND CHLOROFORM AS A PRESERVATIVE IN ANTIMENINGITIS SERUM *

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AND
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Until the fall of 1914, the Research Laboratory continued to use tricresol as the preservative in the antimeningitis serum, as had previously been done at Rockefeller Institute. Late in 1914, the tricresol was replaced by chloroform on account of the discussion in regard to the toxic effects of tricresol, started mainly by reports of Kramer[1] of Cincinnati.

While the discussion on this subject is familiar to many, it may be summarized briefly: Kramer reported, in 1913, a series of cases in which death followed the administration of tricresol serum, and he attributed these deaths to the tricresol, which he held depressed the medullary center, reaching it especially in young children through the central canal of the cord. Kramer also reported the results of experiments on dogs, which were not convincing. Flexner[2] next published an article in which he enumerated the various possibilities of danger in the use of the serum, anaphylaxis, liberation of toxin through the destruction of the meningococcus, and especially increased pressure. He pointed out that, since in the cases reported by Kramer the doses were large and were administered by a syr-

* From the Meningitis Division, Bureau of Laboratories, New York City.

1. Kramer, S. P.: A Possible Source of Danger in the Use of Antimeningitis Serum, THE JOURNAL A. M. A., May 3, 1913, p. 1348.

2. Flexner, Simon: Accidents Following the Subdural Injection of the Antimeningitis Serum, THE JOURNAL A. M. A., June 21, 1913, p. 1937.

inge, it was highly probable that increased pressure was the cause of death, and, furthermore, that accidents have occurred after the administration of serum containing no preservative. Hale[3] showed that the intraspinal injection of tricresol in dogs produced considerable respiratory difficulty which he interpreted as paralysis of the respiratory center. Fitzpatrick, Atkinson and Zingher[4] in our laboratory showed that in dogs the pressure seemed to be the important factor, and that the gradual administration of serum with 0.3 per cent. tricresol did no harm. Auer[5] showed that this respiratory difficulty was much less marked in monkeys, and that it was not due to paralysis of the respiratory center, but to a stimulation of the inhibitory function.

One seems justified in concluding from his experiments that while tricresol affects the medullary center of monkeys somewhat more than ether or chloroform, monkeys tolerate repeated large doses of serum containing tricresol, and that dangerous changes in respiration and blood pressure are due to increased intraspinal pressure. Auer's article contains a very comprehensive study of the subject from the experimental standpoint.

As stated above, serum containing tricresol, at first 0.3 per cent. and later 0.2 per cent., was used by the Meningitis Division of the Bureau of Laboratories from August, 1910, until December, 1914. During this time, the serum was administered about 600 times and to children of all ages, fourteen of the patients being less than 1 year old. As there had never been a fatality immediately following the injection, it seemed improbable to us that the tricresol could be a very dangerous factor even to young children, as Kramer had declared. In a few instances collapse had followed the administration of serum when large doses were used. Later, with smaller doses, these occurrences ceased.

In December, 1914, the use of the chloroform serum was begun. The feeling developed, in time, among those of the division who had used both serums, that the chloroform was more irritating. This conclusion was not reached at once. There is, of course, a great difference in individuals in their reaction to pain. Moreover, the registration of pain in many of our patients is unreliable if they are delirious, stuporous or too young. In time, however, it was noted, in the case of a number of rational and intelligent patients who had behaved well during the puncture and withdrawal of fluid, that the injection of the serum was accompanied by excruciating pain, so that they were unable to keep from crying out and struggling. This added greatly to their dread of the treatment, and to the objection of the family to the continuation, and interfered with the proper regulation of dosage, as the crying out and struggling increased the intraspinal pressure and prevented the easy introduction of the serum. Finally, a lot of serum containing tricresol was prepared so that comparative studies might be carried out in the same individual.

Case 1.—A girl of 16 had received four injections of chloroform serum, suffering extremely each time, so much so that each injection had to be stopped before 20 c.c. were given. She then received six injections of tricresol serum. These were accompanied by practically no discomfort. At the second injection she fell asleep before it was finished. It was also possible to increase this dose to 25-28 c.c., which seemed desirable in this case as the infection was very resistant.

Case 2.—A man, aged 19, had received several doses of chloroform serum accompanied by great pain each time. The tricresol serum caused practically no pain.

Case 3.—A child of 4 years, who had received three doses of tricresol serum without struggling, struggled and cried during the administration of one dose of chloroform serum.

Case 4.—An Italian boy of 5½ years complained of severe pain with the chloroform but not with the tricresol.

Case 5.—A baby was given one dose of tricresol without any marked reaction. When given a second dose of chloroform serum, the baby struggled violently.

Case 6.—A boy of 12 years struggled furiously, three men being needed to restrain him, during two injections of chloroform serum. He was quiet during the administration of tricresol serum.

These six cases in which both tricresol and chloroform serum were used, in addition to our observations in cases in which either the chloroform or the tricresol serum alone was received, show very conclusively that chloroform serum is far more painful than tricresol serum. It may be stated that the injection of serum is practically always *followed* by pain in the legs and general discomfort. It is the sensation *during* injection to which we refer.

TABLE 1.—BACTERICIDAL ACTION OF CHLOROFORM IN 0.2 PER CENT. DILUTION

Organisms and Controls	Exposure Time				
	½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	24 Hrs.
B. coli	++++	++++	++++	++++	++++
Staphylococcus	++++	++++	—	++++	++++
Streptococcus	++++	++++	++++	++++	++++
Meningococcus	++++	++++	++++	++++	++++
Serum control	—	—	—	—	.....
Bacterial suspension control	+	+	+	+	.....
Saline solution control	—	—	—	—	.....

The observations in the cases reported above were made by several physicians as well as by members of the meningitis division.

It is possible, since it belongs to the phenol group, that tricresol, like phenol (carbolic acid), may exert a local anesthetic action. Indeed, it would seem that it must be so, as chloroform is added to practically all the serum when it is first withdrawn; consequently the tricresol serum contains tricresol in addition to the chloroform.

Whether or not because of the difference in the preservative of the serum, it may be stated that the mortality of the cases treated by the meningitis division from Dec. 1, 1913, to Dec. 1, 1914, when all serum contained tricresol in addition to the chloroform, was 30 per cent., while for the following year, when chloroform was present, it was 38 per cent.

Tricresol has a marked bactericidal action, in vitro, on the meningococcus, and also exerts within forty-eight hours some bactericidal effect on organisms that might accidentally contaminate the serum. Chloroform possesses much less bactericidal action and would, therefore, seem to be of limited value as a preservative.

These points are illustrated in the experiments:

Experiment 1.—*Bactericidal Action of Chloroform in 0.2 per Cent. Dilution.*—Before the experiment was begun, normal horse serum was freshly drawn and cultured on glucose

3. Hale, Worth: The Cause of Death from Subdural Injections of Serum, Bull. 91, Hyg. Lab., U. S. P. H. S., December, 1913.

4. Fitzpatrick, C. B.; Atkinson, J. P. and Zingher, Abraham: The Comparative Importance of Pressure and of Toxicity of Trikresol in Subdural Injections of Sera, Collected Studies from the Bureau of Laboratories, City of New York, 1914-1915, p. 37.

5. Auer, John: The Effect of Intraspinal Injections of Serums with and without Preservatives, The Journal A. M. A., June 6, 1914, p. 1799.

ascitic agar for twenty-four hours. Direct dilution of the chloroform in 50 per cent. normal serum was made to secure a better solubility of the chloroform.

The organisms used, after a growth of each organism had been obtained on glucose ascitic agar for twenty-four hours, were: the colon bacillus, the staphylococcus, the streptococcus and the meningococcus (second generation). Three c.c. of sterile saline solution were used in washing off the growths of every organism excepting the streptococcus, for which 2 c.c. of saline solution were used in order to obtain a greater number of bacteria. This constituted the bacterial suspension for the experiment.

After both the bacterial suspension and the chloroform dilutions had been thoroughly shaken, equal quantities of the material were mixed and shaken up for a few minutes, 0.5 c.c. of each being used.

The bacteria were exposed to the action of the disinfectant for periods of time of half an hour, one hour, two hours, four hours and twenty-four hours. At the expiration of the half hour, or first exposure, the mixture was planted on slants of glucose ascitic agar, and two loopfuls of this used for all the subsequent exposures.

At the end of the four-hour period all the slants were placed in the incubator at 37.5 C.

Controls were also made of the serum dilutions, bacterial suspensions and the saline solution used throughout the experiment.

EXPERIMENT 2.—*Bactericidal Action of Tricresol in 0.1, 0.2 and 0.3 per Cent. Dilutions.*—In this experiment, the procedure was the same as that for Experiment 1. The disinfectant dilutions were made up directly in normal serum, a 100 serum being used. A strain of meningococcus of the second generation was used (Table 2).

TABLE 2.—BACTERICIDAL ACTION OF TRICRESOL IN 0.1, 0.2 AND 0.3 PER CENT. DILUTION ON THE MENINGOCOCCUS, 100 PER CENT. SERUM

Dilution, Per Cent.	Exposure Time				
	½ Hour	1 Hour	2 Hours	4 Hours	24 Hours
0.1	++++	++++	++++	++++	—
0.2	++++	++	—	—	—
0.3	—	—	—	—	—

TABLE 3.—BACTERICIDAL ACTION OF TRICRESOL IN 0.1, 0.2 AND 0.3 PER CENT. DILUTION, 50 PER CENT. SERUM

Organisms and Controls	Exposure Time					
	½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	24 Hrs.	48 Hrs.
B. coli						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++++
0.2 per cent. dilution	++++	++++	++++	++++	+++	+++
0.3 per cent. dilution	.....	.....	.....	.....	—	—
Staphylococcus						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++++
0.2 per cent. dilution	++++	++++	++++	++++	++++	++++
0.3 per cent. dilution	++++	++++	++++	++++	++++	++++
Streptococcus						
0.1 per cent. dilution	++++	++++	++++	++++	++++	++
0.2 per cent. dilution	++++	++++	++++	++++	+++	+
0.3 per cent. dilution	++++	++++	++++	++++	—	—
Bacterial suspension control	+	.....	.....	.....	+	+
Serum control	—	.....	.....	.....	—	—
Saline solution control	—	.....	.....	.....	—	—

CONCLUSIONS

1. The bactericidal action of tricresol on possible contaminating bacteria is much superior to that of chloroform.

2. The marked bactericidal action of the tricresol on the meningococcus in vitro may be of advantage in vivo.

3. When tricresol is not used, the pain of injecting the serum is so great as to constitute a serious drawback in the treatment of meningitis, not only on account of the resulting objection on the part of the patient and the family, but also on account of the difficulty of regulating the dosage when the patient is struggling.

SUGGESTED FORMULAS FOR PARAFFIN FILMS *

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The popular propaganda for "Ambrine" has brought the subject of paraffin-film treatment of burns into prominence. The results are said to be better than are obtained by other methods of treatment; however, neither "Ambrine" nor any other preparation could accomplish "miracles." The principle of the method is supposed to be mainly if not solely mechanical; the film of paraffin being impervious, forms a protection to the exposed tissues. On the other hand, it can readily be removed when desired. Perhaps the paraffin also forms a sort of scaffolding for the feeble granulations.

The method at least deserves scientific investigation. Such investigation, however, is hampered by the optimism which has developed in the minds of even medical men, regarding the efficacy of this treatment, resulting from the sensational accounts of the use of the secret French preparation, "Ambrine," in the present war. Another serious obstacle is the secrecy of the preparation so exploited, since it complicates any attempt at improvement. If the principle of paraffin films is a useful one, it is open to question that "Ambrine" is the *ne plus ultra* of these films. It is one of the disadvantages of the secrecy that we do not know what attempts have been made to secure the best possible preparation; and in the absence of this knowledge, it is reasonable to suppose that the preparation is capable of modifications which might be improvements. Perhaps extensive investigations have already been made in this direction; but of this we know nothing. If they have been made, we do not know whether or not all the possible lines of modification were taken into account.

The subject was brought to my attention by Dr. George W. Crile, and after weighing the foregoing considerations, it has seemed to me worth while to devise a series of paraffin combinations, so that the advantages of the various types of films could be tried out fairly. Since I started on this investigation, two American preparations have been placed on the market. Both have followed the French example of keeping the composition secret, and both therefore are open to the foregoing objections. This secrecy makes a systematic comparison of the different films difficult. However, I have compared the physical properties of these commercial preparations with the formulas which I have given herein. Since experimentation with preparations of unknown composition cannot add much of permanent value to our knowledge, and is apt to be largely wasted, it seems worth while to publish the formulas and properties of our preparations without awaiting their clinical trial. Indeed, the very object of this publication is that they may receive such clinical trial.

In planning the formulas for these waxes, I intentionally avoided a slavish imitation of the pretended composition of the proprietary preparations. On the contrary, I have aimed to make the formulas simple, each containing at most two constituents; to make the manipulations so simple that the preparations

* From the Pharmacological Laboratory, Western Reserve University, School of Medicine.

* Investigation supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

could be made independently, and if possible extemporaneously, by any pharmacist, and would thus be accessible to any surgeon who cared to try them; to vary these formulas so as to produce preparations with properties which differ considerably, and to devise simple methods for comparing the relevant physical properties. I have intentionally refrained from adding any deodorant, antiseptic, coloring matter, etc. I believe that the first step should be to determine the suitability of these films from a purely mechanical standpoint. After the suitable type or types have been selected, it will be an easy matter to modify them by such additions.

The significant properties of the films appear to concern in the first place the melting point. This should be not much lower than 48 C., and not much higher than 53 C. Within this range, I incline to believe that the melting point is practically immaterial.

The hardness of the wax may be important. The harder the wax, the more firm is the support which it affords; but on the other hand, the softer films are probably more "soothing." It is quite possible that different cases may demand different types of films in this respect.

A further important property is the strength of the film (fragility). It involves at least two factors: (1) ductility, the coherence of the film against pulling and kneading—a property which reflects the resistance of a film against stretching; and (2) pliability, the resistance to fracture on bending.

The first of these (the resistance to pull) can be determined only roughly by comparative methods; there is no convenient quantitative measure of this, although one could perhaps be devised. The resistance to breaking can be determined quantitatively in relation to the temperature: the more fragile films will break on bending at a relatively high temperature, while the more plastic films can be bent at relatively low temperatures.[1]

General Methods of Preparation.—The mixtures were prepared simply by melting the ingredients in a water bath, after which the mixture was heated to 145 C. for sterilization.

Melting Point Determination.—This was attempted by the U. S. P. method, which consists in drawing the melted wax into a capillary tube; cooling for a certain period; attaching the tube to a thermometer; immersing in a water bath, and heating slowly until the melted wax begins to rise in the capillary tube.

The last clause of this method was not found very satisfactory with the more viscid fats: the slow heating gave a variable melting point usually several degrees higher than that obtained by immersing the capillary directly into the bath, which had previously been heated to the required temperature. The explanation probably lies in the viscidity of the oil when the column in the capillary tube is heated throughout, as it must be when the heat is raised gradually. Evidently the lowest melting point must be the correct one, so that our modification appears fully justified.

Determination of Hardness.—This was determined at 22 C. by trying the cakes of the preparations on each other, seeing which would indent the other. Since absolute accuracy was not necessary, the preparations were made into a limited number of groups, designated by Roman numerals according to their hardness.

Formation of Membranes.—It was aimed to produce films under conditions which would approach physically those of clinical use. For this purpose, the preparations were melted on a water bath. A sheet of plate glass was meanwhile warmed to from 38 to 40 C. by immersion in a water bath kept at this temperature. When the paraffin was melted, the plate was taken from the bath and the melted wax poured on the moist plate glass and spread with a hot spatula. The plate with the film was then immediately immersed in the 38 to 40 C. water, kept there for a few minutes, and then lifted off with a spatula. This detachment of the film furnishes a preliminary idea of its general properties.

Further experience indicates that the method of preparing these films does not affect materially their significant behavior to temperature limits. Any method that yields fairly thin films may therefore be employed. At present, I make the films by pouring a teaspoonful of the melted wax on the surface of water at about 40 C.

Determination of Strength of Film.—The films were placed in a bath at 38 C. and then gently manipulated by kneading and pulling, noting their coherence, thinness of membranes that could be formed from them; the ease with which they are torn on pulling, etc.

Determination of Breaking Temperature.—The films were immersed in a bath of a given temperature for a few minutes and then bent on themselves. At the lower temperatures, this causes the film to break sharply at the crease. At the higher temperatures, the films can be doubled without breaking.

The temperature at which breaking just occurs varies for each wax, and appears to be an objective and very useful index of its fragility. Since great accuracy was not necessary, the temperatures were determined only approximately, and at intervals of 5 degrees. In the table, the lower temperature is that at which the film breaks; the upper temperature that at which it can be bent without breaking.

Determination of Ductility Temperature.—The films are placed in warm water and pulled. The water is gradually cooled, noting the temperature when the film breaks with a straight fracture, without stretching.

The lower the temperature at which the film begins to break on bending or pulling, the greater is its pliability or ductility.

The individual preparations and their properties are shown sufficiently in the accompanying table. It is probable that clinical trials will introduce new factors so that the usefulness of the various preparations cannot be judged altogether from the physical results given in this paper.

(The cost of these preparations is low; paraffin, the principal ingredient, is at present about 15 cents per pound.)

For purposes of simplification the different preparations can be arranged into a number of groups. The most distinctive feature is the hardness, ranging from the stiff beeswax to the gelatinous petrolatum. It is this property, more than any other, which determines the mechanical usefulness of the individual preparations for special purposes. Aside from this, it is desirable that the preparation should have a low melting point, and that it should remain pliable at a relatively low temperature.

With these points in mind, the following grouping appears most promising; it is arranged in descending

1. Further experience indicates that ductility may be expressed quantitatively by the temperature at which a thin film breaks sharply when pulled in a straight line.

order of hardness, giving the number of the formulas under each class, in the order of preferance:

Class I: Paraffin, Formulas 17, 18 and 16.

Class II: Paraffin-wax mixtures, Formulas 11, 12, 10, 19, 15 and 6.

Class III: Paraffin-Asphaltum mixtures, Formulas 25 to 27.

Class IV: Paraffin-oil mixtures, Formulas 13, 23, 24, 8, 14, 9 and 4.

Class V: Paraffin-petrolatum mixtures, Formulas 5, 1, 2 and 3.

PREPARATIONS AND THEIR PROPERTIES

Formula No.	Composition		Melting Point (C.)	Degree* of Hardness at 22 C.	Fragility Temp. (Break on Bending) (C.)	A. Formation of Membrane B. Strength of Film at 38 C.; (Break on Kneading and Pulling)
0 =	"Ambrine"		51	III	18-24	A. Coherent; detaches easily; fairly soft B. Very good resistance and pulls very thin; still ductile at 33°.
00 =	Petrolatum (yellow)		50.5	0	.....	
000 =	Paraffin (stock)		53	...	.....	
1 =	Paraffin Petrolatum	000 100 00 20	52	II	30-35	A. Greasy, crumbly and weak, but detaches easily and sufficiently intact B. Poor resistance, though better than 2
2 =	Paraffin Petrolatum	000 100 100	49.5	I	35-35	A. Weak, greasy, noncoherent; difficult to detach; unworkable B. Very weak; crumbles
3 =	Paraffin Petrolatum	000 100 00 300				A. Ointment consistency at 43 C.; too soft to use
4 =	Paraffin‡ Venice turpentine	110 22	52.5	II	35-35	A. Detaches well, but soft and crumbly; slightly greasy B. Soft and crumbly
5 =	Paraffin‡ Petrolatum	110 11	52.5	III	35-37	A. Rather weak, although sufficiently coherent to form a film B. Soft and crumbly; very weak
6 =	Paraffin‡ Japan wax	110 22	52	IV	35-35	A. Hard but crumbly; not sufficiently coherent B. Very crumbly (practically like 5)
7 =	Japan wax		50	IV	37- ?	A. Does not solidify promptly when undercooled; does not detach except by scraping B. Hard, brittle and crumbly; sets very slowly.
8 =	Paraffin‡ Olive oil	110 11	53	III	35-35	A. About like 11 B. Greasy and quite crumbly; very weak
9 =	Paraffin‡ Castor oil	110 5	53.5	IV	30-35	A. Solid, but not very strong, and rather crumbly B. Quite brittle and crumbly; soft
10 =	Paraffin‡ Yellow beeswax	110 11	52.7	IV	25-30	A. About like 11 B. Fairly strong; can be pulled very thin; somewhat more brittle than "Ambrine"
11 =	Paraffin‡ Spermaceti	110 11	53.5	III	25-30	A. Soft, but very coherent, and detaches well; *very* promising B. Good, about like "Ambrine"
12 =	Paraffin‡ Stearic acid	110 11	53.25	IV	25-30	A. About like 11 B. About like "Ambrine"; a little harder and probably a trifle more brittle
13 =	Paraffin‡ Cacao butter	110 11	53	III	35-37	A. Soft, but detaches well; very promising B. Soft and breaks
14 =	Paraffin‡ Cacao butter	110 22	52	III	35-37	A. Not greasy, but soft and crumbly, and not sufficiently coherent B. Soft and fragile
15† =	Paraffin‡ Resina	110 11	53.5	V	30-30	A. Very slightly greasy; detaches and coheres; but not quite as good as 16 B. Like "Ambrine," or stronger
16 =	Paraffin‡		52	IV	30-30	A. Detaches beautifully; very promising B. Rather more brittle than "Ambrine," but pulls out well; ductile at 36.5°; not at 33°.
17 =	Paraffin, "embedding," M. P. 48 C.		48	III	25-30	A. Coherent and detaches quite well B. Practically like "Ambrine"
18 =	Paraffin, "embedding," M. P. 52 C.		51.5	IV	24-25	A. Good film, but rather fragile B. About like "Ambrine," a little harder and more fragile and not quite as plastic
19 =	Paraffin‡ Cera flava	110 22	53.75	IV	25-30	A. Strong and coherent film B. About like "Ambrine;" slightly more brittle.
20 =	"Mulene"§		52	IV	16-18	A. Coherent, but detaches with difficulty B. About like "Ambrine;" slightly more brittle.
21 =	"Parresine"§		48	II	25-25	A. Soft, but coheres well B. About like "Ambrine," but slightly more fragile.
22 =	Yellow beeswax		(62:65 U.S.P.)	II	? -16	A. Dry, strong and coherent; not easily detached B. Fair resistance
23 =	Paraffin‡ Liquid Paraffin	110 5	49.5	II	33-36	B. Just ductile at 36.5°; not at 33°.
24 =	Paraffin‡ Liquid Paraffin Beeswax	110 5 10	52	II	33-33	B. Just ductile at 36.5°; not at 33°.
25 =	Paraffin‡ Asphalt Varnish	110 11	48.5	II	25-28	A. Dry, very extensile, coherent, somewhat adhesive. B. Just ductile at 28°.
26 =	Paraffin‡ Asphalt (Trinidad or Bermudez Asphalt Cement, 1 to 3%; or Texas Asphalt, 1%)	110 1 to 3	50.5-51	IV	27.29.5	A. Very pliable, somewhat adhesive B. Just ductile at 33-36°.
27 =	Paraffin‡ Texas Asphalt	110 5	51.5	IV	29.5-33	A. Pliable, but too adhesive B. Just ductile at 33-36°.
28 =	"Soft Paraffin"		50.5	III	26.5-28.5	A. Much more ductile than Formula 16 at body temperature B. Just ductile at 28.5°; not at 26.5°
	Cacao butter		32.8	Not determined personally		
	Stearic acid		56	Not determined personally		
	Spermaceti		(42-50 U. S. P.)	not determined personally		

* V is highest; zero lowest.

† Resin and Venice turpentine do not appear to mix well with paraffin, and must be kept stirred.

‡The brand of paraffin used in these experiments was "Parowax," a trade name applied to paraffin marketed by The Standard Oil Co. of Indiana. It is a rather hard paraffin; softer varieties would be preferable. It should be remembered that the various oil refining companies have individual trade names of their own for their products.

§Preparations Nos. 20 and 21 are proprietary formulas.

Class I.—*Simple Paraffins (17, 18, 16).*—These comprise the commercial paraffins of melting points of from 48 to 53 C. They are quite hard (generally IV of the scale), and break between 25 and 30 C. They would be used when a relatively stiff film is desired, which would separate clean from the wound. Their mechanical properties are quite similar to Ambrine. They are perhaps somewhat more fragile, but the difference does not seem important. They are the simplest and cheapest agents. Presumably any available "paraffin" could be used; but when a choice is possible, samples melting close to 50 C. would be preferred. It should be understood that commercial paraffins are complex mixtures of hydrocarbons and that the various commercial brands may differ in their physical properties, such as melting point, hardness and flexibility. It is doubtful, however, whether these differences are of practical importance in the clinical use.

Class II.—*Paraffin-Wax and Related Mixtures.*—The addition of small amounts of various waxes, etc., modifies the properties of paraffin somewhat; but the modifications are relatively slight, and I doubt whether they have any real importance. I tried mixtures with beeswax, 10 per cent. (Formula 10) and 20 per cent. (Formula 19); and with 10 per cent. of one of the following spermaceti (Formula 11); stearic acid (Formula 12) and resin (Formula 15). Nos. 15 and 19 have rather high melting points. The others stand so close to the simple paraffin that I doubt the advisability of giving them an extended trial. If experimentation should appear desirable, I would advise Formula 11 (the spermaceti mixture); or if this is too expensive, Formula 12 (stearic acid mixture).

The *proprietary mixtures of secret composition* also belong in this general class:

"Ambrine" (Formula 0), as I have said, approaches very closely to the simple paraffins.[2] It is rather more plastic and less brittle; but the difference does not impress one as important.

"Mulene" (Formula 20) also comes very close to the simple paraffins, and to Ambrine. The same remarks apply to both.

"Parresine" (Formula 21) is a rather different article. It is softer and more fragile than "Ambrine"; but on the whole it does not depart seriously from the paraffin type.

Class III.—*Paraffin-Asphaltum Mixtures.*—These are distinctly more pliable and more adhesive than the plain paraffin, and can be made into thinner films. Theoretically, these properties would be advantageous; practically, I doubt whether the advantages are important. The paraffin and asphalt do not form perfect mixtures, and must be kept stirred.

A mixture made with 10 per cent. of "asphalt varnish" possessed the desirable qualities, but since the composition of the asphalt furnished is complex and probably variable, no further experiments were made. Other preparations were made with the semi-solid asphalts, such as Trinidad or Bermudez "asphalt cement," from 1 to 3 per cent.; or Texas asphalt (Formula 26). These are not quite so plastic as the varnish formula, but nevertheless are quite promising. Higher proportions are less desirable, such as 5 per cent. of Texas asphalt in Formula 27.

Class IV.—*Paraffin-Oil Mixtures.*—These are considerably softer than the paraffins, and also considerably weaker (more friable); however, they are fairly coherent. They would perhaps be preferable in the early stages of treatment, since they would be somewhat emollient. The most promising is the mixture with 10 per cent. of oil of theobroma (cacao butter, Formula 13); then come the one with 5 per cent. of liquid petrolatum (Formula 23), and this with beeswax (Formula 24), and that with 10 per cent. of olive oil (Formula 8). That with 20 per cent. of cacao butter (Formula 14) is scarcely sufficiently coherent. That with 5 per cent. of castor oil (Formula 9) was unpromising. The mixture with 20 per cent. of Venice turpentine (Formula 4) had the properties of Class V, but appeared undesirable.

Class V.—*Paraffin-Petrolatum Mixtures.*—These differ materially from the other classes. They are very soft and might be termed "solid ointments." They are rather greasy, and crumble easily; No. 3 (75 per cent. petrolatum) was really a cerate and would not form a workable film. No. 2 (50 per cent. petrolatum) would also be practically unworkable. Twenty per cent. petrolatum (Formula 1) and 10 per cent. petrolatum (Formula 5) form weak, but manageable films. The last (Formula 5) would be worth trying when a very soft film is desired, for instance, on very sensitive surfaces.

Application to the Skin.—A selected series of preparations were applied to the skin in the same manner as they would be used clinically. A strip of skin about an inch wide was painted with the melted wax; on this was laid a very thin layer of cotton and over this was painted another layer of the wax. The adjacent strip of the skin is now painted with a second preparation, and so on. (This will be a very suitable method of comparing the preparations clinically.) The strips are covered with a bandage and left on for at least an hour. The following presented no marked differences:

"Parawax" Paraffin.....(16)
Paraffin-spermaceti .....(11)
Paraffin-stearic acid.....(12)
Paraffin, 48°.....(17)
Paraffin-theobroma .....(13)
"Ambrine" .....(0)
Paraffin-petrolatum .....(5)
"Mulene" .....(20)
"Parresine" .....(21)
Paraffin-beeswax .....(10)
Paraffin-resin .....(15)
Paraffin-liquid Paraffin.....(23)
Paraffin-beeswax-liquid paraffin...(24)
Paraffin-asphalt mixtures..(25 and 26)

Paraffin-asphaltum gave a film that was somewhat adherent, but that was smooth, strong and so pliable that it could be wound about a pencil without cracking.

CONCLUSIONS

The preparation and mechanical properties of a series of paraffin-film mixtures suggest that the most important mechanical property of such films from the therapeutic standpoint is their hardness. It is suggested that several degrees of hardness might possess advantages under different conditions.

Surgeons who desire to experiment with the paraffin treatment of burns are urged to use simple preparations of known composition, so that their results can be compared, and so that any deficiencies may be met, and improvements made intelligently.

The physical and mechanical properties of a series of paraffin and mixtures are described. *Ordinary*

2. In a preliminary study of paraffin mixtures in the A. M. A. chemical laboratory, Ambrine was found to contain about 96 per cent. unsaponifiable matter (paraffin).—Ed.

paraffin, melting between 48 and 53 C. (118-128 F.), preferably about 50 C. (122 F.) appears to possess practically the mechanical properties of the French preparation, and is urged as the standard of comparison.

Paraffin-Asphaltum (Formula 26) gives a preparation of superior pliability.

The following additional formulas are suggested for clinical trial as preparations of increasing softness.

Paraffin-Spermaceti (Formula 11) : Paraffin, 10 parts; spermaceti, 1 part.

Paraffin-Theobroma (Formula 13) : Paraffin, 10 parts; theobroma oil, 1 part.

Paraffin-Petrolatum (Formula 5) : Paraffin, 10 parts; yellow petrolatum, 1 part.

In comparing these films with each other, or with proprietary formulas, claimed points of superiority should be clearly established. Finally, experience may show it to be advantageous to add to the simple combinations I have suggested one or more medicinal agents such as resorcin, eucalyptus, scarlet red, etc.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 981)

NUTRITION IN NEPHRITIS

Diet in Acute Nephritis.—As already mentioned, a modified milk diet should be prescribed for the patient suffering with acute nephritis. The milk may be given hot or cold, preferably hot, sometimes predigested, sometimes diluted with a small amount of charged water, according to the patient's digestive ability. Fresh skimmed milk is frequently best for adults. As the phosphates are insufficiently excreted in nephritis, the phosphates of the milk may be precipitated into the intestine by precipitated calcium carbonate (from 0.5 to 1 gm.) taken three or four times a day. This, together with the phosphates of the milk, forms an insoluble compound, which is excreted by the intestine. Barley water is another beverage valuable for its nutritive properties, as a drink, and for its demulcent action on the gastro-intestinal tract. It may be advisable to give the patient well cooked and strained oatmeal gruel once or twice a day. Other simple, well prepared cereals may be substituted for the oatmeal.

As water is difficult of excretion in acute nephritis, the amount allowed the patient should be limited, according to the amount of urine excreted and the extent of the edema.

The patient's nutrition may be well maintained, not only for many days, but even for several weeks if necessary, on as limited an amount as 60 gm. of protein a day, although as soon as the kidney excretion is sufficiently increased it is advisable to increase this allowance to 90 or 100 gm. a day. The retained nonprotein nitrogen of the blood indicates the advisability of increasing or decreasing the protein element. Two quarts of milk contain slightly more than 60 gm. of protein; but many patients cannot well digest that amount of milk, and if the nitrogenous waste is not excreted by the kidneys it will not be readily excreted by the intestine or with the help of profuse perspiration. However, unless uremia or entire suppression of the urine contraindicates this course, a diet of from 1 to 3 pints of milk a day, barley water being used to dilute the milk or as an additional drink, together with a thin oatmeal gruel once or twice a day, furnishes sufficient nourishment during the active period of acute nephritis or during an acute exacerbation in chronic nephritis. It may be advisable to add cream to the milk in the proportion of one-half pint of cream to 3 pints of milk, or it may be better to use skimmed milk, according to the patient's ability to digest milk, the amount of gastro-intestinal disturbance caused, the ability of the kidneys to function, and whether or not the patient is uremic.

When the volume of urine begins to increase in this disease, there is an added excretion of solids. In the later stages of chronic nephritis this is frequently not true. When the kidneys are recovering from acute inflammation, although albumin and casts may persist in the urine for some time, the diet may be gradually increased by adding more cereal, rice, potatoes, eggs and fruits which do not contain benzoic acid, such as oranges, lemons and apples. It is as well to omit meat from the diet as long as albuminuria continues. If this condition continues longer than two months, however, the case becomes one of subacute or chronic nephritis, and the diet should be arranged accordingly, meat being allowed in small quantities. As soon as convalescence is established in acute nephritis, the patient should be given small doses of iron daily, and certain fresh vegetables, including beans and peas, which are rich in protein, should be allowed. Toast or zwieback may be given early in the treatment, the amount being gradually increased during convalescence.

The stage in the disease at which the amount of water allowed the patient should be increased is a question for careful consideration. If after a number of days the edema has not disappeared and the kidneys excrete only a small amount of water, it may be well to try the effect of giving more liquid. If this results in an increase in urine, the patient's system requires the added water; if, on the other hand, the urine is not increased, the water intake should again be reduced to the minimum. However, when the kidneys are functioning well there is no advantage in forcing them to overwork by administering large amounts of water.

If the necessary treatment causes profuse perspiration, and if the impairment of kidney function causes the retention of poisons and nonprotein nitrogen in the blood, these poisons must become more concentrated. The same is true when it is deemed advisable to produce watery bowel movements. Consequently, the effect of profuse catharsis and of profuse sweating on the character of the blood must be considered, as uremia may be precipitated by too strenuous treatment. Therefore, when profuse sweating occurs, or if profuse catharsis is caused, plenty of water should be imbibed. Although many toxins and salts may be excreted by the bowels, only a small portion of the poisons retained by insufficient kidneys is excreted by the skin, which also carries off a small amount of salts, as evidenced by the staining of the clothing, the finding of crystals on the skin, and the odor of urine from the perspiration. Emphatically, however, it is most unlikely that profuse perspiration, or catharsis to prostration, is indicated or of advantage in acute nephritis or in uremia. A diet such as will reduce nitrogen waste and salts to the minimum, and, if necessary, venesection to relieve the system of a certain amount of toxin-carrying blood, appears more rational than the doubtful method of concentrating the poisons in the blood.

If uremia apparently is imminent, the diet should be reduced to the smallest amount, perhaps a pint of milk and a pint of barley water a day. If edema is extensive, the amount of water taken may be reduced to a tablespoonful or an ounce at a time. If the patient does not improve rapidly, the treatment becomes that of uremia.

When the elimination of salt from the diet has resulted in the absorption of the edema or effusions to a certain extent, small amounts of salt and a little more water may be added to the diet. If the patient continues to improve and the edema does not increase, the salt and water may be gradually increased to the normal amount. Too long abstinence from sodium chlorid is detrimental to the tissues, and interferes with the normal production of hydrochloric acid in the stomach.

When an acute congestion or a subacute inflammation of the kidneys develops on a chronic nephritis, the treatment becomes that of acute nephritis.

Diet in Chronic Nephritis.—In changing the diet of a patient suffering with chronic nephritis, it should be recognized that it is inadvisable, for the sake of assisting the kidneys to overwork or injure other parts of the body. Care must be taken not to deprive the patient too long of needed elements of nutrition; nor should his fuel be radically changed from anthracite to bituminous coal, so to speak, as this will result in a radical change in his digestion and metabolism. A temporary radical change in diet or a gradual change to a radically different diet may be advisable; but the effect of this procedure on the patient must be carefully noted.

The necessity of withholding salt from the diet has already been discussed. The amount of nitrogen allowed in chronic nephritis is also of great importance; frequently nitrogen may be excreted when the salt is not; but the excretion of both nitrogen and salt is generally impaired.

Frothingham and Smillie[104] find, as have others, that the phenolsulphonephthalein excretion is not much modified by diet. They find that the blood pressure is not much lowered in chronic nephritis by a low nitrogen diet, but it does fall on rest, and when a low salt diet has eliminated retained sodium chlorid.

When the nonprotein nitrogen of the blood is increased, a low nitrogen diet generally reduces it, so that apparently the only valid reason for giving a very low protein diet in chronic nephritis is the elimination of nitrogen from the blood. High protein diets in chronic nephritis should be entirely prohibited, although, unless the case is one of uremia, a sufficient number of calories of protein must be given to keep up the strength of the patient.

No disease requires more careful regulation of diet than chronic nephritis. Excess in any elements of food necessary for nutrition causes loss of appetite, indigestion and retention of waste matter.

Not more than 90 gm. — or 3,000 calories of protein, represented mostly by carbohydrates and fats — and salt and water in exactly sufficient quantities should compose the diet when elimination is fairly good with an ordinary amount of exercise. The greater the muscular exercise, provided the elimination is sufficient, the greater the amount of food required. Strenuous physical exercise may, however, cause an increase of nitrogenous waste (especially creatin), which impaired kidneys cannot rapidly eliminate, and poisoning, verging on uremia, may occur. Hence such exercise should be prohibited. Also exposure to severe cold should be avoided.

When nitrogen is retained, the amount of protein consumed must be reduced; in overweight the amount of starch and fat must be reduced; in renal edema the amount of salt must be reduced; in insufficiency of the heart the amount of water must be reduced. When estimating the amount of protein intake, it should be remembered that milk and skimmed milk are rich in proteins. A straight milk diet for a chronic nephritic is usually to be avoided, as quarts of milk must be imbibed in order to obtain the required number of calories of protein. The ingestion of this great quantity of milk causes indigestion, overtaxes the heart, may cause hydremia and edema, and places too great a strain on the kidneys. The caloric and protein value of foods need not be set forth here, as this information is accessible in books on diet.

The diet selected should be based on the excretory ability of the kidneys,[105] the nonprotein nitrogen content of the blood, the condition of the heart, the blood pressure, the state of the digestion, the weight of the patient, and the physical and mental work required of him. The elements of this carefully selected diet should be varied from day to day (though each week may represent the food of the week before), as otherwise the patient loses his appetite and food becomes repugnant to him. It is well for the patient to have nothing but skimmed milk one day each week. This allows his blood and tissues to be relieved of retained excretory products. Also, if possible, one day of complete rest each week is advisable.

It has not been shown that fresh fish, poultry and meat (not rich in purins, as kidneys, sweetbreads, liver and shad roe) are any more harmful to the nephritic patient than are vegetable proteins, such as nuts, peas, beans and oatmeal; but some patients may tolerate vegetable proteins better. There is no special difference between red and white meat, though the latter may be more easily digested. Boiled meats are better than those cooked in other ways because some of the extractives have been lost. For this reason meat soups should not be allowed to patients with nephritis, as they contain mostly meat extractives.

With extensive edema, so-called diuretic drugs are inadvisable; although for a short time they stimulate the kidneys to a slightly greater activity, these organs soon tire and the excretion diminishes.

As a diet treatment the Karell milk cure, first suggested by Phillippe Karell, in 1865, is often successful in edema due to cardiovascular-renal disease, but is not as valuable in other types of dropsy.

The Karell treatment may be carried out as follows: The patient receives 200 c.c. of milk, in four doses, at four hour intervals during the day, beginning early in the morning. This treatment is continued for about a week. The milk may be taken hot or cold, as the patient desires, but he is allowed no other fluid and no solid food. After this period of limited diet he is allowed one egg and a slice of dry toast a day, for two or three days; the food is then gradually increased during the next two weeks by adding an egg, more bread, rice or other cereal, so that at the end of this period he is back to his ordinary diet, that is, the diet considered correct for one in his condition. Whether

104. Frothingham, Channing, Jr., and Smillie, W. G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

105. For test diets for nephritics see Janeway: Am. Jour. Med. Sc., 1916, **151**, 157.

or not a little meat should be allowed depends on the character of the nephritis and on the absence or presence of uremic symptoms. During this starvation period an enema or some vegetable cathartic should be used. If the patient suffers from extreme thirst, the amount of water allowed may be slightly increased, or if hunger becomes unendurable, he may be allowed a little more toast. If the edema is largely cardiac, he may be allowed a small amount of salt.

This is a rigid form of the Karell treatment. Modification of this treatment is made by limiting the diet to skimmed milk and allowing more cereal.

Whether digitalis should be given depends entirely on whether the edema is cardiac or renal. If the chronic nephritis is apparently superimposed on a chronic heart insufficiency, digitalis may be of marked benefit; on the other hand, if there are symptoms and signs of uremia, and if the edema is largely due to renal insufficiency, digitalis may make the condition worse. When the blood pressure is high, the retention nitrogen increased, and the output of urinary solids greatly decreased, digitalis is most decidedly contraindicated.

When there is a sudden change in diet, such as a change from milk to meat or from meat to milk, the albumin in the urine may be found temporarily increased, probably returning, in a few days, to the normal amount.

The great danger from meat extractives, meat broths, etc., lies in the creatin present in these extractives, as it has been shown that when creatin and creatinin are increased in the blood the condition is menacing. Hence the patient with chronic nephritis should not be allowed to eat meat stock soups, meat broths, or large quantities of meat. Eggs and milk contain very little creatin, and vegetables not any. When meat is entirely removed from the diet, such creatinin as appears in the urine must be produced by the patient's own muscles.

However true it may be that alcohol does not often directly injure the kidney structure, as overindulgence in alcohol results in gastro-intestinal indigestion and disturbance of the functioning power of the liver, secondary irritation of the kidneys inevitably occurs. Consequently, a person with chronic nephritis should, as a rule, be forbidden to partake of alcohol in any form.

In deciding the amount and character of the protein diet sufficient for a patient with chronic nephritis, we must not underestimate the needs of the body. If, on an ordinary protein diet it is found that the blood retains nonprotein nitrogen, the protein must, for a time at least, be reduced. If, as recently shown by Mosenthal and Richards,[106] even the consumption of large amounts of protein does not increase the nitrogen output or cause retained nonprotein nitrogen in the blood, the extra nitrogen or protein must be stored somewhere in the body, and we deduce the fact that this added protein was necessary to the patient. In other words, we must be careful not to underfeed the patient while trying not to overfeed him. There is no doubt that the life of many a nephritic patient has been shortened by the absorption of too little protein and too much milk, just as many a diabetic patient has suffered excessively from the lack of carbohydrate food.

(*To be continued*)

106. Mosenthal, H. O., and Richards, A. E.: The Interpretation of a Positive Nitrogen Balance in Nephritis, Arch. Int. Med., February, 1916, p. 329.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

FERRIC CACODYLATE.—Ferri Cacodylas.—Iron Cacodylate.—A ferric salt of cacodylic acid containing from 39.7 to 44.9 per cent. arsenic (As).

Actions and Uses.—Ferric cacodylate has the properties of iron salts and of arsenic. Its use has been proposed in conditions in which the effects of iron and the mild arsenic action of cacodylates is desired.

Dosage.—From 0.015 to 0.1 Gm. (¼ to 1½ grains).

Ampuls Iron Cacodylate-Mulford, 0.03 Gm. (1/2 gr.).—Each ampule contains iron cacodylate, 0.03 Gm. (½ grain), in 1 Cc.

Prepared by H. K. Mulford Company, Philadelphia.

Ampoules Iron Cacodylate, Squibb, 0.03 Gm. (1/2 gr.).—Each ampule contains iron cacodylate, 0.03 Gm. (½ grain), in 1 Cc.

Prepared by E. R. Squibb and Sons, New York City.

Ferric cacodylate occurs as a slight grayish-brown powder, having an apple-like odor. An aqueous solution of the salt is acid to litmus and to phenolphthalein. One part of ferric cacodylate is soluble in about 16 parts of cold water.

Ferric cacodylate loses about 5 per cent. of its weight when dried at 100 C.

With silver nitrate test solution, an aqueous solution of the salt (1:20) yields a white precipitate, soluble in nitric acid or ammonia water.

A mixture of 1 Cc. of an aqueous solution (1:100) of the salt with 10 Cc. of hypophosphorus acid develops the disgusting odor of cacodyl (caution on account of the extreme poisonous nature of the gas).

The ferric cacodylate used in the preparation of Ampuls Iron Cacodylate-Mulford, 0.03 Gm., complies to the following tests:

No turbidity is produced in 10 Cc. of an aqueous solution of the salt (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or on heating (*monomethylarsenate*). No yellow precipitate is produced in an aqueous solution of the salt (1:20) by ammonium molybdate test solution; nor is a yellow precipitate produced by sodium thiosulphate test solution. A white turbidity, but no yellow precipitate, is produced in 10 Cc. of an aqueous solution of the salt (1:20), acidulated with hydrochloric acid, on addition of 10 Cc. of hydrogen sulphide test solution. A portion of an aqueous solution of the salt (1:20), acidulated with hydrochloric acid, is not rendered turbid at once by barium chloride test solution.

Dissolve about 1 Gm. of ferric cacodylate, accurately weighed, in 200 Cc. distilled water, then titrate with normal sodium hydroxide volumetric solution, using 5 Cc. of phenolphthalein test solution as indicator. Each gram of ferric cacodylate requires not less than 5.3 Cc. nor more than 5.6 Cc. of normal sodium hydroxide volumetric solution; showing not less than 39.7 per cent. nor more than 41.9 per cent. arsenic (As). Theoretically ferric cacodylate, $Fe[(CH_3)_2AsO.O]_3$, contains 48.1 per cent. arsenic.

The ferric cacodylate used in the preparation of Ampoules Iron Cacodylate, Squibbs, 0.03 Gm., complies to the following tests:

An aqueous solution of ferric cacodylate (1:20) does not at once become blue on the addition of potassium ferricyanide test solution (*ferrous iron*).

A few drops of an aqueous solution of ferric cacodylate (1:100) mixed with 2 Cc. of hypophosphorus acid in a stoppered test tube develops the odor of cacodyl within one hour.

Five Cc. portions of an aqueous solution of ferric cacodylate (1:20) does not become turbid on the addition of silver nitrate test solution, lead acetate test solution or cobalt nitrate test solution (*monomethylarsenate*).

No turbidity is produced in 5 Cc. of an aqueous solution of ferric cacodylate (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or on heating (*monomethylarsenate*).

An aqueous solution of ferric cacodylate (1:20), from which the iron has been removed by precipitation with ammonia water and filtering, acidulated with hydrochloric acid, yields on addition of an equal volume of hydrogen sulphide test solution not more than a slight coloration (*heavy metals and arsenites.*)

Disease Incidence in China.—Tuberculosis is the greatest disease plague in China, as it is one of the greatest in the west. Next to tuberculosis rank the venereal diseases. Closely following are the parasitic water-borne diseases, as the typhoids, dysenteries and cholera. It is hard indeed to trace any acquired or inherited lack of susceptibility to these in the Chinese. They are undoubtedly as common if not more common than in the west. In fact, practically all of our western diseases flourish luxuriantly in China and usually claim a mortality higher than with us.—Dr. Alfred C. Reed, *Scientific Monthly,* January, 1917.

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SATURDAY, APRIL 7, 1917

THE IMMEDIATE EMERGENCY

If the President increases the army to the full strength, as provided by the Defense Act of 1916, there will be required 1,000 additional men for the Medical Corps of the Army — that is, for the regular service, not including the Reserve Corps. THIS IS AN ACTUAL PRESSING NEED WHETHER THERE IS WAR OR NOT. But there is also pressing need for more men in the Medical Reserve Corps. There are at present between 2,000 and 2,500 commissioned men in this corps. But of these, probably 20 per cent., for various reasons, would be found not available for active service when the actual emergency arose. If the recommendation in the President's message of last Monday, calling for an additional 500,000 men, is adopted, it means an immediate need for 3,500 additional medical officers.[1] These are facts that the medical profession of our country must bear in mind. Elsewhere we have stated that the medical profession will be prepared; may we emphasize that preparedness will mean sacrifice on the part of many medical men.

COLLOIDS, ACIDS AND KIDNEY SECRETION

Many of our readers are familiar with the view of Martin H. Fischer regarding the rôle of colloids in certain normal and pathologic phenomena, especially those concerned in the secretory activities of the kidneys. From a physicochemical point of view, the renal membrane which forms the central factor in the production of the urine is constituted of colloid substances in the nature of proteins. Starting with the analogy of the behavior of other colloids, such as fibrin and gelatin toward a variety of mediums — solutions of acids, bases, neutral salts and nonelectrolytes — Fischer has attempted to apply his observations to the problems of the behavior of secretory structures. As a confessedly rough model to illustrate some phases of urinary secretion, he has pictured a layer of organic colloid, like fibrin, through which solutions of various kinds may pass at constant pressure. Through such a colloid partition water or a "physiologic" salt solution passes at a certain rate. If the traversing solution is made acid, the colloid swells and lowers the amount of the artificial "secretion" to the point of stoppage. Salts can overcome the swelling effect of the acid on the colloid so that the passage of fluid is reestablished. It is also asserted that a more "acid" kidney will tend to retain more water than one in a less acid condition. Excretion will then be reduced because less water will be free for excretion.

Among the criticisms which have been directed against this explanation of altered kidney secretion, as it is observed in certain forms of nephritis, is the contention that in the body fluids the hydrogen ion concentration never reaches the degree that is essential for the colloid-altering effects just referred to in outline. The question here raised has lately been investigated by Reemelin and Isaacs,[1] who have also considered whether the varying reaction to which the kidney cells may be subjected as colloid structures affect the diffusion of the urea, sugar and other substances through the interposed membrane. They have perfused the blood vessels of excised kidneys with solutions of known composition in which the hydrogen ion concentrations were intentionally varied within limits comparable with those existing under actual conditions of life.

The results suggest that permeability of the renal structures may be altered by very small changes in the reaction of the fluids to which the physiologic membranes are exposed. Thus during the perfusion of saline solution containing urea, and within the physiologic limits of hydrogen ion concentration, the kidney colloids secrete more urea, the less acid the perfusing solution. The water secretion increases with the decrease in acidity. The amount of urea retained in the kidney colloids increases with the acidity. The urea excretory mechanism, while paralleling the water excretory mechanism in its operation, is quantitatively independent of it. These changes take place with very minute changes in the hydrogen ion concentration well within physiologic limits. The colloids of the body vary in their ability to hold dissolved substances under different degrees of hydrogen ion concentration. This suggests a basis for a mechanism of selective absorption and excretion.

Reemelin and Isaacs conclude that since the minute amounts of acid or alkali added to vary the hydrogen

1. Those desiring to offer their services should write to Surgeon-General Braisted, of the Navy, or to Surgeon-General Gorgas, of the Army, Washington, D. C., stating their age, when and where graduated in medicine, what practice they have been engaged in—what specialty, if any—and when they would be ready to respond to the call. This information should be accompanied with two letters of recommendation from physicians of good standing in the medical profession. This will save time.

1. Reemelin, E. B., and Isaacs, R.: A Study of the Conditions Involved in the Accumulation of Dissolved Substances in the Blood, I The Relation of Acidity to the Retention of Sugar and of Urea by the Colloids of the Blood and the Kidney, Am. Jour. Physiol., 1916, 42, 163.

ion concentration in their experiments on surviving kidneys are not enough to produce the effects on a basis of osmotic differences, they are dealing with a relationship between hydrogen ion concentration and colloids. It is of no interest to record the new facts and hypotheses associated with them without at this time debating the question of any further application to the living kidney.

EHRLICH AND VON BEHRING

On Aug. 20, 1915, Dr. Paul Ehrlich died from heart disease;[1] now the cable brings word that after long months of illness Dr. Emil Adolph von Behring is dead. He died April 1, 1917, aged 63. Behring was born March 15 and Ehrlich March 14, 1854, "twin sons of science and humanity," as they have been called; both, in 1890 and 1891, entered the service of the Institute for Infectious Diseases under Robert Koch became his assistants.

Behring's discovery of diphtheria antitoxin overshadowed his other work, but his research proved stimulating in many other ways. He was trained as an army medical man, and served as such at Posen, Bonn and Berlin, until appointed assistant at the Hygienic Institute and later at the Institute for Infectious Diseases. In 1894 he was called to the chair of hygiene at Halle and the year later to Marburg, where he has since made his home. Here he had charge of the Institute for Research, with its large medical farm, and to this he devoted most of the money that came to him in prizes and other ways. At the first distribution of the Nobel prizes, he was awarded the prize for the greatest discovery in medicine. This was in 1901. He had previously been the recipient of a prize of $5,000 from the Paris Académie de médecine, given to him in association with Roux of the Pasteur Institute. A prize of $10,000 was awarded him by the French Académie des sciences. He was also appointed a member of the Prussian privy council, the first physician, it is said, to be given that position. A title of nobility was conferred on him at the same time. Among his more recent scientific work are his improved antitetanus serum and his method of computing the total amount of blood.[2]

Previous to the time when he became assistant to Robert Koch, Behring had studied the questions of immunity and explained the immunity displayed by rats to anthrax as due to some property possessed by their blood serum. He had also decided (1884) that the action of iodoform is due to its neutralizing the toxins of pus-producing agents. These views of his seemed to be a return to the old discarded "humoral" conception of disease. Koch set him to studying disinfectants, seeking to discover some disinfectant with a therapeutic action on bacterial infection in general. A number of his conclusions have proved fundamental in our knowledge of sterilization, especially his discovery that certain disinfectants seem to have an elective action on certain bacteria. His most important discovery, however, was negative: he was unable to find any disinfectant which was powerful enough to affect bacteria through their protecting membrane without first irreparably injuring the tissue cells. This discovery drove him back to the study of bacterial toxins. He soon succeeded in immunizing animals with attenuated bacterial toxins against diphtheria and tetanus, and announced in 1890 that immunity is a humoral process, due to some newly acquired specific antitoxic power developed by the blood serum. This suggested the possibility of effectual internal disinfection of the infected organism by these newly discovered antitoxins, not in the sense that the antitoxins destroy the living parasites themselves, but that they make the bacterial toxins harmless for the carrier. The next step was the production of diphtheria antitoxin, and Ehrlich aided Behring materially in overcoming the practical difficulties, so that antitoxin was soon ready to enter on its triumphant career. Ehrlich's previous research had been mainly on the histology of the blood and on the behavior of the anilin dyes in the living body, their distribution in the body, and elective action on different tissues. Even before he entered the Institute for Infectious Diseases he had decided that the distribution of a substance in the body was a function of its chemical constitution. The very day after Koch's announcement of the discovery of the tubercle bacillus, Ehrlich was able to inform him of a new method of staining the bacilli. This was merely a by-product of his biochemical research, but it has proved of great practical value ever since. As soon as Koch had perfected the plans for his Institute for Infectious Diseases, Ehrlich was called to work with him. In Behring's diphtheria antitoxin, Ehrlich found the realization of his surmises in respect to the binding properties of certain chemical groups with specific attraction for each other, for the antitoxin seems to have no affinity for anything except the specific toxin which elicits its production. His research on abrin and ricin immunity further illuminated the dark field of immunity. The two research workers soon separated, Behring accepting the chair of hygiene at Halle but soon leaving it (1895) for the Institute for Hygiene and Experimental Therapy at Marburg, where he has since resided, Ehrlich going to the Serum Institute at Steglitz and then (1899) to the Institute for Experimental Therapy at Frankfurt, the scene of his further labors. Behring soon published his great work "Allgemeine Therapie der Infektionskrankheiten," which presented numerous new data on obtaining and neutralizing toxins and producing antitoxins. Ehrlich followed

1. The Death of Paul Ehrlich, THE JOURNAL A. M. A., Aug. 28, 1915, p. 814; Sept. 25, 1915, p. 1123.

2. Von Behring, E. A.: Mein Tetanusimmunserum, Berl. klin. Wchnschr., 1915, 52, 121; abstr., THE JOURNAL A. M. A., March 13, 1915, p. 947.

it with his important "Wertbemessung des Diphtherieserums" which was the groundwork on which has been built up the official standardization of curative and preventive serums. As one writer remarks, Behring forged the sword of serotherapy, but Ehrlich ground its edge.

After this, Behring devoted his research mainly to tuberculosis and Ehrlich to cancer, but neither accomplished much of practical therapeutic importance in these lines, although they discovered many new facts. Behring was the first to establish that it is possible to render a certain species of animals immune to tuberculosis. No practical therapeutic results have been derived from this fact to date, but his conception of the nature and development of pulmonary tuberculosis has proved stimulating to research in various lines. When Ehrlich returned to his earlier field of work, his discoveries in the line of chemotherapy produced salvarsan. Behring also returned to his earlier field, diphtheria, and developed a means of inoculating against diphtheria. By injecting a practically balanced mixture of diphtheria toxin and antitoxin, the human body proceeds to elaborate its own antitoxin. He found that the serum from persons thus actively immunized might be used for curative and preventive purposes. He hoped by this means to vaccinate people against diphtheria so that in time diphtheria would be exterminated as completely as smallpox now is.[3] Both Behring and Ehrlich were awarded Nobel prizes[4] besides honors of all kinds the world around.[5]

NEW OBSERVATIONS REGARDING THE CELLS ACTIVE IN BONE ABSORPTION AND RECONSTRUCTION

The traditional description of the development of bone begins with the formation of fetal cartilage, followed by an enlargement of the cartilage cells with a rearrangement into radiating cell rows at the center of ossification. The next step consists in the absorption of the cartilage matrix and finally also of the cartilage cells. Calcification now begins in the remnants of the matrix. Osteogenic tissue makes its appearance, and there gradually arises a deposit of primary bone by the osteoblasts on the calcified cartilage. This is succeeded by the absorption of portions of the primary bone by a different type of cells — the osteoclasts — to form the large central marrow cavities. Finally a deposit of new bone proceeds at the periphery, resulting in the ultimate more compact osseous structure.

The alleged activity of the giant cell osteoclasts is believed to determine the rapid absorption of newly formed primary or primitive bone in preparation for the subsequent more permanent ossification processes. In the erosion of calcified cartilage and provisional bone during endochondral ossification, the osteoclasts have seemed to resemble the phagocytes which act as scavengers in many parts of the body. Evans and Schulemann[1] have demonstrated that such cells, sometimes termed macrophages, are united by a common physiologic activity into a great group, although they are anatomically heterogeneous and scattered about the body. They exhibit manifestations of vital staining when certain dyes of the benzidin group of pigments are introduced into the circulation during life; and this is believed to be due to an engulfment of dye precisely as bacilli or other foreign particles are engulfed by phagocytes. It occurred to Shipley and Macklin[2] of the Department of Anatomy at Johns Hopkins University to test the hypothesis of the phagocytic character of the osteoclasts by noting their behavior under vital staining.

The structural features of the osteoclasts of the bone marrow, together with their supposed destructive action, led Shipley and Macklin to expect, in the osteoclasts of animals whose bone and cartilage were undergoing rapid erosion, an ingestive reaction, identical with that of the macrophages, toward the high molecular dyestuffs and colloid solutions. And this reaction was looked for in spite of the fact that the cytoplasm of the osteoclasts shows none of the evidences of phagocytic activity in the form of ingested pigment or red blood cells, such as are found in the macrophagic reticulo-endothelium of the bone marrow and the other fixed phagocytes of the body. It is perfectly possible to think of these cells as able to drink in the ultramicrons of colloidal or semicolloidal solutions (in other words, the finer material subdivisions), while, because of the coarser physical state of the substance, or for other reasons, they are not able to ingest the masses of large size which, enclosed in the cytoplasm of a cell, are the usually accepted evidence of its phagocytic powers. The idea, therefore, presented itself of staining young and growing animals with azo dyestuffs and metallic colloids and studying the young osseous tissue.

It was found in these studies with the aid of vital staining that the osseous tissue may be deeply colored, and that the stain is much more marked in the growing than in the fully developed bone. But although this avidity for the dye had some obvious relation to osteogenesis, contrary to expectation no dye whatever was found in the osteoclasts, as experience with other giant cells would have led one to anticipate. The investigators conclude, therefore, that if the osteoclasts have any part in the resorption of calcified cartilage and bone, that part must be played either through the pressure of their bodies against it or the production of a

3. Behring's New Method of Inoculation Against Diphtheria, editorial, The Journal A. M. A., June 28, 1913, p. 2051.
4. Ehrlich's prize was divided with Metchnikoff, 1908.
5. The material for this editorial was taken largely from the Festschrift to Drs. Ehrlich and von Behring, Deutsch. med. Wchnschr., 1914, **40**, 521.

1. Evans and Schulemann: Science, 1914, **39**, 443.
2. Shipley, P. G., and Macklin, C. C.: Some Features of Osteogenesis in the Light of Vital Staining, Am. Jour. Physiol., 1916, **42**, 117.

secretion which can dissolve or at least disintegrate the calcareous tissue with which it comes in contact. If the erosion of cartilage and bone is accompanied by phagocytosis of disintegrated tissue fragments, that operation must be carried on by other elements in the marrow cavity. The evidence all points to the ordinary reticulo-endothelial cells of the marrow reticulum. It is these which are most numerous in areas in which the resorption of bone and cartilage is most active. Shipley and Macklin accordingly conclude that these cells specialized to ingest small particles are active in the work of ingesting the débris of bone and cartilage absorption and clearing it away. How this is actually accomplished remains an interesting speculation.

THE STUDY OF A DIURETIC

The therapeutic use of diuretic procedures involves two frequently quite dissociated underlying features. The urine serves to remove undesirable products from the body through the medium of secretion by the kidneys. Substances arising in metabolism, and foreign compounds, such as poisons, drugs or toxins of disease, are thus eliminated promptly, although it is not always duly realized that certain substances tend to leave the body by secretion into the bowel rather than in the urine. So far as diuresis increases the output of toxic or waste products, it may often serve a useful purpose. Sometimes water accumulates in the tissues, particularly if the circulation is impaired; diuresis affords the most satisfactory method of disposing of accumulations, provided the kidneys are capable of functioning normally.

Many clinicians think of diuretics solely from the standpoint of their efficiency in removing water from the body. It happens, however, that often the important problem is the removal of substances, other than water, for which the kidneys are no longer so readily permeable. Cases frequently arise in which there is considerable retention of excretory products without any edema and without any occasion for the elimination of water alone from the body. Furthermore, edema itself usually does comparatively little harm except in patients with marked cardiac insufficiency, when it forms a troublesome symptom and its removal brings relief.

These varied possible factors in relation to the efficiency or desirability of diuretic procedures indicate the need of careful studies to ascertain precisely what each type of alleged diuretic accomplishes in the varied conditions presented by healthy or impaired kidneys as well as in cardiorenal disease. Only by such investigations can the use of diuretics be put on a rational basis, and the indications or contraindications of special drugs established. The assertion has been made, for example, that diuretics are contraindicated in many cases of acute nephritis because they act to increase the work of the kidney and are irritants which may augment the pathologic process already existent in the kidney.

Christian[1] and his associates in the Medical Clinic of the Peter Bent Brigham Hospital have made extensive experimental studies on these questions. They conclude, particularly from observations on animals, that diuretics are ineffectual or often injurious in acute experimental nephritis. Christian has pointed out that frequently when the kidney is damaged, diuretics do not cause a diuresis; or, if a diuresis occurs, there may be evidence of marked renal fatigue subsequent to the diuresis. Skepticism has been expressed as to the efficacy of diuretic drugs in cases of nephritis in which the kidney is seriously damaged. Recently he has made a more exhaustive study[2] of a single widely used diuretic, theocin (theophyllin),[3] on a group of patients with acute nephritis or chronic nephritis or cardiorenal disease. The results are quite in accord with the observations on animals. The drug has no constant diuretic action. In persons with slight or no edema it has little or no therapeutic value, as diuresis is not constantly produced, elimination of nitrogenous substances quite often is slightly if at all increased, and renal function is frequently decreased after theocin has been given.

When theophyllin actually produces diuresis, it usually is only the output of water and sodium chlorid that is enhanced. These substances are not necessarily the most objectionable. As Christian says, there is more evidence that nitrogenous substances of some kind are toxic, but nitrogen elimination is much less constantly increased by theocin and quite often is actually decreased. So, from this point of view we might question the therapeutic efficiency of theocin in cases of nephritis with moderate amounts of edema. Perhaps we can asssume that a diuretic is used in this type of case to increase renal efficiency, to stimulate the kidney to increased work. Measured by water or sodium chlorid output, theocin might be said to accomplish this; measured by nitrogen elimination, function is little improved, often is made worse.

In cardiorenal cases with marked edema, theocin is of therapeutic value, because it produces, especially in conjunction with digitalis, an active diuresis with increased sodium chlorid elimination, which decreases edema, a troublesome feature in these cases. As there is evidence that, following an active diuresis, renal function is depressed, an intermittent usage of theocin seems preferable to a continuous usage in cardiorenal cases with edema.

1. Christian, H. A.: Am. Jour. Med. Sc., 1916, **151**, 625.
2. Christian, H. A.: Some Studies of a Diuretic (Theocin), Arch. Int. Med., November, 1916, p. 606.
3. Theocin (N. N. R., 1916, p. 380) is a proprietary name applied to a synthetically produced theophyllin. Theophyllin is isomeric with theobromin, that is, its chemical elements and the percentage proportions are the same as those of theobromin. It differs from theobromin in that certain groups are arranged differently. Theobromin is closely related to caffein. While theobromin is dimethyl-xanthin, caffein is trimethylxanthin (N. N. R., 1916, p. 375).

Current Comment

MEDICAL PREPAREDNESS

When the president issued a call for volunteers at the time of the Spanish-American War, April, 1898, the medical services of the army and navy were about to hold the regular examinations to fill the ranks from losses due to the ordinary depletions in time of peace. There was no call for the mobilization of the medical profession as comes today. The fact that the life of the army is almost dependent on its medical staff was not appreciated then. There was much talk of the possibility of yellow fever attacking the troops, but no one realized the immense responsibility soon to fall on the medical corps, in connection not only with this disease, but also with the infectious diseases and sanitary problems inherent in the life of an army. There had been no campaign of preparedness, no enlistment of physicians, no establishment of and instruction of reserve corps. But the experience of that day had its effect. Over a year ago the American National Red Cross began to organize and to equip complete base hospital units. As we noted last week, twenty-nine of these base hospitals have been organized, twenty-two of which are completely ready for service and to go whenever and wherever ordered. Elsewhere in this issue[1] attention is called to the work of the Council of National Defense and the Committee of American Physicians on Medical Preparedness who have been enrolling and classifying the medical profession for service, and listing available stationary hospitals for the wounded. Even were this all that had been done in the way of medical preparedness, it would be far ahead of anything thought possible a few years ago. This preparedness applies both to the army and to the navy services. There still remains, however, much to be done. What has been accomplished must be regarded as but a beginning for what may eventuate. We must not make the mistake of underestimating what is before us. It is possible that our land forces may not be called on for actual fighting. But we do not know. It is possible that the number of men now called for may be all that will be required; on the other hand, 2,000,000 or 3,000,000 may be required. Preparedness means readiness for anything that may occur. The medical profession must and will be ready. Of this we are sure.

AN OPPORTUNITY FOR THE YOUNGER MAN

Our country is calling for volunteers. There is a need for medical men for both the Army and Navy. Without doubt the patriotism in our profession will prompt such a complete response that there will be no difficulty whatever in getting as many medical men as may be needed for active work. We are referring, here, not to the extra need on account of the declaration of war which, as we write, seems to be imminent, but to the fact, which we would emphasize, that the Medical departments of the Navy and of the Army have been and are urgently calling for men to enter these services permanently. Neither is full; the navy especially is shorthanded. During the last year or two we have called attention to the advantages offered in both of these services. Last week we printed an article by Major Noble setting forth the advantages of the Army Medical Corps as a career. Next week we hope to publish a similar article regarding the Medical Corps of the Navy, by one of the officers of that corps. Of course this call is limited to the younger men, those under 32. Within a few weeks over 3,000 young physicians will be graduated from the medical schools of our country. There are 2,641 senior students in the Class A schools. In addition, there are thousands of young men acting as interns in hospitals and young men in active practice who have not yet become "anchored." These are the men who, far from making a sacrifice in taking such positions, would be availing themselves of a great opportunity for a life-work. The Surgeon-General of the Navy has, with some success, directly appealed to the senior students of the leading medical colleges and, as will be noticed elsewhere, arrangements have been made by which the senior students of satisfactory standing who accept the call will be excused for the remainder of the session without forfeit. The country is calling to the young men just entering, or who have just entered, on the practice of medicine. May we again remind these younger men of medicine that there is offered not only an opportunity for development, but also an opening into a life work in which at this time advancement will be rapid for those who are capable and deserving.

THE ARMY SURGEON

It is safe to say that the majority of physicians who are considering offering their services to the government at this time have only a slight conception of the difference between military duties and civilian practice. The glamour of surgery has been cast over the duties of the physician in war time; but the work of the surgeon usually begins only after the duty of the soldier is done. The surgeon repairs the wounded man. The duties of the physician as a medical officer begin with the enlistment of the man before he is a soldier, take him from the recruiting office into the camp of mobilization, accompany him into the zone of war, select the site for the camp, keep the soldier fit for his duty as a fighting man, guard him from the devastation of infectious diseases, and prevent his incapacitation from exposure, from bad food and from the thousand and one other conditions of army life which are more dangerous than the bullet of the enemy. There is work for the epidemiologist, for the laboratory man, for the ophthalmologist, for the laryngologist, for the dentist and for the diagnostician, as well as for the internist and the surgeon. The surgeon by no means comes first. If any fact has become evident during the last three years it is that preventive medicine is the most important factor in keeping an army "fit," and, therefore, in the final determination as to which side shall be the victor.

1. See page 1060.

THE PUBLIC ASKING QUESTIONS

Do you know the extent of the educational work of the Propaganda department of THE JOURNAL as it relates to the general public? We ask the question because we are led to believe from comments made by visitors to the Association's building that few physicians realize the extent of the correspondence carried on in that department. It may not visualize the matter especially well to say that during the past four years the Propaganda department has received nearly 16,000 letters of inquiry — a very considerable portion of them from laymen — regarding "patent medicines" or some form of quackery. Over 95 per cent. of these letters were satisfactorily answered. This phase of the Propaganda department's activities has developed without any publicity save what naturally came as a result of service rendered. But the public is becoming more and more interested, and a recent incident shows what might be expected were the public more generally informed on this part of our work. The *Ladies' Home Journal* for April had a brief paragraph calling attention to the Propaganda department. It appeared in a department, edited by Dudley Harmon, which chronicles what the government and other organizations are doing in the public interest. The paragraph, entitled "The Medicine You are Taking," reads:

"Uncle Sam knows a lot about 'patent medicines,' but curiously enough his own laws won't permit him to tell you much of what he knows. The laws under which he has prosecuted scores of manufacturers have fallen far short of entirely eliminating the bottled poisons sold as health-giving medicines, while millions are deluded daily by the false and extravagant claims made in advertisements of alleged 'cures' and 'treatments.'

"But there are people in this country able and unafraid to tell you the whole truth about the 'patent-medicine' fakes and dangers. The Propaganda Department of the American Medical Association knows even more about them than the Government itself; and, what is more, it has as its sole purpose their exposure to the medical profession and to the public.

"To the limit of its capacity, this Propaganda Department, supported by the medical profession, is willing to help and to advise you. So, if you are in doubt as to the honesty or value of any particular preparation, or wish to help in the cause of educating the public, communicate with this organization at 535 North Dearborn Street, Chicago, Illinois. As a matter of courtesy, you might include a two-cent stamp with your letter when asking for assistance."

The day after this issue of the *Ladies' Home Journal* reached the public THE JOURNAL began to hear from it. While it was to be expected that some inquiries would result from this publicity, the extent of the public's interest in the subject of self-medication was underestimated. The Propaganda department has been inundated with inquiries that have poured in on it. The letters, naturally most of them from women, have come from all parts of the country — from Florida to Saskatchewan. As we write, they are averaging thirty a day. And the end, apparently, is not yet in sight.

The Assessors.—As the bookkeeper and accountant are the recorder and analyst of business transactions, so the registrars of births and deaths provide the means of assessing the results of public health administration.—Haven Emerson, M.D., "Preparedness for Health."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

New Officers.—The George Washington University Medical Society, composed of the alumni and faculty of the medical school, at a recent meeting elected Dr. W. Ashby Frankland, president; Dr. Coursen B. Conklin, vice president; Dr. Thomas Miller, secretary, and Dr. Edward G. Seibert, treasurer.

Revocation of License Sustained.—An official communication states that, March 16, the Court of Appeals of the District of Columbia sustained the action of the Board of Medical Supervisors in revoking the license of Dr. Thomas June Kemp. Dr. Kemp's license was revoked, May 29, 1916, on the ground of his having been convicted of a crime involving moral turpitude.

Duplex Report Cards for Reportable Diseases.—To facilitate the reporting of recoveries, each blank form to be used for the original report of a case now has attached to it a blank form on which to report the recovery. In instructions printed on the report card, the health officer suggests that when the physician fills in the report of the case he fill in also the attached recovery card, except date and signature, and detach it and hold to facilitate prompt report of the recovery at the proper time. The presence of the detached report card is expected to serve as a reminder to the physician of his duty to report the recovery, and if it be filled in while the report card is still before the physician, errors of name and address will be avoided. The physician is requested to leave the recovery card with the family of the patient if the physician discontinue attendance before recovery, as is frequently the case when the patient is suffering from measles, whooping cough and chickenpox.

ILLINOIS

Meet for Preparedness.—The Illinois Association of the Medical Reserve Corps is holding meetings every Tuesday evening to receive instruction from Major William N. Bispham, M. C., U. S. Army, with a view to better prepare themselves to serve the country in case they should be called into active service.

Norbury Dinner.—A dinner was given by philanthropists and social workers at Des Moines in honor of Dr. Frank P. Norbury, Jacksonville, March 13. Dr. Norbury delivered an address in which he outlined his work in mental hygiene. He also delivered a short address to the business men of Des Moines in which he explained how to establish a medical dispensary at every county seat in Iowa.

Infantile Paralysis Clinics.—Clinics for instruction in infantile paralysis are being held throughout the state by Dr. Clarence W. East, Evanston, representative of the state board of health. One clinic was held under the auspices of the Rock Island County Medical Association at Rock Island, another at Freeport under the auspices of the Stevenson County Medical Society, and a third at St. John's Hospital, Springfield.

Chicago

Fenger Memorial Grant.—The directors of the Fenger Memorial Association have made a grant of $400 to Pierce McKenzie for support of chemical and other work under the direction of Dr. E. R. LeCount. He will study the brain and other tissues from cases of heat stroke in order to determine, if possible, better than now known the cause of the high temperature in this condition.

Personal.—Dr. Frank C. Linden, president of the faculty and head of the department of medicine in Jenner Medical College, resigned from that institution, February 20, after having been connected with the college for sixteen years.—— In a collision between automobiles on Lake Shore Drive, March 24, Dr. Alexander F. Stevenson sustained severe bruises.——Dr. Daniel A. K. Steele has been elected president of the consulting staff of the Municipal Tuberculosis Sanatorium and Dr. Merlin Z. Albro, secretary.

Hospital Changes Recommended.—In a report to the health commissioner of Chicago, Mrs. William R. Cubbins, director of the Citizens Committee, recommended the consolidation of the old and new Contagious Disease Hospitals under open management; the establishment of a laboratory for research

work in the new institution; the appointment of a consulting staff of physicians; the construction of two additional four-story wings to the new hospital; the painting and redecorating of the old hospital and the establishment of cubicles in the old hospital for the observation of patients and the isolation of suspected cases.

INDIANA

Hospital Wrecked by Explosion.—One end of the Schneck Memorial Hospital, Seymour, was wrecked recently by the explosion of the steam sterilizer.

Personal.—Dr. John L. Freeland, formerly superintendent of the City Hospital, Indianapolis, has moved to Rocky Ford, Colo.——The home of Dr. William Walkinshaw, Stillwell, was almost entirely destroyed by fire, March 22.——Dr. David J. Cummings, Medora, sustained a cerebral hemorrhage at his home, March 17, and is in a serious condition.——Dr. Samuel S. Washburn, Lafayette, for forty-three years a practitioner of Tippecanoe County, has retired from active practice.

KANSAS

Field Hospital for Kansas.—Capt. Seth A. Hammel, M. C., Kan. N. G., Topeka, has been authorized by the adjutant general to organize a field hospital company in Topeka.

Public Health Organization.—The Kansas branch of the American Public Health Association was organized at the University of Kansas, Lawrence, March 16, and the following officers were elected: president, Prof. C. A. Haskins, Lawrence, sanitary engineer of the state board of health; vice president, S. P. Elder, Atchison, and secretary-treasurer, Miss Myrtle Greenfield, Lawrence. Among the subjects discussed at the meeting were, "Problems of the Feebleminded," "School Sanitation," "Tuberculosis Problems" and "Public Health Nursing."

MARYLAND

Naval Hospital Base.—The Navy Department is making inquiries in Baltimore hospitals as to their equipment, and there is a strong belief among physicians that Baltimore will be selected as a great hospital base for that branch of the service. The United States Army has already selected Baltimore as one of the great hospital bases of the country, Johns Hopkins having been chosen.

Quarantine to Be Taken Over.—The board of estimates of Baltimore received a letter, March 20, from Asst. Surg.-Gen. Arthur H. Glennan, U. S. P. H. S., Washington, D. C., stating that the government will be ready to take over the Baltimore Quarantine about July 1. The government agrees to pay the city $176,775 for the station and its equipment, including buildings, land and boats.

Life Extension.—The first of a series of public lectures was held under the auspices of the Medical and Chirurgical Faculty of Maryland in Osler Hall, Baltimore, April 3, the topic under discussion being "The Extension of Life." Dr. Lewellys F. Barker, Baltimore, spoke on "The Man of Fifty Years," and Dr. Eugene Lyman Fisk, New York, on "Living Long and Living Well."

University of Maryland Senior Class to Graduate.—To determine those eligible to be called into the naval reserve force as assistant surgeons, a canvass among medical students of the University of Maryland will be taken, while awaiting the action of the State Board of Examiners on the suggestion of Dr. William C. Braisted, surgeon-general of the United States Navy, that the senior class of the university be graduated within the next few weeks. Intense interest in the national defense idea is being displayed among the students, and military training, under the supervision of an army officer, is being kept up.

Preparedness.—Members of the medical and dental professions filled Osler Hall, March 30, when they assembled to discuss war service. There were also present women practitioners, who manifested as much interest as the men. Dr. Thomas S. Cullen, president of the Baltimore Medical Society, presided and introduced Dr. William H. Welch, Baltimore, whose subject was "The Medical Profession and Preparedness." He gave an account of his visit to England and France, where he visited the various hospitals and laboratories. Major Robert E. Noble, M. C., U. S. Army, Washington, D. C., spoke of the doctors that the government needs and how it will use them. Speeches were also made by Lieutenant Wilson of the Naval Recruiting Office, and by Dr. Gordon Wilson, who told of what the doctors of Baltimore could and should do.

Personal.—Dr. William Rush Dunton, Jr., of the Sheppard and Enoch Pratt Hospital, Towson, has recently returned from a visit to Clifton Springs, N. Y., where he assisted in the incorporation of the National Society for the Promotion of Occupational Therapy, which has as its object the consolidation of workers among the blind, crippled, nervous, physically and mentally weak, who use work in varying degrees as a means of recovery.——Dr. Thomas B. Horton, Curtis Bay, who has been seriously ill with rheumatism for five weeks, is able to attend to his office practice. It is expected that within the next few days he will be able to leave his home. ——Dr. Charles W. Rauschenbach of the University of Maryland has received his commission as lieutenant, Medical Corps, U. S. Army, and will report for duty in the near future.—— Dr. John S. Green, Gittings, who has been seriously ill, is reported to be improving.

Fund to Equip Base Hospital.—At a meeting of business men of Baltimore at the Merchants' Club, Baltimore, March 30, the statement was made by the chairman of the committee that the sum of $30,000, the amount required for a base hospital, was in sight. Of this sum, $21,000 has already been subscribed. Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, who represented the Baltimore surgeons and physicians willing "to do their bit," was authorized to proceed with the organization and equipment of a base hospital. This hospital will be taken over and maintained by the War Department in case of hostilities. It will be one of thirty similar institutions organized in different cities, and will follow the army. Dr. Smith has been requested by the federal government to proceed as speedily as possible with the completion of the Red Cross base hospital. Four hundred surgeons, physicians, nurses, electricians, plumbers and carpenters are in the hospital organization. Among the members on the medical staff are Drs. William S. Baer, John M. T. Finney, Theodore C. Janeway, Walter A. Baetjer, Thomas R. Boggs, John Staige Davis and William A. Fisher, Jr., all of Baltimore.

NEW YORK

Public Health Association to Move.—The Rochester Public Health Association has sold its home at 95 Troup Street, and for the time being will rent accommodations for the continuance of the preventive, tuberculosis and dispensary work of the organization.

Disinfection of Water.—In order to equip the troops for the disinfection of drinking water, the state department of health is making a study of an outfit which will provide calcium hypochlorite in exactly the necessary quantities to disinfect 50 gallons of water, and after disinfection will remove the disagreeable taste due to the excess of chlorin.

Mobile Laboratory Unit.—Dr. Hermann M. Biggs announces that the division of laboratories for research is assembling, and preparations are being made for a mobile laboratory unit to establish diagnostic service at any point needed in connection with the mobilization of troops. The laboratory has also put up a large supply of bacterial vaccines against typhoid, paratyphoid and dysentery, and also large stocks of smallpox vaccine, diphtheria and tetanus antitoxin, pneumonia, meningitis and dysentery serums.

Scarlet Fever.—Scarlet fever is reported to be epidemic in Rochester, where more than 300 cases have been reported. There are already forty-two patients at the Municipal Hospital. There appear to be two forms of epidemic scarlet fever in Rochester, a severe outbreak which occurs every twenty to twenty-five years, and a milder form occurring in from four-year to six-year cycles.——March 19, there had been reported 130 cases of scarlet fever in Syracuse. Fifty-two patients were in the city hospital. The cases are chiefly mild in character.

Recommend Changes in Antinarcotic Law.—The committee on the drug evil of the committee of magistrates met recently to discuss needed changes in the Whitney law dealing with the use and distribution of narcotics. The committee suggested two amendments to the law, one compelling physicians to make a third copy of all prescriptions for narcotics, to be sent to the health department, and a second requiring that the board of health be informed as to the exact amount of narcotics kept in stock by all physicians. It was decided that these changes would make it easier for authorities to control the drug evil.

Health Officers as Army Examiners.—Health Commissioner Hermann M. Biggs has offered the services of all the health officers in the state, about 1,000 in number, to the military authorities, the idea being to use them in making preliminary

physical examination of recruits in case the country becomes involved in war. Dr. Biggs' offer has been accepted by the adjutant general of the state. The proposed plan is that health officers give prospective recruits a preliminary examination and that only those who can fulfil the physical requirements of the army will be passed on to the medical officers for final examination.

New York City

Medical Officers' Reserve Corps Recruiting.—Under the direction of Dr. Henry C. Coe, President of the Medical Officers' Reserve Corps, examination of applicants for the corps is being conducted at the New York Academy of Medicine, every afternoon excepting Saturdays, from 3 to 5 o'clock. This forms a part of a campaign to add men to the corps.

Baby Week.—The Babies' Welfare Association of New York City, in announcing that the first week in May has been designated as Baby Week throughout the country, urges all organizations to undertake local celebrations in the districts in which they work, and advises that in view of the present national situation no attempt be made to form a centrally organized committee like those of previous years.

Personal.—Dr. Frank H. Carber of the Mayo Clinic, Rochester, Minn., has joined the diagnostic staff of the Life Extension Institute.——Dr. Leon T. LeWald has been appointed professor of roentgenology at the University and Bellevue Hospital Medical College.——Dr. Charles Fisher, Brooklyn, sustained serious injuries of the arm in a collision between his automobile and another car.

Societies Endorse Antidrug Bill.—The Medical Society of the State of New York, the Medical Society of the County of New York and the Medical Economic League have endorsed the antinarcotic legislation drafted by the joint legislative committee which is investigating the drug evil. The bill provides for free drug supply to addicts, and the registration of addicts so that they may be advised by the state, and of a thorough check on the distribution of narcotic drugs.

Brooklyn Physicians Demand Autonomy.—At the meeting of the Kings County Medical Society in Brooklyn, March 20, it was decided to begin a campaign to secure an independent health department for Brooklyn, and a resolution was adopted appointing a special committee of fifteen to be known as the charter revision committee, whose sole function is to bring about legislation at Albany by a campaign among the civic bodies of Brooklyn and the people generally, to the end that absolute borough autonomy in health matters of Brooklyn be obtained.

Military Training at Cornell.—In addition to military training offered by the Department of Military Science and Tactics of Cornell University, at Ithaca, the Medical Department of New York has commenced a course of lectures of "Military Medicine,. Sanitation and Surgery," which are being given by Major Philip W. Huntington, M. C., U. S. Army. This course is available not only to the senior class in the medical college. but to all members of the Medical Reserve Corps in and about New York, as well as to physicians and nurses of the various Red Cross units.

Mackay Hospital Unit.—Clarence H. Mackay and his mother, Mrs. John W. Mackay, have made a joint gift of a completely equipped base hospital unit of 500 beds to the United States government through the American Red Cross. The organization of the unit has been accomplished by Roosevelt Hospital. Col. Jefferson K. Kean, M. C., U. S. Army, assisted in the organization. The staff of the unit, which will be called Red Cross Base Hospital, No. 18, will be directed by Dr. Charles A. H. Peck. Under the direction of Dr. Charles N. Dowd an alternate staff is being organized.

American Red Cross Work in New York.—The New York Chapter of the American Red Cross announces that in case war is declared it will have ready a complete hospital equipment for an army of 300,000 men. A fund of $215,000 for the equipment of seven military base hospitals organized in New York is completed. It is also stated that the Atlantic Division of the American Red Cross, of which New York is the center, has increased its membership in this part of the country by 150,000 since the break in diplomatic relations with Germany. The membership of this division now exceeds 310,000, more than one half of the entire Red Cross enrolment of the country.

OHIO

Health Insurance Commission Appointed.—The bill creating a commission to study the entire question of compulsory health insurance has passed both houses. It is expected that Governor Cox will sign it.

The Conklin Memorial.—The Montgomery County Medical Society has erected in the medical room of the Dayton Public Library a memorial tablet in honor of the services of Dr. William Judkins Conklin, formerly president of the library board.

Personal.—Dr. Chester C. Kirk, for thirteen years a member of the staff of the Toledo State Hospital, has resigned to accept the position of superintendent of the State Hospital for Nervous and Mental Diseases, Little Rock, Ark.——Dr. Charles E. Sawyer, Marion, has been reappointed a member of the state medical board.——Dr. Walter A. Haldy, Cleveland, has returned after three months' Red Cross service in Germany.

PENNSYLVANIA

Mellon Lecture.—May 18, Prof. Otto Folin, Ph.D., of Harvard University will deliver the third Mellon lecture of the Society for Biological Research of the University of Pittsburgh Medical School. The subject lecture will be "Recent Biologic Investigations on Blood and Urine; Their Bearing on Clinical and Experimental Medicine."

Medical War Survey.—At a meeting of physicians of Pittsburgh, in the academy of medicine rooms, March 13, steps were taken to classify the medical, surgical and hospital possibilities of Pittsburgh and Allegheny counties for war service. Dr. John J. Buchanan was elected president, Dr. Sidney A. Chalfant, secretary, and Dr. George C. Johnston, treasurer of the organization.

Personal.—Dr. Edward Ryan, Scranton, has returned after two years spent in medical relief work in Serbia.——Dr. John M. Gelwix, Chambersburg, has been appointed surgeon to the Columbia Valley Railroad.——Dr. Luba R. Goldsmith, Pittsburgh, was recently elected secretary to the Milk Commission of the Allegheny County Medical Society.——Dr. Gregg A. Dillinger, who has been ill in the West Pennsylvania Hospital as the result of a hemorrhage of the lungs, is reported to be improving rapidly.——Dr. D. Webster B. Kupp has located in Reading after more than thirty years of practice in Gibralter.——Dr. William N. Pringle, Johnstown, has returned after a trip to Central and South America.

Addition to Hospital.—April 3 was the "Public Inspection Day" of the New Nurses' Home Building, George W. Elkins' gift to the Abington Memorial Hospital, which has just been completed. The new structure represents an outlay of $150,000. It is similar in architecture to the rest of the hospital buildings, and in addition to giving model quarters to the nurses and hospital attachés, it permits, because of the large number of private rooms, a wider scope of work and activity for the hospital, the only institution in the Old York Road section. Mr. Elkins, the donor of the building, is also the founder and chief benefactor of the (Abington) Memorial Hospital, of which he assumed the cost of construction, and heavily endowed as a memorial to his wife, Stella McIntire Elkins.

Philadelphia

Doctors Plan Ambulance Corps.—Physicians in this city, members of the Physicians' Motor Club, have completed plans to form an ambulance squadron. One thousand machines will be enrolled, and each machine will be equipped with a rack holding two stretchers to be carried under the car during emergency periods. The plan has been approved by Mayor Smith, and permission has been granted the club to drill on the Belmont plateau.

War Training for Doctors.—At a meeting, March 29, of the medical council, composed of the faculty of the Medical School of the University of Pennsylvania, resolutions were passed urging that three months' service in a military training camp be made a requisite part of courses in medicine in all first class colleges to secure a diploma, and a mass meeting to boost preparedness and discuss military training was held by the students in the gymnasium, March 30.

Personal.—Dr. David N. Husik has been appointed laryngologist and otologist to the Philadelphia General Hospital in the place of Dr. Charles P. Grayson, resigned.——Dr. Frank C. Hammond has been elected president of the Samaritan Hospital Society, and Dr. Daniel J. Donnelly, secretary and treasurer of the same organization.——Dr. Judson Daland has been elected emeritus professor of clinical medicine in the Philadelphia Polyclinic and College for Graduates in Medicine.

Society Activities.—At the meeting of the College of Physicians of Philadelphia, April 4, a portrait of Dr. James Cor-

nelius Wilson was presented to the college on behalf of the donor, Mrs J. C. Wilson, by Dr. Francis W. Sinkler. The scientific discussion of the evening was devoted to "Gallbladder Disease."——The first of the series of Nathan Lewis Hatfield lectures will be delivered at the College of Physicians of Philadelphia, Twenty-Second Street above Chestnut, April 9, at 8:30 p. m., by Dr. Archibald B. McCallum, Toronto. His subject will be "Ancient Factors in the Relation Between the Blood Plasma and the Kidneys."——The Medical Club of Philadelphia will give a reception at the Bellevue Stratford, April 20, at 9 p. m., in honor of Dr. Chevalier Jackson, recently made professor of laryngology in Jefferson Medical College.

SOUTH CAROLINA

Personal.—Dr. Isaac J. Campbell has been elected mayor of Clover.——Dr. Hugh R. Black has been elected president of the board of health of Spartanburg, succeeding Dr. Julian H. Allen, deceased, and Dr. Oliver W. Leonard has been elected vice president.

Allen Memorial Association.—At a meeting of friends and admirers of the late Dr. Julian Howard Allen, at Spartanburg, recently, the Allen Memorial Association was organized, the purpose of which is to plan and execute some fitting memorial to Dr. Allen.

Antituberculosis Association Organized.—At a meeting held in Columbia, March 13, the South Carolina Antituberculosis Association was formally organized, and the following officers were elected: president, Prof. Reed Smith; honorable vice presidents, Drs. Robert Wilson, Jr., Charleston, and James A. Hayne, Columbia; vice presidents, Dr. Morgan P. Moorer, Georgetown, and Mrs. James Cosgrove, Charleston; secretary, Miss Martha A. Bonham, Anderson, and treasurer, J. R. Roseberry, Columbia.

CANADA

Doctors Heavily Fined.—Several physicians in London, Ont., have been fined $200 and costs on account of having prescribed liquor in contravention of the Ontario temperance act. One physician had written 718 orders for liquor since the act came in force, September 16.

Typhoid Fever Prevalent.—There are said to be about a dozen cases of typhoid fever in the Welland County Hospital and many more cases in the towns of Welland and Port Colborne. A general warning has been issued by the health officials advising residents of the county to boil all drinking water.

Hospital News.—The Brant House, a summer hotel at Burlington, Ont., near Hamilton, has been turned into a hospital for returned soldiers. It will accommodate about 300, and will make an ideal home with its sunny verandas and grounds facing the shore of Lake Ontario.——The recently completed immigration sheds at Quebec City are to be turned into a discharge depot under the Canadian Hospitals Commission. When the St. Lawrence navigation opens, ships can then come alongside the building and discharge passengers readily. It has accommodation for 1,000 beds.

Personal.—Dr. John S. Douglas, Dunnville, Ont., a recent graduate, has jointed the Canadian Army Medical Corps, and is now on his way overseas to assist in one of the military hospitals in France.——Col. F. W. Marlow, A. D. M. S., Toronto Military District, having handed in his resignation some weeks ago, has been advised that it has been accepted. His successor was not yet been appointed.——Col. John Taylor Fotheringham, C. M. G., Toronto, is returning to Canada, having been appointed director of invalid services. ——Lieut.-Col. Graham Chambers, Ontario Military Hospital, Orpington, England, is said to have suffered from a "nervous breakdown," and is now in a hospital in London.——Dr. Judson Daland, Philadelphia, read a paper before the Academy of Medicine, Toronto, April 3, on "Focal Infection as a Cause of Constitutional Diseases."——Dr. Joseph C. Beck, Chicago, will address a special meeting of the Oph-Oto-Laryngology Section of the Academy of Medicine, Toronto, April 23.——Dr. Alec Nicol Thomson, Brooklyn Hospital Dispensary, New York, led off the discussion on "The Dispensary Control of Venereal Diseases," Section of State Medicine, Academy of Medicine, Toronto, April 2.

GENERAL

Iowa and Illinois Physicians to Meet.—The regular spring meeting of the Iowa and Illinois Central District Medical Association will be held in Rock Island, Ill., April 12, under the presidency of Dr. David S. Fairchild, Clinton, Iowa. Dr. Arthur Dean Bevan, Chicago, will discuss "Some Interesting Problems in Abdominal Surgery."

Conferences on Tuberculosis.—The National Association for the Study and Prevention of Tuberculosis will hold its annual meeting in Cincinnati, May 9 to 11.——The Mississippi Valley Tuberculosis Conference will be held in the Twin Cities, October 8 to 20, the session of the first two days being held in Minneapolis and the last day in St. Paul.

The Carrel Method.—It is reported that a hospital for the instruction of surgeons in the treatment of infected wounds by the method worked out by Drs. Alexis Carrel and H. D. Dakin at the Military Hospital, Compeigne, France, will be established on the grounds of the Rockefeller Institute for Medical Research, New York. The Rockefeller Foundation has appropriated $200,000, which, it is expected, will be under the personal supervision of Dr. Carrel. The hospital will be organized as a military unit.

Correction.—In the article on "Enterostomy" by J. W. Long, The Journal, March 17, 1917, p. 833, it is stated:

"Occasionally, after the distended bowel is emptied, its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it as in a Witzel gastrostomy. This, however, is not often advisable, especially if the omentum cannot be utilized."

This should have read:

"Occasionally, after the distended bowel is emptied its walls are so flaccid as to allow of an inch or two of the drainage tube being covered by suturing the bowel over it similar to a Witzel gastrostomy. This, however, is not often advisable especially if the omentum can be made to surround the fistula. In some cases the omentum cannot be utilized."

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital and Pennsylvania Hospital, Philadelphia, each $5,000, by the will of Mrs. Phoebe N. Ashbridge.

St. Francis Home for Convalescents, Barby, Pa., $10,000, by the will of Michael Murphy.

New Jersey Orthopedic Hospital, Orange, N. J., a donation of $10,000 for the building fund, from Mr. J. Ogden Armour, Chicago.

Associated Jewish Hospitals of Chicago, $10,000; Michael Reese Hospital, Chicago, $5,000, and Chicago-Winfield Tuberculosis Sanatorium, $2,000, by the will of Julius W. Loewenthal.

Northwestern Antituberculosis League, $1,000, for permanent improvements at the Grand View Sanatorium, Oil City, Pa., by the will of Mrs. Joseph Seep, Titusville.

Committee of American Physicians for Medical Preparedness.—The Committee for Medical Preparedness, in a circular letter, announces that it is organizing subordinate committees in each county to cooperate with the national and state committees in gaining needed information regarding civilian medical resources and in securing applicants for the Army Medical Corps, the Medical Officers' Reserve Corps, the Naval Medical Corps, the Coast Defense Reserve Corps of the Navy and the National Guard, and that an inventory of hospitals and other medical institutions is being taken. The committee has also appointed a committee for the standardization of medical and surgical supplies and equipment, composed of representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and the medical profession.

Infectious Diseases.—As set forth in *Public Health Reports*, March 23, 1917, infectious diseases were reported as follows: Connecticut, February 1 to March 17, cerebrospinal meningitis, 61 cases; Minnesota, week ending March 17, cerebrospinal meningitis, 19 cases, with 4 deaths; since Dec. 26, 1916, a total of 52 cases, with 20 deaths; Massachusetts during February, cerebrospinal meningitis, 9 cases; West Virginia, 6 cases; Wisconsin, 5 cases. During February, leprosy was reported as follows: New Orleans Parish, La., 3 cases; Jersey City, N. J., 1 case; week ending March 3, New Orleans, 1 case; at Paauilo, Hawaii, March 17, plague, 1 fatal case. At Detroit from January 6 to March 17, there were reported 1,740 cases of scarlet fever; in Chicago between February 3 and March 17, there were 3,248 cases. During two weeks ending March 17 in Connecticut, 58 cases of smallpox were reported.

The American Review of Tuberculosis.—The first issue of a new monthly to be known by this title has just appeared. It is to be the journal of the National Association for the Study and Prevention of Tuberculosis. Its editor-in-chief is Dr. Edward R. Baldwin, Saranac Lake, N. Y., and the managing editor is Dr. Allen K. Krause of Baltimore. In view of the ever growing interest in tuberculosis work, the National Association considers that the present time is an excellent one to offer all workers in tuberculosis a medium in which they can present their work. The first number contains articles by Walter L. Rathbun on "The Classification of Pulmonary Tuberculosis"; by A. H. Garvin, H. W. Lyall

and M. Marita on "Chronic Nontuberculous Lung Infection"; by S. A. Petroff on "Serological Studies in Tuberculosis," and also a department of medical notes, abstracts and reviews.

To Increase Naval Medical Reserve Force.—In view of the present state of international affairs, an enlargement of the Medical Corps of the United States Navy has become necessary. The surgeon-general of the navy, therefore, has planned to fill these vacancies by enrolling in the Naval Reserve Force such senior students who volunteer for that service as may have received an average of 85 per cent. during their four year medical course. Deans of medical colleges have been requested to report such students as volunteers for this service, when a special medical officer will be sent to the college to examine them. To students who pass this examination the college officials have been requested immediately to grant certificates of graduation or statements showing that they have reasonable prospects of graduation. Students will then be assigned immediately to active service, for instruction and training, and will subsequently undergo another examination for appointment as assistant surgeons in the United States Navy. State licensing boards have been requested to approve of this advance graduation on the ground of national expediency, since it is believed the naval instruction and training will fully cover the deficiency in institutional instruction. At the request of the secretary of the navy, the Council on Medical Education has approved of this plan, and notified all Class A medical schools to that effect.

WAR NOTES

Hospital Unit for Palestine.—The Hadassah, the women's Zionistic organization, has raised a fund of $30,000 for the equipment of a medical unit of ten physicians and ten nurses to be sent to Palestine to combat typhus fever and other diseases now prevalent there.

Gifts of Ambulances.—Robert W. Goelet, New York, has made a gift of $250,000 to the Harjes-Norton Ambulance Corps, Paris.——The ambulance committee of the Evanston Red Cross Society has already raised $1,200 of the $1,600 required to purchase and equip an ambulance for the American Ambulance Corps in France, to be known as the Evanston Ambulance.

Hospital Ship Sunk.—It was announced, March 27, that the British hospital ship *Asturias* had been sunk without warning by a German submarine with a loss of thirty-one persons killed, twelve missing and thirty-nine injured. The *Asturias* is said to have been steaming with all navigation lights and with all the proper distinguishing Red Cross signs visibly illuminated.

Relief Work in Belgium.—The Commission for Relief in Belgium has been informed that another relief steamer has passed safely through the German blockade and arrived in Rotterdam. The work, which has heretofore been carried on by American delegates of the commission in Belgium, will for the time being be taken over by the Dutch authorities relief committees.

Philadelphia Physicians' Fund for Feeding Belgian Children.—It is estimated that of about 2,500,000 Belgian children there are at least 1,000,000 who are suffering from hunger. A committee has been organized in Philadelphia of which Drs. William W. Keen, Alonzo E. Taylor and George Woodward are the medical members, which proposes that for the six months from April 1, Philadelphia shall furnish one good noon-day meal every day to 100,000 of the children. The cost of this will be $1 per month per child, and the expenses of administration are provided for, so that the entire amount subscribed will go to the children.

FOREIGN

Infantile Paralysis in South America.—On account of the prevalence of infantile paralysis in South America, Chile has established special inspection stations at Arica, Puntas Arenas and in the Andean passes.

Nurses in Guam.—According to the *Survey*, March 24, 1917, seven native girls of Guam will this year receive diplomas from the United States Navy Medical Department as trained nurses. The girls are graduates of a mission school. The nursing course included ordinary nursing, obstetrics, sanitation, personal hygiene and dietetics. After graduation these nurses go into the country districts, and return later to the hospital for review and supervision. An increased staff of American surgeons and nurses to train these classes, in addition to the hospital work, has been provided.

PARIS LETTER

PARIS, March 1, 1917.

Personal

Jules Dejerine, clinical professor of diseases of the nervous system at the Faculty of Medicine of Paris, and physician to the Salpêtrière, died at the age of 67. He was born in Geneva, of French parentage, Aug. 3, 1849. After serving an internship in the Paris hospitals, he presented his doctorate thesis in 1879. It was entitled "Pathology of the Nervous System in Ascending Paralysis," indicating clearly a predilection for neurology. From that time on he devoted himself almost entirely to the study of the diseases of the nervous system and their pathologic anatomy. He was made chief of clinic in 1879, attending physician to the hospitals in 1882, and associate professor in 1886. In this capacity Dejerine had charge of an auxiliary course in pathologic anatomy as early as 1889. In 1893 he assisted Péter in his clinic at the Necker hospital. Afterward, in 1901, he was appointed to the chair of the history of medicine and surgery, which he abandoned soon afterward for the chair of internal pathology. Next he was appointed clinician in diseases of the nervous system, a position made vacant by the death of Raymond, the successor of Charcot.

Dejerine was a frequent contributor to the literature, and all of his writings represent progress in our knowledge of lesions of the peripheral and central nervous systems. It was he who advocated the examination of the spinal cord by means of serial sections, a marked and notable advancement in the study of the pathology of the spinal cord. In 1879, the Anatomical Society awarded him the Godard prize for his research on the lesions of the nervous system in diphtheritic paralysis, and in 1886 the Academy of Sciences awarded him the Montyon prize for work done in collaboration with Landouzy on the pathology of progressive muscular dystrophy, a disease which, for a long time, was known by the eponymic designation "Dejerine-Landouzy disease." Evidences of Dejerine's activity are found in the history of nearly all of the nervous diseases, notably aphasia, tabes, Friedreich's disease, myelitis, syringomyelia, neuritis, compression paralysis, Thomsen's disease, the thalamic syndrome, and inflammations of nerve roots. In collaboration with Mme. Dejerine (née Augusta Klumpke, a native of San Francisco, the first woman invested with the honorary title of intern of the hospitals of Paris), he prepared a really remarkable anatomy of the nervous centers, and collaborating with Dr. A. Thomas, he wrote a treatise on diseases of the spinal cord. He was also the author of the chapter on the semeiology of the nervous system in Bouchard's textbook on general pathology. Dejerine was a member of the Society of Biology, and in 1908 he was elected a member of the Academy of Medicine.

News has reached us of the death, at Lyons, of Jules Courmont, professor of hygiene at the Faculty of Medicine and Pharmacy of Lyons, and vice president of the Superior Council of Health of France. While making his professional rounds in the Hôtel-Dieu, he was suddenly stricken by cerebral hemorrhage, and in spite of the best of medical attention, he succumbed on the following morning. Courmont was chiefly known because of his work in tuberculosis. He had been a corresponding member of the National Academy of Medicine since 1909.

The War

RESUPPLYING THE MILITARY HOSPITALS.

In conformity with vigorous regulations, every military hospital must hereafter secure its own supplies. The method of securing supplies appropriate to peace times becomes difficult of execution in time of war because of the greater number of sanitary formations. The exigencies of the moment necessitate more and more the creation of an agency for supply and distribution. On the basis of these orders, conveying the ideas and propositions of the ministers of finance and of war, supply depots will be created in the various regions of the territory. These depots are placed in charge of specialists recruited from among officers of administration and, so far as possible, from among the manufacturers and business men. To make it possible for these new organizations to defray their own operating expenses, it is proposed to issue a decree to increase the appropriations which may be given to the managers of these establishments.

AMBULANCES AND MILITARY HOSPITALS DONATED BY FRENCH VILLAGES FOR THE RUSSIAN FRONT

A national subscription has been opened among the cities and municipalities of France for the purpose of endowing the Russian armies with hospital corps, model hospitals and auto-

mobile ambulances, strictly in accord with military hygiene, medicine and surgery, as it has been developed by the war. These units will be organized under the auspices of the undersecretary of state of the military health service, and will be sent soon to Volhynia, to Bukovina, to the Caucasus and to Persia. Each unit will be accompanied by a competent surgeon and a chosen personnel so that our allies may take care of their wounded according to the best methods. The city of Paris, through its municipal council, has voted the sum of 50,000 francs ($10,000) for this purpose, and the little community of Seignosse in the Landes, with only 625 inhabitants, has appropriated 500 francs ($100).

MEDALS FOR ENGLISH WOMEN PHYSICIANS AND NURSES

A new decoration, known as the medal of the epidemics (médailles des épidémies), was recently conferred on forty English female physicians and nurses of auxiliary hospital No. 301 (abbaye de Royaumont). Miss Ivens, a graduate in medicine and chief of the hospital mentioned, received a gold medal. Eight gold plated silver medals were awarded to the Misses Ruth Nicholson, Augusta Berry, Agnes Savill, Marion Wilson, Elizabeth Courtauld, Winefred Ross, Cicely Hamilton and Kate London, all doctors of medicine, and fourteen silver and seventeen bronze medals were awarded to the nurses of the hospitals.

CONFERENCE FOR THE STUDY AND REEDUCATION OF WAR CRIPPLES

The meeting of the allied conference, organized for the study of the question of mutilation in all its aspects (reeducation, protection, disposition, etc.), which was to have taken place in Paris, March 6, 1917, has been postponed to May 8. All those desiring to take part in this conference are requested to write to the Belgian legation, rue de Berri, 20, Paris.

LONDON LETTER

LONDON, March 12, 1917.

A New Standard for the Loaf

Under order for the manufacture of flour and bread (THE JOURNAL, Feb. 10, 1917, p. 474) the average compulsory extraction of flour was fixed at 76 per cent. if the miller added a further 5 per cent. of flour ground from rice, barley, maize or oats, or 81 per cent. if there was no addition of this admixture. An optional addition of a further 5 per cent. of flour ground from grain other than wheat was also permitted. A new order makes the extraction of 81 per cent. of flour from the wheat invariable, and admixture with some other substance is compulsory to the extent of an additional 5 per cent. The materials allowed to be mixed are rice, barley, maize, maize semolina, oats, rye or beans. Further admixture to the extent of an additional 10 per cent. is permitted. The order will mean a further and valuable diminution of the consumption of wheat, with a corresponding release of tonnage. It will be seen that if the miller chooses to exercise his option to the fullest extent, the total percentage of flour obtained may be as high as 96, as compared with 86 under the earlier order. Standard bread as now baked has been found to be both pleasant to eat and nutritious.

Administration of the Insurance Acts

An important report of a commission of investigation appointed by the Faculty of Insurance to consider the operation, position and prospects of national insurance has been issued. The chairman of the commission was Mr. John Hodge, now minister of labor, and the other members included one woman, one employer, six representatives of friendly societies, and the president of the Poor Law Union Association for England and Wales. The conclusions of the commission are thus summarized: (*a*) The medical benefit, the sickness benefit and the maternity benefit have undeniably been a great advantage to the community. The commission looks forward to their useful development in many ways. (*b*) The drug service is fairly good and represents, on the whole, reasonably good value for the money spent on it. Treatment as distinct from drugs should receive greater attention, and the system of medical aid societies and institutional treatment generally might with advantage be encouraged. (*c*) The tuberculosis scheme cannot be regarded as a success; in all probability much better results would be obtained were the existing system of overlapping control brought to an end and the whole responsibility vested in one public health authority. (*d*) It is impossible to expect fully satisfactory results from any of the health services unless and until housing conditions, both urban and rural, are improved. The report admits that so long as the war lasts no great changes in the relations between physicians, the public and the state are either desirable or practicable. The medical services under the act "represent a considerable advance on the conditions which obtained prior to the act." Of the defects in the various services, some are regarded as mainly due to administration, while some "appear to be inseparable from any form of medical service involving an enormous working-class population, many of whom spend their lives in an environment which, from a medical point of view, cannot possibly be described as favorable." It is suggested that a system under which a second medical opinion could be obtained when required would be an improvement, and the opinion is expressed that, though the services rendered are improving, "the standard of medical treatment is none too high, and unless a pretty rapid improvement is forthcoming within, say, the next five years, the practicability of establishing a state medical service will call for serious consideration." The view that the act presents a temptation to malingering is not accepted as commonly true. It is suggested that the act proceeds on the footing that the prescription of drugs is the foundation of medical attendance, whereas the future may impose an increasing reliance on treatment as opposed to drugs and "a fuller development of the hospital as a focal point in health administration"; but it is curious to find that in this connection the work of certain of the medical aid societies is especially praised. What is regarded as the worst fault of the drug service is that financial pressure and the great burden of clerical work placed on physicians not infrequently leads to the prescription of a comparatively cheap drug instead of a rather more suitable and more costly article. The results of the act as regards sanatorium benefit are looked on as disappointing. The problem was largely miscalculated, and the results fall far short of the expectations raised. Better access to early cases and isolation of late and infectious cases are regarded as essential. Most of the evidence was in favor of handing over the whole treatment of tuberculosis to the public health authorities. Unless housing conditions are substantially improved, which means a large expenditure, "it is impossible to expect really satisfactory results from any national health insurance scheme." The government has admitted that on about $150,000,000 of the funds of approved societies invested without reference to the views of their own office bearers there has been a depreciation of about $22,500,000. The amount of deficiency in the working of societies cannot be ascertained at present, but it is believed to be serious, and it is hinted that there has been improper concealment of the facts. The position must, it is believed, be still further aggravated when the effects of disablement benefit are more fully manifest. It is held that Parliament definitely made itself responsible for the act, and that insured persons are therefore entitled to look to Parliament for a remedy. The war threatens to cause a burden on approved societies, in respect to disabled soldiers and sailors, which their resources are not fitted to carry. The commission holds that "the state should provide all the money required to pay for the war; no portion of its cost should be thrown on insured persons as such through their approved societies." The state into which the finances of the act have fallen is attributed "very largely to the supposed requirement of the positions of political parties," and the hope is expressed that any suggested amendments will be looked on "as matter lying without the sphere of partisan conflict."

Marriages

DANIEL MURRAH MOLLOY, M.D., Managua, Nicaragua, C. A., to Miss Gladys Pierce Barker of Providence, R. I., March 15.

LAWRENCE GLEN DUNLAP, M.D., Bismarck, N. D., to Miss Clemence Ruby Lucken of Lidgerwood, N. D., March 4.

FREDERICK VALENTINE GAMMAGE, M.D., Savannah, Ohio, to Miss Leah Iris Coulson of Ashland, Ohio, February 24.

DAVISON HUGHES RAY, M.D., Bingham Canyon, Utah, to Miss Elizabeth Eastin Kinkaid of Louisville, March 1.

HOWARD WILLIAM GIRVIN, M.D., Warrensville, Ohio, to Miss Elsie B. Jones of Baltimore, in Cleveland, March 22.

BALDUIN HERMANN LUCKE, M.D., Philadelphia, to MARION HAGUE REA, M.D., of Boston, March 2.

ALLEN GREENWOOD, M.D., Wellesley, Mass., to Miss Hope H. Whipple of Pawtucket, R. I., March 8.

Deaths

Charles Shreve Braddock, Jr., M.D., Haddonfield, N. J.; Jefferson Medical College, 1896; aged 53; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New Jersey; for several years a surgeon of the New Jersey Naval Reserve, and during the Spanish-American War a lieutenant on the *U. S. S. Resolute;* from 1902 to 1910 assistant to Dr. H. Adamson, a medical missionary of the Baptist Board and chief of the Royal Hospital, Bangkok; afterward chief health officer of the Siamese government, who for his work in plague and cholera received the decoration of the Crown of Siam from the king of Siam; after his return to America medical examiner for the Interborough Rapid Transit Company of New York; died at his home, March 23, from cerebral hemorrhage.

Harry Mead, M.D., Buffalo; University of Buffalo, N. Y., 1891; aged 48; a Fellow of the American Medical Association; associate in medicine in his alma mater; a member of the medical staff of the Buffalo General Hospital; assistant surgeon of the Sixty-Fifth New York Infantry, U. S. V., during the war with Spain; died at his home, March 18, from heart disease. At a special meeting of the administrative board of the Medical Department of the University of Buffalo, a committee was appointed to draw up resolutions on the death of Dr. Mead, and it was further decided that the faculty attend the funeral in a body and that as a mark of respect to Dr. Mead, the medical department be closed on the afternoon of the funeral.

Reuben Fletcher Monette, M.D., Greensboro, Ala.; New York University, New York City, 1892; aged 46; assistant physician in the New York City Asylum for the Insane and the Manhattan State Hospital, Ward's Island, N. Y., from 1893 to 1902; a member of the Medical Association of the State of Alabama and American Medico-Psychological Association; while on a fishing trip in the Warrior Swamp near Greensboro, March 15, died suddenly from acute gastritis.

George E. McDonald, M.D., Schenectady, N. Y.; New York University, New York, 1862; aged 75; a member of the Medical Society of the State of New York; assistant surgeon and surgeon of the Twelfth New York Volunteer Cavalry during the Civil War; one of the founders of the Physicians' Hospital which later become Mercy Hospital, Schenectady; a member of the staff of Ellis Hospital, Schenectady; died at his home, March 8.

E. R. Max Magnus von Schmittholz, M.D., San Francisco; Jefferson Medical College, 1888; aged 63; a Fellow of the American Medical Association; who had conferred on him the order of the Red Eagles by Kaiser Wilhelm in 1913 for his services to his fatherland in western America; a leader of German musical development in San Francisco; died in the Lane Hospital, San Francisco, March 19, from myocarditis.

John George Johnson, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1857; aged 83; formerly a Fellow of the American Medical Association; surgeon of volunteers during the Civil War; at one time editor of the *New York Medical Journal;* a member of the staff of Bellevue and Long Island College hospitals; died at his home, March 25, from senile debility.

Charles J. Keim, M.D., Catasauqua, Pa.; University of Pennsylvania, Philadelphia, 1875; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of Pennsylvania; a veteran of the Civil War; for two terms burgess of Catasauqua and for several years a school director and member of the town council; died at his home, March 18.

Arthur Ellsworth Merrill, M.D., Somerville, Mass.; Long Island College Hospital, Brooklyn, 1886; aged 54; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; for many years medical director of the Somerville Y. M. C. A.; died suddenly at that place, March 17, from heart disease, while playing basket ball.

Andrew Robertson Gordon, M.D., Toronto, Ont.; University of Toronto, 1890; aged 53; associate professor of clinical medicine in his alma mater; lieutenant-colonel, C. A. M. C.; with overseas service with No. 4, Toronto University General Hospital, but invalided home in 1915; died at his home in Toronto, Dec. 16, 1916, from carcinoma of the stomach.

Thomas Bernard Shea, M.D., Boston; Harvard Medical School, 1887; aged 54; a Fellow of the American Medical Association; assistant fort physician, medical inspector, chief medical inspector and later deputy commissioner of health of Boston; for thirty years connected with the health department of that city; died at his home, March 25.

Frank Webster Evans, M.D., Bellingham, Wash.; Dartmouth Medical School, Hanover, N. H., 1898; aged 48; formerly of Coos, N. H.; a member of the New Hampshire Medical Society and formerly secretary of the Coos County Medical Society, and a member of the board of health of Coos; died at his home, March 19, from erysipelas.

George Garrett Gordon, M.D., Detroit; University of Michigan, Ann Arbor, 1878; aged 64; professor of anatomy in the Michigan College of Medicine and Surgery; formerly a Fellow of the American Medical Association; died at his home, March 12, from the effects of injuries sustained in an automobile accident a year before.

John A. DeArmand, M.D., Davenport, Iowa; University of Pennsylvania, Philadelphia, 1876; aged 65; formerly a member of the Iowa State Medical Association; for several years county physician of Scott County; alderman for four years and for two terms state senator; died at his home, March 23, from arteriosclerosis.

Joseph Reed Osman, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1884; Medical-Chirurgical College of Philadelphia, 1884; aged 70; a Fellow of the American Medical Association; a veteran of the Civil War; assistant in bacteriology in his alma mater; died at his home, March 17.

Jonas Adelson, M.D., New York; College of Physicians and Surgeons in the City of New York, 1901; aged 40; formerly a Fellow of the American Medical Association; attending physician to New York University and Bellevue Hospital Dispensary; died at his home in Lynbrook, L. I., March 20.

Alexander Ferguson Koontz, M.D., Irvington, N. Y.; Bellevue Hospital Medical College, 1883; a specialist on diseases of the eye, nose and throat; since 1896 assistant surgeon to Manhattan Eye, Ear and Throat Hospital; died in the Rockefeller Institute Hospital, March 5, from pneumonia.

John Henry Clay Cuffman, M.D., Gurdon, Ark.; University of Nashville, Tenn., 1889; aged 53; a Fellow of the American Medical Association; local surgeon of the Missouri Pacific System; president of the Clark County Bank; died in St. Luke's Hospital, Little Rock, Ark., March 18.

Alexander M. Cowie, M.D., Kingman, Ariz.; McGill University, Montreal, 1887; aged 52; a Fellow of the American Medical Association; for several years surgeon for the Occidental and Oriental Steampship Company; died at his home, March 18, from appendicitis.

James Cash Coleman, M.D., Goshen, N. Y.; Albany (N. Y.) Medical College, 1863; aged 73; assessor of taxes since 1895; for eighteen years a member of the board of education; a veteran of the Civil War; died at his home, February 26, from cerebral hemorrhage.

James Aloysius McMorrow, M.D., Syracuse, N. Y.; Bellevue Hospital Medical College, 1898; aged 40; formerly a member of the Medical Society of the State of New York; died in the French Hospital, New York, March 12, five days after an operation for appendicitis.

John T. Allen, M.D., St. Louis; Missouri Medical College, St. Louis, 1895; also a pharmacist; died in the St. Louis City Hospital, February 13, from injuries received in jumping from a four-story window of a hotel while delirious and suffering from lobar pneumonia.

George Washington Boskowitz, M.D., New York; Eclectic Medical College of the City of New York, 1876; aged 60; dean and professor of surgery and therapeutics in his alma mater since 1884; editor of the *Eclectic Review* since 1890; died in Sarasota, Fla., March 15.

Herbert A. Sherwood, M.D., Warren, Ohio; Homeopathic Hospital College, Cleveland, 1876; aged 62; formerly a Fellow of the American Medical Association and president of the staff of the Warren City Hospital; died in the Cuyahoga Sanitarium, March 10.

Gordon T. Simonson, M.D., Crisfield, Md.; University of Maryland, Baltimore, 1896; aged 44; a member of the Medical and Chirurgical Faculty of Maryland; who fractured his leg at the ankle about a month before; died at his home, March 10, from heart disease.

Charley Graves Coyle, M.D., Spring Hill, La.; Marion-Sims College of Medicine, St. Louis, 1901; aged 41; a member of the Louisiana State Medical Association; also a druggist; was instantly killed by the overturning of his automobile near Sarepta, La., March 15.

Claudius Barrard Chapin, M.D., Benton Harbor, Mich.; University of Michigan, Ann Arbor, 1897; aged 44; formerly

a member of the Michigan State Medical Society, and once president of the Berrien County Medical Society; died in Chicago, March 9.

Moses O. Moore, M.D., Spiro, Okla.; Memphis Hospital Medical College, Memphis, Tenn., 1907; aged 38; formerly a Fellow of the American Medical Association; was instantly killed by the overturning of his automobile near Poteau, Okla., March 6.

Richard Henry Endicott, M.D., Oakdale, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; aged 71; formerly a member of the Medical Society of the State of California; died at his home, March 15, from carcinoma of the stomach.

J. Q. Stovall, M.D., Grayson, Ky.; Louisville (Ky.) Medical College, 1885; aged 79; formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association; died at his home, February 6, from cirrhosis of the liver.

Charles D. Goodrich, M.D., Elkhart, Ind.; University of Michigan, Ann Arbor, 1879; aged 60; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home, March 14, from pneumonia.

George Mifflin Dallas Peltz, M.D., Center Square, N. J.; University of Pennsylvania; Philadelphia, 1868; aged 71; for many years a practitioner of Philadelphia and treasurer of the Philadelphia Medico-Legal Society; died at his home, March 11.

Soloman E. Hampton, M.D., Milton, Ky.; Miami Medical College, Cincinnati, 1866; aged 79; formerly a member of the Kentucky State Medical Association; a veteran of the Civil War; died at his home in Hunters Bottom, near Milton, from nephritis.

Frank D. Schwerdtfeger, M.D., Royal, Iowa; Northwestern University Medical School, Chicago, 1911; aged 28; formerly a member of the Iowa State Medical Society; died in a hospital in Chicago, about March 9, after a surgical operation.

David Moury, M.D., Bellefontaine, Ohio, and Atlanta, Ga.; Vanderbilt University, Nashville, Tenn., 1884; aged 79; a Fellow of the American Medical Association; died at his winter home in East Lake, Atlanta, March 10, from pneumonia.

Frederick Rice, M.D., Sunbury, Pa.; University of Pennsylvania, Philadelphia, 1900; aged 40; a member of the Medical Society of the State of Pennsylvania; was run down and killed by a street car in Sunbury, March 10.

Thomas B. Duckett, M.D., Fountain Inn, S. C.; Atlanta (Ga.) Medical College, 1886; aged 54; formerly a member of the South Carolina Medical Association; died at his home, February 26, from cerebral hemorrhage.

Emmet Newton Palmer, M.D., Brooklyn, Mich.; University of Michigan, Ann Arbor, 1869; aged 76; a Fellow of the American Medical Association; died at his home, February 28, from nephritis.

Anne Taylor Wass, M.D., Los Angeles; Northwestern University Women's Medical School, Chicago, 1882; aged 66; died in the Women's Hospital, Chicago, January 18, from malignant disease.

Francis M. Abbett, M.D., Indianapolis; Eclectic Medical Institute, Cincinnati, 1870; aged 76; died in the Methodist Hospital, Indianapolis, Dec. 27, 1916, from uremia.

George Wever, M.D., Anacortes, Wash.; Detroit Medical College, 1878; aged 78; a veteran of the Civil War; died at his home, February 8, from cerebral hemorrhage.

Alexander J. Stark, M.D., Sarcoxie, Mo.; Missouri Medical College, St. Louis, 1887; aged 53; died at his home, March 8, from cerebral hemorrhage.

Walter H. Curtis, M.D., Rochester, N. Y.; Hahnemann Medical College, Philadelphia, 1880; aged 56; died at his home, February 24.

Frederick E. Davis, M.D., Birmingham, Ala.; Birmingham (Ala.) Medical College, 1899; died in an infirmary in Birmingham, March 6.

William Lee Roy Leister, M.D., Oakland City, Ind.; Eclectic Medical Institute, Cincinnati, 1884; aged 67; died at his home, March 4.

Albert Walter Sully, M.D., New York; Bellevue Hospital Medical College, 1891; aged 49; died at his home, March 14.

D. W. Moorehead, Oklahoma City (license, Oklahoma, 1908); died at his home, about March 9.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CORPORA LUTEA (SOLUBLE EXTRACT), PARKE, DAVIS & CO.

Report of the Council on Pharmacy and Chemistry

Following inquiries, the Council took up for consideration "Corpora Lutea (Soluble Extract)," marketed by Parke, Davis & Co. in the form of ampules and proposed for hypodermic administration. The report which appears below was submitted to the Council by a committee, and was adopted by the Council. Corpora Lutea (Soluble Extract) was declared inadmissible to New and Nonofficial Remedies, and publication of the report authorized.

W. A. Puckner, Secretary.

Corpora Lutea (Soluble Extract) has not been submitted by the manufacturer. The information of the referee is based, therefore, on the claims made in the trade package, and on the statements in the price list. These show that the product is essentially secret and claims made for the actions and uses of the preparation do not make clear the essentially experimental status of the article, and are therefore misleading.

Conflict with Rule 1.—No definite statement of composition appears beyond the indefinite claim that it is an aqueous solution of "soluble Corpora Lutea Extract," each ampule corresponding to 0.2 Gm. of desiccated gland. How these soluble products are obtained, whether they represent *all* the water-soluble principles, or whether some have been eliminated, are questions that are not answered. Yet such information is essential to intelligent and scientific use, for, as there is no method of standardization, the method of preparation is the only mark of identity. For instance, we do not know at this time whether proteins have anything to do with the supposed value of corpora lutea. It is, therefore, essential to know whether or not the proteins have been eliminated.

Conflict with Rule 6.—The circular in the package advises the hypodermic use of this extract, not only in functional amenorrhea and the ordinary reflex consequences of physiologic or artificial menopause, but also in:

> "'neurasthenic' symptoms during menstrual life";
> "sterility, not due to pyogenic infection or mechanical obstruction";
> "repeated abortions, not due to disease or mechanical factors";
> "hyperemesis in the early months of pregnancy."

These are not stated merely as conditions in which various enthusiasts have tried corpus luteum, but as conditions "for which it will be found serviceable."

It is not necessary to inform the medical profession that this statement is calculated to raise expectations which cannot possibly be fulfilled. Even the manufacturers seem to realize this; at least they speak somewhat indefinitely of "suitable cases," "good judgment," "real indications," etc. But they proceed to nullify this warning—if it was intended as a warning—by their illustrations of unsuitable cases, for instance, "amenorrhea due to extreme anemia, dysmenorrhea due to cervical stenosis," etc. Finally, they sum up the case:

> "Therefore, additional emphasis on the necessity for the proper selection of cases is essential in order that this useful preparation may not be unjustly discredited."

How these cases of sterility, abortions, etc., are to be selected is not revealed. In other words, the restriction is no more than a convenient device by which every improvement is to be attributed to the medicine, and every failure to the physician.

The referee recommends that Corpora Lutea (Soluble Extract), Parke, Davis & Co., be held ineligible to N. N. R., because it is a secret preparation advertised under extravagant claims.

[Editorial Comment.—Was it not in Weir Mitchell's "Adventures of François" that the itinerant promised to pull teeth without any pain, *if the patient would hold absolutely still?* And, *mirabile dictu,* the ones who suffered were those who had not held absolutely still!]

Correspondence

"The 'Open Door' in China"

To the Editor.—I have just read the editorial "The 'Open Door' in China." The bulletin on which it is based was commented on at length in the official organ of the Rochester Chamber of Commerce this week. I think every physician and everybody else who can see the cruelty and economic loss caused by the "patent medicine" business ought to begin to write letters to the secretary of the department which is responsible for putting out that bulletin. I do not remember who the secretary of commerce is; but enough letters of protest ought to be sent to him to make him take notice.

JOHN M. SWAN, M.D., Rochester, N. Y.

[EDITORIAL NOTE.—The secretary of the Department of Commerce is William C. Redfield. The chief of the Bureau of Foreign and Domestic Commerce, through which "Special Consular Report No. 76" on "Proprietary Medicine and Ointment Trade in China" was sent out, is E. E. Pratt.]

Syphilis as an Etiologic Factor in Mongolian Idiocy

To the Editor:—I have been much interested in the article by Drs. McClelland and Ruh on this subject (THE JOURNAL, March 10, 1917, p. 777). I have been studying it for ten years and have discussed it in "Feeble-Mindedness, Its Causes and Consequences." I have not been able to find any conclusive proof that syphilis in the parents causes feeblemindedness of any type, to say nothing of the Mongolian. I was consequently much surprised at Dr. Stevens' article, which is answered by the article in question.

The results of Drs. McClelland and Ruh are thoroughly consistent with other studies of Wassermann tests of the feebleminded. We have made two series of examinations in this institution, in one of which five antigens were used and both blood and spinal fluid employed. In neither of these was the percentage of positives noticeably high. Many other institutions have made similar tests of their patients, and while the percentage of positives varies, it is nowhere surprisingly large. The following from the Columbus Institution, Ohio, is fairly typical:

Among those tested were twenty-eight Mongolians, of whom five, or 17.8 per cent., gave positive reactions. In the Keller Institution in Denmark, tests were made a few years ago and gave, for the total group of feebleminded, only 2 per cent. positive Wassermann reactions and for the Mongolians, none.

Our experience in the matter of parental history also confirms that of the authors. We have the confidence of the parents of our children to a very high degree. The fact that we are making scientific studies of the problem, and are working to help their child, elicits the parents' interest and breaks down all barriers. Moreover, it is a characteristic of Mongolian imbecility that the type comes from the best families; the parents are intelligent and highly respected people. While unfortunately this does not necessarily preclude the presence of syphilis, it does make it highly probable that they would know it if they had ever been infected, even innocently. We have not found a single case in which the parents admitted syphilis or their physical condition would indicate it.

We can also corroborate the authors' second statement in regard to the histories of brothers and sisters of Mongolians. From other institutions for the feebleminded I have collected the histories of 332 cases of Mongolian imbecility. In not one instance was there history of another Mongolian child in the family, and in only two cases were there histories of other mental defectives of *any type*. As the authors claim, this seems a highly improbable result, if syphilis were the cause of Mongolian imbecility.

To these difficulties in the way of regarding syphilis as the cause of Mongolian imbecility, I think may be properly added the further one that there is no correlation between the incidence of mongolism and syphilis. Mongolian imbecility is, relatively speaking, very rare; syphilis is far from rare. If syphilis is the cause of Mongolian imbecility, are we not compelled to conclude that the latter would be vastly more prevalent than it is?

HENRY H. GODDARD, Vineland, N. J.
Director, Department of Research, the Training School.

Current Views Regarding the Tonsils and Their Surgical Removal

To the Editor:—As a practitioner of western Kansas and inferentially included in the list of those endorsing his methods, I cannot let the statements made in THE JOURNAL, March 24, 1917, by Dr. Higginbotham of Hutchinson go unchallenged. We are willing to concede that pyorrhea alveolaris is probably the direct cause of cataract, scabies, hemorrhoids, etc., as Dr. Higginbotham valiantly maintains. We will also grant that focal infections of tonsils, teeth, etc., may produce warts, moles and clubfeet. But when Dr. Higginbotham publishes through THE JOURNAL (and the space should be more valuable) that we enucleate tonsils for diphtheria in lieu of antitoxin and other accepted treatment, we must in justice to the profession of this district rise up and swat the libel. No argument is necessary to prove that diphtheria is rarely limited to the tonsil. His other contentions are equally untenable.

J. A. DILLON, M.D., D.D.S., Larned, Kan.

[COMMENT.—Dr. Higginbotham's letter was printed to show how extreme one may become in one's enthusiasm in advocating a pet theory or measure. Furthermore, overenthusiasm in advocating a cause sometimes produces a healthy reaction. —ED.]

Yellow Petrolatum

To the Editor:—With regard to my letter on yellow petrolatum in intestinal stasis (THE JOURNAL, Jan. 27, 1917, p. 304), I have received inquiries as to the meaning of "yellow petrolatum." The only brand with which I have had experience is "vaseline" sold by the Chesebrough Company. There may be others as good or better, but I have not found them in Omaha. As previously indicated, I think the yellow petrolatum is more efficient than the white.

H. GIFFORD, M.D., Omaha.

[COMMENT.—The petrolatum of the United States Pharmacopeia is also known as petroleum ointment, petroleum jelly and vaseline. Vaseline is the Chesebrough Company's trade name for this product. Petrolatum album of the United States Pharmacopeia is the decolorized product. There is no "yellow petrolatum," although the term is sometimes applied to the official "Petrolatum" to distinguish it from the official "Petrolatum Album."—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"CYANOCUPROL"—"AMBRINE"

To the Editor:—1. Kindly state in your next week's issue, if possible, whether "Cyanocuprol" is being used in any sanatoriums or hospitals of this country as a curative agent for tuberculosis, and what the results of scientific investigations of this drug are.

2. What is "Ambrine?" Over $500 has been raised in Dallas for the purchase of this preparation.

EMIL ARONSON, M.D., Dallas, Texas.

ANSWER.—1. Studies of the effects of "Cyanocuprol" on tuberculous processes, carried out by Japanese investigators, were discussed in THE JOURNAL, Aug. 5, 1916, p. 443. At that time attention was called to the fact that the preparation "Cyanocuprol" used by the Japanese investigators is stated to be a copper cyanid preparation, the exact composition of which was being kept secret. The use of "Cyanocuprol," even should its identity become known, is decidedly in the experimental stage.

2. "Ambrine" is a French secret preparation that has been on the market for many years. It has reeently eome into prominenee through sensational artieles in the lay press, both in this eountry and abroad. For all practical purposes it is solid paraffin to whieh some material has been added to make it adhesive and more plastie. A similar preparation may be made by melting together paraffin, 96 per eent., and beeswax, 4 per cent. For use it is heated until liquid and applied to burns and open wounds. It forms a relatively impervious dressing. See artiele by Dr. Torald Sollmann, this issue, page 1037.

LITERATURE ON DOUBLE URETERS

To the Editor:—Please give some references to literature on "double ureters" and "double pelves" of the kidney.

Bundy Allen, M.D., Iowa City, Iowa.

Answer.—

Stevens, A. R.: Pathologic Lesions of the Kidney Associated with Double Ureters, The Journal, Dec. 28, 1912, p. 2298.
Hartmann, J.: Supernumerary Ureters, *Ztsch. f. Urol.,* July, 1913; abstr., The Journal, July 19, 1913, p. 233.
Motzfeldt, K.: Deformity of Urinary Apparatus, *Norsk Mag. f. Lægevidensk.,* July, 1914; abstr., The Journal, Aug. 22, 1914, p. 714.
Worrall, R.: Case of Bilateral Duplication of Ureters Complicating Operation for Cancer of Cervix Uteri, *Jour. Obst. and Gynec. Brit. Emp.,* September, 1914.
Lockyer, C.: Double Ureter Simulating Parovarian Cyst in Right Broad Ligament, *Jour. Obst. and Gynec. Brit. Emp.,* October-December, 1914.
Cecil, A. B.: Case of Complete Duplication of Renal Pelvis and Ureter, *California Jour. Med.,* January, 1915.
Simon and Mertz: Complete Unilateral Duplication of Ureter, The Journal, May 27, 1916, p.. 1686.
Peacock: Multiple Ureters with Hydronephrosis, The Journal, April 18, 1916, p. 1088.

QUARANTINE FOR MEASLES AND RUBELLA

To the Editor:—1. What is the generally accepted idea regarding the quarantine period for measles?

2. Is it considered safe to remove restrictions after respiratory symptoms have entirely subsided, paying no attention to desquamation?

3. What is considered a safe period of quarantine for German measles?

Please omit my name in answering. E. V. V.

Answer.—1. The period of quarantine for measles is generally given as four weeks.

2. In New York City at present quarantine is terminated five days after the appearance of the rash, provided all catarrhal symptoms have ceased and fever and rash have disappeared, although not the pigmentation. Meara suggests that the child should be kept in bed until the rash has quite disappeared, and then, in the absence of fever and complications, may be allowed up, and in another week or ten days the quarantine may be lifted. Rosenau ("Preventive Medicine and Hygiene") states that the quarantine should not be raised until all the manifestations of the disease have disappeared. The period of quarantine for infectious diseases is a matter dependent largely on local laws and ordinances, and varies of course in different places.

3. Most physicians believe that isolation is not necessary in rubella.

THYROID EXTRACT IN UTERINE HEMORRHAGE

To the Editor:—I am preparing a paper on the use of thyroid extract in the treatment of uterine hemorrhages, and would appreciate a list of references to articles on this subject which have appeared in The Journal. I have my journals for some time, but by having the exact number of the journals in which these articles have appeared, I could find the articles more easily, which would greatly facilitate the preparation of said paper.

O. C. Klass, M.D., Muskogee, Okla.

Answer.—

Selirt, E.: Thyroid Origin of Hemorrhagic Uterine Disease, *München. med. Wchnschr.,* May 6, 1913; abstr., The Journal, June 14, 1913, p. 1930; Thyroid Treatment of Uterine Hemorrhage, *München. med. Wchnschr.,* Feb. 10, 1914; The Journal, March 21, 1914, p. 974.
Salzman, S.: Hyperthyroidism Factor in Certain Types of Uterine Hemorrhage, *Am. Jour. Obst.,* November, 1916, p. 812; abstr., The Journal, Dec. 2, 1916, p. 1696.

HOLMES ON PUERPERAL SEPSIS

To the Editor:—Please give me the date of the first publication of Oliver Wendell Holmes' essay on "Puerperal Sepsis."

Kenneth E. Kellogg, M.D., New Britain, Conn.

Answer.—"The Contagiousness of Puerperal Fever" by Oliver Wendell Holmes was first published in the *New England Quarterly Journal of Medicine and Surgery,* 1842.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.
Arkansas, Eclec.: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.
Arkansas, Homeopathic: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.
California: Los Angeles, April 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.
District of Columbia: Washington, April 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Hawaii: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.
Illinois: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.
Nevada: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.
New Mexico: Santa Fé, April 9. Sec., W. E. Kaser, East Las Vegas.
Oklahoma: Oklahoma City, April 10-11. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 2-3, 1917. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, of whom 4 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1915)	85
Indiana University	(1908)	80.3
Maryland Medical College	(1905)	75.8
Jefferson Medical College	(1916)	82.4
FAILED		
California Eclectic Medical College	(1912)	*

* No grade given.

Florida December Report

Dr. E. W. Warren, secretary of the Regular Board of Medical Examiners of the State of Florida, reports the written examination held at Palatka, Dec. 5-6, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 26, of whom 18 passed and 8 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Med. Coll. of Alabama	(1904)	85
Atlanta Medical College	(1915)	84
State University of Iowa	(1896)	66 *
Tulane University of Louisiana	(1914) 89; (1915)	78
College of Physicians and Surgeons, Baltimore	(1906)	80
University of Maryland	(1916)	84
Dartmouth Medical School	(1879)	88
University and Bellevue Hospital Medical College	(1912)	88
University of the City of New York	(1891)	81
Meharry Medical College	(1916) 75, 75,	86
Memphis Hospital Medical College	(1887)	56 *
Vanderbilt University	(1916)	77
University of Havana	(1915)	75
National University, Athens	(1913)	80
University of Naples	(1898)	75
FAILED		
Atlanta College of Physicians and Surgeons	(1912)	72
Southern College of Medicine and Surgery	(1914)	45
University Medical College of Kansas City	(1901)	67
Meharry Medical College	(1914) 43; (1916)	66
University of the South	(1907)	64
Vanderbilt University	(1892)	48
University College of Medicine	(1907)	68

* Credit allowed for years of practice.

Kentucky December Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 11-13, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 12, of whom 5 passed and 7 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Loyola University	(1916) 80.4,	86
University of Louisville	(1910) 84; (1916) 77,	80

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College		(1913)	65
Loyola University		(1916)	71 *
Kentucky School of Medicine		(1908)	56
Louisville Medical College		(1907)†	44
Louisville National Medical College		(1912)	60
Meharry Medical College		(1915) 67; (1916)	70 *

* Fell below 60 per cent. in certain branches.
† Graduation not verified.

New Hampshire December Report

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the oral and written examination held at Concord, Dec. 18-19, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed and 3 osteopaths failed. One candidate was granted a reregistration license by examination and 4 candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland		(1916)	88
Boston University		(1915)	85
Harvard University		(1916)	84
Tufts Medical College		(1916)	77, 90

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Boston University		(1895)	Mass.
Harvard University		(1915)	Mass.
Tufts Medical College		(1915)	Mass.
University of Vermont		(1887)	Vermont

Ohio December Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, Dec. 5-7, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 25, of whom 23 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1913)	84.9
Chicago College of Medicine and Surgery		(1915)	77
Rush Medical College		(1901)	78.7
University of Illinois		(1916)	82.3
University of Louisville		(1915)	79.4
Johns Hopkins University		(1912)	84.6
University of Maryland		(1916) 78.9, 81.2,	82.2
Harvard University		(1916)	80.1
University of Michigan Medical School		(1916)	80.2
Albany Medical College		(1916)	82
Eclectic Medical College		(1916) 75.3,	81.1
Western Reserve University		(1916) 78.8, 79.3, 86.7,	88
Jefferson Medical College of Philadelphia		(1914) 86.1; (1916)	83
Woman's Medical College of Pennsylvania		(1915)	86
Medical College of Virginia		(1916)	86.3
National University, Athens		(1909)	75
	FAILED		
Meharry Medical College		(1905)	60.2
University of Genoa, Italy		(1912)	68.7

Virginia December Report

Dr. J. N. Barney, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 12-15, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 24, of whom 17 passed, including 3 nongraduates and 1 osteopath, and 7 failed, including 2 osteopaths. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Georgia		(1913)	76
National Medical College		(1906)	80*
University of Maryland		(1916)	87
Medical College of Virginia		(1915) 77, 80; (1916) 75, 79, 79, 82,	91.
University of Virginia		(1910) 95; (1916) 94,	94
	FAILED		
North Carolina Medical College		(1915)	67
Meharry Medical College		(1915)	74
University of West Tennessee		(1916)	73
Medical College of Virginia		(1912) 71; (1916)	66

*Graduation not verified.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1909)	Dist. Colum.
Atlanta College of Physicians and Surgeons		(1912)	Georgia
University of Louisville		(1910)	Kentucky
Tulane University of Louisiana		(1900)	Louisiana
Baltimore Medical College		(1913)	Alabama
University of Maryland		(1888) North Carolina; (1914)	W. Virginia
Hahnemann Med. Coll. and Hosp. of Philadelphia		(1909)	Penna.
Woman's Medical College of Pennsylvania		(1914)	Penna.
Meharry Medical College		(1904)	Illinois
Medical College of Virginia		(1913)	N. Carolina

Book Notices

PREVENTIVE MEDICINE AND HYGIENE. By Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard. With chapters upon Sewage and Garbage, by Goerge C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by John W. Trask, Assistant Surgeon-General U. S. Public Health Service; Mental Hygiene, by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene. Second Edition. Cloth. Price, $6. Pp. 1286, with 172 illustrations. New York: D. Appleton & Co., 1916.

That the advance of preventive medicine and hygiene has been exceptionally rapid during the past few years is shown in this new edition of Rosenau's book. The additions include, as stated in the preface, prevalence of venereal diseases, chancroid, the Schick reaction, the Bang method of suppressing bovine tuberculosis, organization of a local tuberculosis campaign, tuberculosis sanatoriums and dispensaries, emetin, insecticidal agents, especially for lice and fleas, standardization of bacterial vaccines, sensitized vaccines, roaches, feeblemindedness, the Wassermann test, relation between host and parasite, essential requirements for a safe milk supply, butter, desiccated and condensed milk, streptococci of sore throat, sodium fluorid, hydrofluoric acid, cancer heredity, tests for heated milk, echinococcus disease, carbon dioxid in alveolar air, sanitary significance of odors, ocular hygiene, hydrogen sulphid, methane, accidents in sewers and their prevention, reinspiration of expired air, air washing with reference to ventilation, goiter, sanitation of swimming pools, and military hygiene.

It is interesting to note that in the chapter on venereal diseases Dr. Rosenau favors attempts at registration of these diseases, although he is rather pessimistic as to the success of the registration. He is hopeful, however, that as time goes on a gradual improvement may be expected, although he is rather hopeless as to the possibility of ever eradicating venereal diseases. Incidentally he says (page 55):

"Syphilis is an infection caused by the *Treponema pallidum* (formerly known as the *Spirochaeta pallida*)." From this point on, "treponema" is laid aside and "spirochaeta" is the only term used. The part on tetanus contains no reference to foreign literature later than 1910, although much has appeared in foreign literature since then, and especially during the last two years, owing to the experience with this disease in the European war.

The second chapter, which begins with typhoid fever, is particularly excellent. It contains numerous charts and tables showing how this disease has gradually yielded to control. It is interesting to note here in the discussion on typhoid bacilluria, page 89, that the author advises hexamethylenamin in 10 grain doses as an aid in disinfecting the urine, although he says nothing concerning the inefficacy of this drug in an alkaline urine. It is rather to be regretted that the author, a teacher in one of the leading medical institutions of the country, should help to perpetuate one of the ordinary proprietary names for hexamethylenamin, referring to it as urotropin.

In the third chapter he deals with the diseases spread through the secretions of the nose and throat, including such important subjects as tuberculosis, diphtheria and the other acute exanthems. The author has taken advantage of all that recent studies have shown in connection with these conditions. It is here that the Schick test is fully discussed. Footnote 1 on page 164 belongs on page 165, and vice versa.

The fourth chapter, concerning insect-borne diseases, contains an excellent tabular arrangement giving various diseases, their causes, insects carrying the disease, and the mode of infection, as well as much practical material on the use of insecticides.

Unfortunately, infantile paralysis, which appears in Chapter V, devoted to miscellaneous diseases, is not complete with

the great epidemic of 1916. In the section on leprosy, the author recommends the establishment of a national leprosarium, and it is pleasant to report that this recommendation was carried out by the last Congress.

Chapter VI, on mental hygiene, is written by Dr. Thomas W. Salmon, a recognized specialist in this field. In the first edition this chapter was called "The Prevention of Mental Diseases," but it has been somewhat elaborated, which is the reason for the new title.

Following some general considerations on quarantine and isolation, the author takes up the second section of the book, which is devoted to immunity, heredity and eugenics. The discussions are not too technical for the average reader.

The third section concerns foods. This is a subject to which more and more attention is being given daily by physicians and by the public. Recent years have seen great advances, not only in methods of preparation and preservation of foods, but also in the prevention of falsification and adulteration. Milk especially is closely related to the spread of disease, and the chapter on milk is elaborate. In the chapter on plant foods, the author takes up beriberi and pellagra. He believes that Goldberger has proved his case in regard to pellagra, and that his work stands as one of the achievements in preventive medicine. Later, following a discussion of the views of the Thompson-McFadden Pellagra Commission (page 658):

> In my opinion, Goldberger's views are correct. The disease may be prevented, produced and even cured, if not too far advanced, in accordance with the view that it is caused by a faulty dietary. Before pellagra is eradicated, it will mean general education concerning balanced diets, and general prosperity sufficient to purchase the necessary articles making up such a diet.

A fourth section of the book is devoted to air, and takes up such practical questions as humidity, ventilation and poisonous gases. The fifth section concerns the soil, and the sixth section, water. Concerning the sanitation of swimming pools, he says (page 948):

> The combination of refiltration to clean the water and chlorination to disinfect the water is the best present available method to keep the water of swimming pools in satisfactory sanitary condition.

The next two sections, on sewage and refuse disposal, have been prepared by Prof. George C. Whipple, and Section 9, which concerns vital statistics, is by Dr. John W. Trask of the Public Health Service. Section 10 concerns industrial hygiene and diseases of occupation, a subject of great present day interest. In this section there is a most extensive table of industrial poisons, arranged by Dr. Charles B. Spruit of the Massachusetts General Hospital. Section 11 is devoted to schools, Section 12 to disinfection and fumigation, and the last section to the subject of military hygiene. This section is a brief discussion in thirty-two pages of the elementary requirements. It discusses the formation of the United States Army, and is up to date in its explanation of the new Officers' Reserve Corps. It follows in general Keefer's and Havard's excellent textbooks.

Dr. Rosenau's book has proved itself to be a standard on preventive medicine and hygiene.

RADIODIAGNOSTIC DES AFFECTIONS PLEUROPULMONAIRES. Par F. Barjon, Médicin des Hôpitaux de Lyon. Paper. Price, 6 francs. Pp. 186, with illustrations. Paris: Masson et Cie, 1916.

Three short chapters discuss the general value of the Roentgen ray in the diagnosis of diseases of the chest, and the technic specially suited to this work. Then follow chapters taking up the roentgenology of general and circumscribed pleurisy, and pneumothorax; diseases of the bronchi, including foreign bodies; diseases of the lungs, such as pneumonia, abscess, gangrene, atelectasis, various types of tuberculosis, and tumors. A chapter has been added on the location in the chest of bullets and other war projectiles. The illustrations are good. Numerous schematic figures are helpful. The text is clear and reasonably concise. The diagnoses seem to be reliable, as the clinical history, surgical operation or necropsy is used as a check on errors. The book will be helpful to the practitioner or to the specialist in diseases of the lung and pleura who, while willing to have the roentgenogram made by the technical expert, is not willing to entrust to him more than a fair share of its interpretation. A book such as this will assist the physician to be his own interpreter.

Social Medicine, Medical Economics and Miscellany

MEDICAL PREPAREDNESS

A circular has just been received from Dr. F. F. Simpson, Chief of the Medical Section of the Council of National Defense, presenting the correlated activities of the medical departments of the government, the Council of National Defense and the Advisory Commission, and the Committee of American Physicians for medical preparedness, setting forth the work that has already been accomplished, and what is now being done in the way of medical preparedness. The following is a summary of the important topics in this statement:

Under existing conditions, every physician as a loyal citizen of the United States should prepare to render his service to the government. Effective service can be rendered by cooperation in accordance with the following plan.

It is desirable at this time to state explicitly what the Council of National Defense and its various agencies are.

The Council of National Defense was created by Congress, Aug. 29, 1916, to coordinate industries and resources for the national security and welfare. The council consists of the secretaries of war, the navy, the interior, agriculture, commerce and labor. An advisory commission which it nominated to the president was also appointed, consisting of seven persons, each having special knowledge of some industry, public utility, or the development of some natural resource.

The Council of National Defense conducts its work under rules and regulations approved by the president which provide for an advisory commission to develop the special knowledge of such commission by suitable investigation, research and inquiry, and to make this available for the use of the council. The council may organize subordinate bodies for its assistance in special investigations, either by the employment of experts or by the creation of committees of qualified persons.

A committee of distinguished physicians was asked to present to the president names of medical men for membership on the advisory commission. Dr. Franklin H. Martin, Chicago, was selected.

The Advisory Commission of the Council of National Defense consists of the following civilians appointed by the president: Mr. Daniel Willard, president of the Baltimore and Ohio Railroad, chairman; Mr. Hollis Godfrey, LL.D., president of Drexel Institute, Philadelphia; Mr. Howard E. Coffin of Detroit (who is also chairman of the Committee on Industrial Preparedness of the Naval Consulting Board); Dr. Franklin H. Martin, Chicago; Mr. Bernard Baruch, financier, New York; Mr. Julius Rosenwald, president of Sears, Roebuck & Co., Chicago, and Mr. Samuel Gompers, president of the American Federation of Labor.

The executive activities of the Council of National Defense are coordinated and carried out through the medium of its director, Mr. W. S. Gifford, and the chiefs of the various departments represented by the members of the Advisory Commission. Dr. Frank F. Simpson is chief of the Medical Section of the Council of National Defense.

THE ADVISORY COMMISSION

The organization of the council and of the Advisory Commission provides that each member of the Advisory Commission shall gather about himself for the effective coordination of the activities he represents a committee or board consisting of representatives of governmental departments as well as civilians.

The Medical Committee, of which Dr. Franklin H. Martin is chairman, consists of William C. Gorgas, surgeon general of the U. S. Army; William C. Braisted, surgeon general of the U. S. Navy; Rupert Blue, surgeon general of the U. S. Public Health Service; Col. Jefferson R. Kean, director general of military relief of the American Red Cross; Dr. William H. Welch, member of the National Council of Research;

Dr. William J. Mayo, chairman of the Committee of American Physicians for Medical Preparedness, and Dr. Frank F. Simpson, chief of the Medical Section of the Council of National Defense, and secretary of the Committee of American Physicians for Medical Preparedness.

COMPONENT PARTS OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS

National and State Committees.—In April, 1916, the national committee was constituted by the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America, and the American College of Surgeons. That committee undertook the responsible duty of formulating plans whereby the civilian medical resources of the United States might be ascertained and coordinated for such purposes as might be required by the federal government.

The national committee appointed a state committee of nine men in each state of the Union. The presidents and secretaries of the various state medical associations are ex officio members of their respective state committees. It was contemplated that at the proper time committees would be perfected in each county of the country. That time has now come, and county committees are being rapidly organized. The state committees are expected to select the county committees and to supervise their formation.

Name and Personnel of County Committees.—It is the policy of the Committee of American Physicians for Medical Preparedness that the various medical interests and activities of the county shall be represented on the county committees. This is to coordinate the interests and activities so that the medical profession shall be in position to aid in the national defense. That this plan may be carried out with uniformity and precision throughout the country, the various state committees have been requested to have all county committees bear the following distinguishing name, to wit, The Auxiliary Medical Defense Committee of ——— County, in ——— State, and to provide that the county committees shall include the following resident in the county: all members of National Committee of the Committee of American Physicians for Medical Preparedness; members of the state committee; representatives of the U. S. Army; representatives of the U. S. Navy; representatives of the U. S. Public Health Service; representatives of the state board of medical examiners; representatives of the state or city public health service; ranking medical officer of the National Guard; president and secretary of the local Medical Officers' Reserve Corps Association (if there be such organization); deans of medical schools; president and secretary of the county medical society; president and secretary of other important medical societies; medical director of the local Red Cross units, and other representative medical men.

DUTIES OF COUNTY COMMITTEES

From time to time, specific duties will be assigned to the various state and county committees. These county committees are urged to take prompt action at this time in accordance with the following:

1. That these committees cooperate with the national and state committees of the Committee of American Physicians for Medical Preparedness to make available needful information regarding the civilian medical resources of their communities, and to coordinate civilian medical activities for prompt moblization in case of need.

2. That they secure applicants:

(*a*) For the Army Medical Corps. For the full complement of troops already authorized by Congress, the regular army needs about 1,200 additional medical officers. If a million men are called, a corresponding increase will be required. (*b*) For the Medical Officers' Reserve Corps, for which from 20,000 to 30,000 medical reserve officers should be enrolled. (*c*) For the Naval Medical Corps, which needs about 350 additional officers. (*d*) For the Coast Defense Reserve Corps of the Navy, for which several hundred high class reserve medical officers are desired. (*e*) For the National Guard, such numbers as may be required to bring your local National Guard to full strength.

Physicians recommended for service in national defense must be of the highest type. Medical officers who go to field duty should be under the age of 45.

3. That they cooperate, individually and collectively, with the Medical Department of the Army, Navy and Public Health Service and with the Council of National Defense.

4. That they cooperate with the Red Cross in bringing that organization to the point of highest efficiency.

ACTIVITIES OF THE COMMITTEE OF AMERICAN PHYSICIANS

The various work done by the various state and other committees was of such extent and value that the Council of National Defense at its first meeting requested the Committee of American Physicians to continue their various activities under the guidance of the Council of National Defense, and asked the secretary of the Committee of American Physicians to act as chief of the Medical Section of the Council of National Defense. Since that time the various activities have gone forward with renewed energy.

Some of the activities which have either been completed or are well under way are:

1. Some 20,000 medical men selected from all parts of the country have been classified according to the training and the kinds of work which they do best.

2. An inventory of hospitals and other medical institutions is well under way.

3. It has been the policy of the Committee of American Physicians to aid the American Red Cross in bringing its medical department to the point of highest efficiency. With that in view, the members of the National Committee of the Committee of American Physicians became members of the national committee of the medical department of the American Red Cross; most of the members of the various state committees of the Committee of American Physicians were also made members of the state committee of the American Red Cross, and the various county committees will be expected to cooperate in carrying out the plans adopted by the two organizations.

4. The establishment of military training for senior medical students in a large percentage of the high grade medical schools of the country.

5. The establishment of more effective military training for hospital groups for members of the Medical Officers Reserve Corps, for dental students, and others.

6. The appointment of a committee for the standardization of medical and surgical supplies and equipment. The purpose of this work is to designate a list of articles essential to the successful conduct of civilian and military medical and surgical activities so that if it should become necessary to curtail production all of the energies of the drug and instrument makers shall be devoted to providing the necessary articles, rather than those which, however desirable, are not essential. On this standardization committee are representatives of the army, the navy, the Public Health Service, the Red Cross, the Council of National Defense and a number of distinguished members of the various specialties of civilian medicine.

7. Much valuable information supplied by medical and other observers who have worked in the war zones of Europe is being gathered and classified.

8. The presidents of important national medical organizations of the country have been requested to suggest to the medical section of the Council of National Defense the kinds of work which members of those organizations are best fitted to perform, and to suggest plans whereby their activities and resources might be utilized to advantage. This request does not contemplate an inventory and organization of these resources. Suggestions offered by the various organizations will be carefully considered, and such as conform to the plans of the Council of National Defense and can be utilized to advantage will be adopted, when the various organizations will be requested to cooperate in perfecting plans of the Council of National Defense.

Medicolegal

Competency of Persons of Unsound Mind to Be Witnesses

(*State vs. Herring et al.* (*Mo.*), *188 S. W. R. 169*)

The Supreme Court of Missouri, Division No. 2, affirms a judgment of conviction of the defendants, two attendants in the ward in which violent patients were confined in a hospital for the insane, of manslaughter in the fourth degree, where a patient in the ward who had been in the hospital nearly twelve years was permitted, over objection, to testify against the defendants. A Missouri statute provides that "the following persons shall be incompetent to testify: first, a person of unsound mind at the time of his production for examination," etc. The court says that this statute has never been construed on the precise point presented in this case. But many states have statutes either verbatim, as that of Missouri, or similar in substance and meaning to it; yet without a single dissenting voice the matter of competency of an insane person to testify has, all such statutes notwithstanding, been said to rest on a proper voir dire or preliminary examination as to competency, as at common law. In no state wherein a statute like that of Missouri on the question of competency exists has this court been able to find a contrary ruling, even though the words of the statute and the reason of the case may seem on but a casual view to call for a different rule. Likewise, the textbooks deduce from the adjudged cases a similar unanimous holding on the point. From the ruled cases we may deduce the rules: (*a*) that a person of unsound mind is competent as a witness, if (1) on examination he be found to be of sufficient mental capacity to understand the nature of an oath—that is, to know it is both a moral and a legal wrong to swear falsely, and that false swearing is a punishable crime in law, and (2) if he be possessed of sufficient mind and memory to observe, recollect and narrate the things he saw or heard; (*b*) that lawful confinement in an asylum for the insane, or an adjudication as an insane person, creates a prima facie presumption of absolute incompetency as a witness; but (*c*) such presumption is rebuttable by the voir dire (preliminary) examination of the witness alone, or when aided by extrinsic evidence; and (*d*) the burden of rebutting the presumption of incompetency in case of confinement in an asylum or adjudication as an insane person is on him who offers the witness; but (*e*) that, absent such confinement, or adjudication as an insane person, the burden of showing incompetency on account of unsoundness of mind is on him who objects on that ground.

Judgment Affirmed for Alleged Malpractice

(*Christie vs. Walton* (*Ind.*), *113 N. E. R. 750*)

The Appellate Court of Indiana, Division No. 2, affirms a judgment in favor of Plaintiff Walton, for some amount not stated in the report of the case, for damages for alleged malpractice in the treatment of a burn on the plaintiff's foot. The court says that it might as well be admitted that the weight of the evidence, most of which was given by physicians, was favorable to defendant Christie, a physician and surgeon, and did not tend to show that he was negligent in diagnosis or treatment, or that skin grafting would have been successful if used. However, this court was bound to sustain the verdict for the plaintiff if there was any competent evidence on which it could rest, without considering evidence which conflicted with that which tended to sustain it. The complaint stated that the burn which the plaintiff had received was so severe that 8 or 10 square inches of skin on her foot were deadened and destroyed, and the bones of the ankle and instep were scorched, charred, burned and deadened; that the only cure or safe course in the treatment of such injury was the amputation of the foot, or the grafting of skin over the parts which had been burned after the removal of the deadened and charred parts of the bones; that she placed herself under the care of the defendant, who undertook to treat her foot, but he failed to graft skin where the skin had been destroyed; that he told the plaintiff he could cure her foot without skin grafting, and without the removal of the charred bones, by the use of "scarlet red" salve; that he negligently and unskilfully continued to use his scarlet red salve, which was not adapted for use on a burn of such degree, and negligently failed to observe that his scarlet red remedy was insufficient for the purpose for which it was being used, and negligently failed to observe that the burn was not healing with new skin, etc. By a supplemental complaint it was alleged that since the filing of the complaint the foot and ankle had become further diseased on account of the defendant's negligent and unskilful conduct, and that, in order to prevent blood poison and the further impairment of the plaintiff's health, and to save her life, it was necessary to amputate her leg above the ankle, which amputation would have been prevented if the defendant had properly treated the limb by removing the deadened portions of bone and grafting skin. The court thinks the complaint sufficiently stated a cause of action, on the theory that the defendant improperly diagnosed the case, from a want of skill or care, and used an improper remedy, and continued to use it after he should have observed that it was ineffectual, and that such treatment made the plaintiff's condition worse, and that finally, as was apparent from the supplemental complaint, led to the amputation of her foot. The next question was as to the sufficiency of the evidence to sustain the verdict. There was evidence, some of which was expert, that scarlet red was not a standard remedy for such a burn, and, if proper in such a case, the injured and charred bones should have been first removed, and some evidence of the same character tending to show that the defendant was negligent in failing to remove the charred bones, and in continuing to use scarlet red after it was apparent that it was not a proper remedy. There being some evidence to support the verdict in the plaintiff's favor, the judgment of the lower court must be affirmed.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

Alabama State Medical Association, Montgomery, April 17-20.
American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
American Association of Immunologists, New York, April 6-7.
Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arizona Medical Association, Douglas, April 17-18.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
California State Medical Society, San Diego, April 17-19.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Louisiana State Medical Society, Alexandria, April 17-19.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Carolina State Medical Society, Asheville, April 17.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Carolina Medical Association, Spartanburg, April 17-19.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Wyoming State Medical Society, Casper, May 9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Ophthalmology, St. Louis

January, XXVI, No. 1

1 Halos of Glaucoma—Diffraction Phenomenon. V. B. Fischer, Boulder.—p. 1.
2 Causal Relationship of Deformities and Diseases of Nose and Throat to Diseases of Eye with Special Reference to Asthenopia. F. Stauffer, Salt Lake City.—p. 13.
3 Tests for Visual Acuity. E. Jackson, Denver.—p. 22.
4 Intranasal Operation for Lacrimal Obstruction with Simplified Technic. H. L. Baum, Denver.—p. 25.
5 Fuchs' Colomba with Loop Retinal Vein Hidden Behind Fold of Retina. M. Feingold, New Orleans.—p. 34.
6 Combined Use of Cross Cylinder and Astigmatic Dial. W. H. Crisp, Denver.—p. 42.
7 Treatment of Cataract During Earlier Stages. H. M. Thompson, Pueblo.—p. 47.
8 Cycloplegics in Measurement of Ametropia. E. Jackson, Denver. —p. 56.
9 Relation of Mouth to Ocular Diseases. W. C. Finnoff, Denver. —p. 66.
10 Some Personal Experiences which Have Stood the Test of Time. M. Black, Denver.—p. 73.
11 Tubercle of Conjunctiva. J. A. Patterson, Colorado Springs.— p. 76.
12 Use of Eyes of Kittens in Ophthalmic Operative Teaching. W. A. Fisher, Chicago.—p. 79.

Archives of Diagnosis, New York

January, X, No. 1

13 Diagnosis of Duodenal Ulcer. J. B. Deaver, Philadelphia.—p. 1.
14 Possible Dependence of Gastric and Duodenal Ulcer in Man on Disturbance of Internal Secretions. G. A. Friedman, New York. —p. 8.
15 Prognosis of Duodenal Ulcer. M. Einhorn, New York.—p. 24.
16 Pseudoleukemic Anemia of Von Jaksch. R. Kilduffe, Jr., Chester, Pa.—p. 26.
17 Relationship of Ductless Glands to Arterial Diseases. J. Daland, Philadelphia.—p. 32.
18 Ductless Glands in Dementia Praecox. F. X. Dercum, Philadelphia.—p. 38.
19 Field of Internal Medicine. R. W. Wilcox, New York.—p. 45.
20 Graham Steele Murmur (Relative Pulmonary Insufficiency). J. Epstein, New York.—p. 59.
21 Biochemistry, Immunity and Infectious Diseases. I. J. Levy, New York.—p. 62.

Archives of Internal Medicine, Chicago

March, XIX, No. 3

22 *Effect of Bandaging of Legs on Rate of Blood Flow in Feet. G. N. Stewart, Cleveland.—p. 335.
23 *Bile Content of Blood in Pernicious Anemia. M. A. Blankenhorn, Cleveland.—p. 344.
24 Refractometric Studies of Serum Proteins in Nephritis, Cardiac Decompensation, Diabetes, Anemia and Other Chronic Diseases. A. H. Rowe, Oakland, Calif.—p. 354.
25 *Bacteriologic Studies in Subacute Streptococcus Endocarditis. R. A. Kinsella, New York.—p. 367.
26 *Bacteriologic Studies in Acute Rheumatic Fever. H. F. Swift and R. A. Kinsella, New York.—p. 381.
27 Malone-Kiutsi Reactions in Pregnancy and Cancer. S. Berkowitz, New York.—p. 397.
28 Relation of Pregnancy and Childbirth to Pellagra in Women. J. F. Siler, U. S. Army, P. E. Garrison, U. S. Navy and W. J. MacNeal, New York.—p. 404.
29 Studies on Typhoidin. J. N. Force and I. M. Stevens, Berkeley, Calif.—p. 440.
30 Reliability of Wassermann Reaction. R. Ottenberg, New York. —p. 457.
31 *Bacteriology of Urine in Focal Infections; Its Relation to Nephritis. G. F. Dick and G. R. Dick, Chicago.—p. 493.

22. **Bandaging of Legs and Rate of Blood Flow.**—It has been suggested by some observers of the condition known as "trench-foot," that obstruction of the venous return by puttees was an important contributory factor. The effect of relatively short applications of the puttees was studied by Stewart. He found that a puttee applied with the usual degree of pressure on the leg causes no diminution in the blood flow through the foot. When it is put on so tight that some discomfort is produced the flow in the foot is at first reduced.

23. **Bile in Blood in Pernicious Anemia.**—The plasma of twenty patients in whom a diagnosis of pernicious anemia had been made was examined by Blankenhorn for bile and bile pigments. In sixteen there was found bilirubin in amounts sufficient to give a positive Gmelin test. In two of the remaining four the plasma was visibly jaundiced, but not deeply enough to give a test. Of the eighteen cases showing staining of the plasma, nine were visibly jaundiced in the sclerae; of the remaining nine, only one gave a history of ever being yellow. The cases showing the highest concentration of bilirubin showed the most marked evidence of rapid blood destruction, namely, increased output of urobilin in stool and urine, loss of strength from anemia, also the highest color index. Urobilin was not found in the plasma of any, although it occurred in the urine of all save one, this one being a case which showed absolutely no staining of the plasma. A positive Pettenkofer test for salts was found in sixteen out of twenty plasmas. Of the four which did not give a positive Pettenkofer test, there were two plasmas which contained a large amount of bilirubin and two which contained none at all. The cases giving the strongest Pettenkofer, hence highest concentration of salts, showed the most marked nerve lesions; in fact in three such cases the nerve lesions caused all the symptoms of the disease. Blankenhorn concludes that bile pigment is frequently found in the blood in pernicious anemia, and is the cause of the jaundice. The bile pigment is in some way fixed to the plasma and therefore does not appear in the urine. The presence of bile pigment in the blood is not always betrayed by jaundice. Bile salts are frequently found in the blood, alone or associated with bile pigment. The jaundice in pernicious anemia is hepatic in origin.

25. **Bacteriology of Streptococcus Endocarditis.**—It was Kinsella's purpose to search for distinctive features in the group of streptococci associated with subacute streptococcus endocarditis. Twelve typical cases were studied. Each patient repeatedly yielded a positive blood culture. The streptococcus isolated was always in pure culture and identical with the organisms of each of the other cultures in the same case. The streptococci belong to the saprophytic types according to Andrewes and Horder's classification and are of low virulence. They are nonhemolytic and may or may not be green producers. Biochemical and immunologic tests fail to show any constant identity between the individual streptococci concerned in producing this disease. The patients' blood serums contain agglutinating and complement fixing antibodies. The reduction in the bacteriemia following transfusion with blood and impure saline depends on febrile reactions on the part of the patient. If such reactions do not occur, as when saline-free transfusions are used, no reduction in bacteremia results. No noticeable benefit accrues in either case.

26. **Bacteriology of Rheumatic Fever.**—This study was undertaken by Swift and Kinsella to determine whether any constant cultural or immunologic type of bacterium was associated with acute rheumatic fever. They studied the type of streptococci which they were able to isolate from the blood of patients with acute rheumatic fever. In all fifty-eight cases have been studied. All were typical cases, showing fever and polyarthritis, and responded in the characteristic manner to salicylates. Altogether eighty-five blood cultures were made on fifty-eight patients with seven positive results, a percentage of 8.3. All of the cultures of joint exudates have been sterile. Similar nonhemolytic streptococci have been recovered from the active endocardial lesions in only half of the fatal cases of acute rheumatic fever. From the above results it seems evident that no type of streptococcus has been constantly associated with acute rheumatic fever. The authors do not feel that the etiologic relationship between the streptococcus and acute rheumatic fever has been definitely proved, but if the streptococcus is the etiologic agent in acute rheumatic fever, it is shown by means of cultural and immunologic studies that it is through various members of the viridans group, and hence no one member can be called the *Streptococcus rheumaticus*.

31. **Bacteriology of Urine in Focal Infection.**—Eighteen patients were examined by G. F. and G. R. Dick. In six of these the bacteria when found in the urine did not correspond to those found in the focus of infection from which cultures were made. In four cases a partial correspondence was found between the bacterial flora of the urine and that of the focus

of infection. In eight cases the correspondence was more striking. Two of the eight patients showed no clinical evidence of renal lesion. One of these, however, had persistently high blood pressure (150 mm.). In the remaining patients there were from mild to severe renal lesions present, but there was no very constant relation between the severity of the lesion and the number of bacteria in the urine. The finding of considerable numbers of bacteria in the urine in 66 per cent. of patients with evident foci of infection indicates that in diseases where migration of bacteria from foci of infection takes place, the bacteria are often present in the urine.

Arkansas Medical Society Journal, Little Rock

March, XIII, No. 10

32 Management of Fractures. J. A. Foltz, Fort Smith.—p. 203.
33 Radium; Its Physical Properties and Therapeutic Value. D. Gann, Jr., Little Rock.—p. 205.

Colorado Medicine, Denver

March, XIV, No. 3

34 Faucial Tonsil in Its Relation to Systemic Conditions. A. C. Magruder, Colorado Springs.—p. 68.
35 Pledge of American College of Surgeons and What It Signifies. H. G. Wetherill, Denver.—p. 75.
36 Nature and Treatment of Sciatica. C. L. Pershing, Denver.—p. 79.
37 Five Cases of Tuberculosis Treated with Cyanocuprol. N. Kunitomo, Denver.—p. 83.
38 Constipation and Obstipation. F. R. Coffman, Denver.—p. 86.

Indiana State Medical Association Journal, Fort Wayne

March, X, No. 3

39 *Two Cases of Extra-Uterine Pregnancy at or Near Term. E. D. Clark, Indianapolis.—p. 89.
40 *Radium Therapy. T. C. Kennedy, Indianapolis.—p. 105.

39. Abstracted in The Journal, Oct. 21, 1916, p. 1249.

40. Abstracted in The Journal, Oct. 28, 1916, p. 1327.

Journal of Biological Chemistry, Baltimore

March, XXIX, No. 2

41 *Vitamin Content of Brewers' Yeast. A. Seidell, Washington, D. C.—p. 145.
42 Improved Nephelometer Colorimeter. P. A. Kober, Albany, N. Y. —p. 155.
43 Rapid Method for Determining Calcium in Blood and Milk. H. Lyman, Boston.—p. 169.
44 *Studies on Animal Diastases. Increased Diastatic Activity of Blood in Diabetes and Nephritis. V. C. Myers and J. A. Killian, New York.—p. 179.
45 Amino-Acid Nitrogen Content of Blood of Various Species. J. C. Bock, New York.—p. 191.
46 Separation and Estimation of Butyric Acid in Biologic Products. I. K. Phelps and H. E. Palmer, Washington, D. C.—p. 199.
47 Thiobarbituric Acid as Qualitative Reagent for Ketohexose. G. P. Plaisance, Ames, Iowa.—p. 207.
48 Growth of Isolated Plant Embryos. G. D. Buckner and J. H. Kastle, Lexington, Ky.—p. 209.
49 Fetal Athyrosis. Study of Iodin Requirement of Pregnant Sow. G. E. Smith, Bozeman, Mont.—p. 215.
50 *Studies in Carbohydrate Metabolism. Influence of Alkali Administration on Blood Sugar Content in Relation to Acid Base Producing Properties of Diet. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 227.
51 *Id. Influence of Acid Forming and Base Forming Diets on Blood Sugar Content. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 233.
52 Id. Relation of Epinephrin Glycosuria to Dosage and to Character of Diet. L. McDanell and F. P. Underhill, New Haven, Conn. —p. 245.
53 *Id. Further Experiments on Influence of Intravenous Injection of Sodium Carbonate on Epinephrin Hyperglycemia and Glycosuria. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 251.
54 *Id. Relation of Diet to Glycogen Content of Liver. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 255.
55 Id. Influence of Intravenous Injection of Sodium Carbonate on Hyperglycemia and Glycosuria Following Subcutaneous Administration of Glucose. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 265.
56 Id. New Experiments on Mechanism of Salt Glycosuria. L. McDanell and F. P. Underhill, New Haven, Conn.—p. 273.
57 Studies of Autolysis. Influence of Bile on Autolysis. H. C. Bradley and J. Taylor, Madison, Wis.—p. 281.
58 *Use of Cotton Seed as Food. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 289.
59 *Composition of Adipocere. R. F. Ruttan and M. J. Marshall, Montreal, Canada.—p. 319.
60 Applications of New Reagent (Permutit) for Separation of Ammonia. Colorimetric Determination of Ammonia in Urine. O. Folin and R. D. Bell, Boston.—p. 329.
61 *Calcium Content of Cerebrospinal Fluid, Particularly in Tabes Dorsalis. J. O. Halverson and O. Bergeim, Philadelphia.—p. 337.
62 Nature of Dietary Deficiencies of Oat Kernel. E. V. McCollum, N. Simmonds and W. Pitz, Madison, Wis.—p. 341.
63 Method of Timed Intravenous Injections. R. T. Woodyatt, Chicago.—p. 355.
64 Effect of Bile and Bile Salts on Reaction Between Oleic Acid and Sodium Bicarbonate. F. B. Kingsbury, Minneapolis.—p. 367.
65 *Variations in Composition of Human Milk During First Eleven Days After Parturition. F. S. Hammett, Los Angeles, Calif. —p. 381.
66 Rate of Urea Excretion. Effect of Changes in Blood Urea Concentration on Rate of Urea Excision. T. Addis and C. K. Watanabe, San Francisco.—p. 391.
67 Id. Effect of Changes in Volume of Urine on Rate of Urea Excretion. T. Addis and C. K. Watanabe, San Francisco.—p. 399.

41. **Vitamin Content of Brewers' Yeast.**—In the case of pigeons, the vitamin deficiency of an exclusive diet of polished rice is just replaced by daily doses of 0.5 to 1.0 c.c. of the clear filtrate from autolyzed brewers' yeast. Doses of dried freshly pressed yeast approximately equivalent to 1.0 c.c. doses of autolyzed yeast do not effectively replace the vitamin deficiency of a diet of polished rice.

44. **Increased Diastatic Activity of Blood in Diabetes and Nephritis.**—A simple method for the determination of the diastatic activity of human blood is described by Myers and Killian. The diastatic activity of the blood in six normal human subjects ranged from 15 to 17 with this method. In a series of thirteen cases of diabetes, the figures for the diastatic activity of the blood varied from 39 to 74. In a series of twenty-three cases of nephritis, eleven showed diastase figures ranging from 30 to 52. Of the eleven cases, seven exhibited marked nitrogen retention. The results suggest that the increased diastatic activity in both diabetes and nephritis (as shown by the analyses of the blood) may be the important factor in the production of the hyperglycemia in these conditions. The increased diastatic activity of the blood in nephritis finds probable explanation in the decreased excretion of diastase in the urine, now well known in this condition, but it is not possible, at present, to offer a satisfactory explanation of the increased diastatic activity of the blood in diabetes. A fall in the blood diastase would appear to afford a more reliable guide to the efficacy of the dietetic treatment in diabetes than either the blood sugar or urine sugar. Furthermore, an increase in blood diastase may constitute a very early sign of impending diabetes.

50. **Influence of Alkali Administration on Blood Sugar.**—In new experiments on the influence of sodium carbonate on the blood sugar content of normal rabbits on a mixed diet, hypoglycemia has invariably failed to manifest itself. The variable potency of sodium carbonate in the production of hypoglycemia, as reported by Underhill, cannot be explained by variations in the acid-base-producing possibilities of the diet, inasmuch as wide ranges in these directions apparently play a small part in influencing the blood sugar content of normal rabbits.

51. **Influence of Acid-Base Diets on Blood Sugar.**—In a normal rabbit the blood sugar content is not significantly changed by variations in the acid-base content of the diet which are sufficient to cause a marked change in the hydrogen ion concentration of the urine. These results are in agreement with those of the preceding paper, which indicate that the blood sugar content of a normal rabbit is not usually appreciably affected by intravenous injections of dilute alkali.

53. **Influence of Sodium Carbonate on Epinephrin Hyperglycemia.**—The present experiments confirm the statement of Underhill that the hyperglycemia and glycosuria provoked by epinephrin are both significantly decreased if sodium carbonate is administered at suitable periods of time previous to epinephrin introduction. Intravenous injection of sodium carbonate modifies significantly the influence of the minimum effective dose of epinephrin, but does not prevent the occurrence of hyperglycemia and glycosuria. In fact, it appears that, with the smaller dose of epinephrin, hyperglycemia and glycosuria are diminished relatively less by sodium carbonate than when larger doses of epinephrin are administered.

54. **Relation of Diet to Glycogen Content of Liver.**—The results obtained indicate that in normal rabbits a base forming diet is somewhat more efficient in the formation of glycogen than an acid producing diet. This is in agreement with the results of previous investigators, who have found that an excess of alkali contributes to the accumulation of glycogen. Notwithstanding this fact, it has also been demonstrated that a large storage of glycogen may take place on an acid forming diet when sufficient food is ingested.

58. **Cotton Seed as Food.**—The studies made by Osborne and Mendel show that cotton seed kernels are unsatisfactory for nutrition. Such samples of cotton seed meal and flour as have been tested were valuable foods for growing rats when used as the sole source of protein in the food, or when used in smaller quantity to supplement other less efficient protein concentrates. The injurious substance in the kernels can be removed by extraction with ether. The ether soluble material is deleterious, either because it contains some toxic ingredient or because it renders the food containing it so unpalatable that the animals refuse to eat it. Foods containing cotton seed oil prepared by pressing the kernels in the cold, or furnished as the crude unbleached commercial oil prepared by heating the kernels before pressing them, are eaten without detriment by rats. By treatment with steam under suitable conditions the kernels lose their deleterious effect on rats.

59. **Composition of Adipocere.**—As a result of their studies Ruttan and Marshall conclude that adipocere is the residue of the preexisting fats of animals. It is composed almost entirely of the insoluble saturated fatty acids left after the slow hydrolysis of the fats in wet ground. The protein matter has entirely disappeared and the glycerol, soaps, etc., resulting from the hydrolysis have been carried away in aqueous solution. The insoluble hydroxy stearic acids which are so characteristic of adipocere are probably derived from a portion of the oleic acid in the original fat by hydration. No margaric acid or oxy margaric acid is present. Ammonia and other soluble soaps are absent; calcium soaps alone are present in small quantity in a matured specimen of adipocere.

61. **Calcium Content of Cerebrospinal Fluid.**—The calcium content of the cerebrospinal fluid of adults is very constant at about 5.0 mg. of the element in 100 c.c. of fluid. This is approximately one half the calcium content of the blood plasma or serum of similar individuals. The calcium content was determined by Halverson and Bergeim in a number of cases of syphilis of the nervous system. Variation greater than 0.3 mg. from the value given was obtained in but a single very severe case. In tabes dorsalis an average of 5.1 gm. was obtained. Repeated drainage did not appear to affect the composition of the fluid in respect to calcium.

65. **Variations in Composition of Milk After Parturition.**—In summing up the variations observed in the chemical composition of human milk during the first eleven days after parturition, Hammett found that from the quantitative point of view fat and lactose increase in amount during the period studied, while there is a falling off in the production of protein. The three constituents fall into the following order of decreasing variability; fat, protein, lactose. The protein mechanism is apparently the best regulated and is less dependent on the factors controlling the fat and lactose production than they are on each other. For the single constituents there is a production plane uniform for the individual subject. This plane of production is fixed for the individual, independent of the plane of nutrition and dependent on the individuality. An increase or decrease in the lactose production is generally accompanied by a change in the opposite direction in the percentage of fat and protein.

Journal-Lancet, Minneapolis

March 15, XXXVII, No. 6

68 Relation of Medical Men to Present Day Social Changes. J. G. Cross, Minneapolis.—p. 169.
69 *Standardization of Digitalis and Potency of Minnesota Leaf. R. E. Morris, Minneapolis.—p. 176.
70 Obstetrics in Rural Community. M. D. Westley, Cooperstown, N. D.—p. 181.
71 Indications for Cesarean Section. W. A. Coventry, Duluth.—p. 185.
72 Technic of Tonsillectomy. J. Matthews, Rochester.—p. 190.
73 Diagnosis of Gastroduodenal Lesions. J. M. Lajoie, Minneapolis.—p. 191.

69. **Standardization of Digitalis and Potency of Minnesota Leaf.**—Among the various species of Minnesota digitalis Morris assayed (grown by the Department of Pharmacy, University of Minnesota) ferruginea, lutea, lanata, grandiflora and others show that they equal the purpurea, the form ordinarily used. There exist some twenty-three or more species and numerous varieties. Ferruginea, lutea and lanata exceed the pururea in toxicity, the last two belonging to the narrow-leaf form, and have been found true to name and reproduce themselves in pure stand. During the observations in assaying the various forms, the species lutea was prominently noticed. It ranks in toxicity with the higher grades of digitalis purpurea, but the lack of irritation and the quiet lethal period in cats was so marked as to suggest the use of digitalis lutea in man with the hope of finding here a preparation causing less than the usual gastro-intestinal irritation. As a result of this suggestion, Morris is now using both the tincture and the infusion of digitalis lutea clinically in the wards of the University Hospital with the best of results. Morris emphasizes (1) the necessity for a greater care in the use of digitalis, (2) the necessity for a standardized drug, and (3) an accurate dosage. He says that there is no need of using the exorbitant priced extractives if these three points are followed.

Medical Record, New York

March 17, XCI, No. 11

74 Real Cancer Problem. L. D. Bulkley, New York.—p. 441.
75 Physiology and Pathology of Menopause. G. Richter, St. Louis.—p. 446.
76 New Status of Exophthalmic Goiter. E. H. Reede, Washington, D. C.—p. 450.
77 Chronic Appendicitis Mistakes. J. R. Verbrycke, Jr., Washington, D. C.—p. 455.
78 Neurologic Pitfalls in General Practice. M. Keschner, New York.—p. 458.

New York Medical Journal

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79 Medical Corps of Navy. R. C. Holcomb, Washington, D. C.—p. 481.
80 Prevention and Treatment of Cancer Based on Roentgen-Ray Findings of Dental Infection and Use of Autogenous Vaccine. S. Tousey, New York.—p. 485.
81 Surgical Treatment of Puerperal Septicemia. A. S. Brinkley, Richmond, Va.—p. 487.
82 Surgical Aspects of Gastric and Intestinal Stasis. H. F. Graham, New York.—p. 490.
83 Saliva in Diabetics. L. N. Boston and L. W. Kohn, Philadelphia.—p. 497.
84 Significance and Technic of Cardiac Functional Tests. C. W. Lieb, Watkins.—p. 502.
85 Treatment of Duodenal Ulcer from Medical Standpoint. W. A. Bastedo, New York.—p. 505.

New York State Journal of Medicine

March, XVII, No. 3

86 Studies in Acidosis. C. G. Stockton and J. L. Butsch, Buffalo.—p. 107.
87 Typhoid in Children. G. C. Sincerbeaux, Auburn.—p. 110.
88 Diagnosis in Gynecology. T. J. Watkins, Chicago.—p. 112.
89 *Modification of Usual Clubfoot Operation, by Addition of Tendon Transplantation or Tendon Fixation, or Both. P. Le Breton, Buffalo.—p. 115.
90 *Case of Leukemia in Boy, with Some Observations on Benzol. F. S. Winslow and W. D. Edwards, Rochester.—p. 116.
91 Is Medicine a Business? J. M. Swan, Rochester.—p. 118.
92 Useful Urine Analyses. H. Greeley, Brooklyn.—p. 121.
93 Practical Experiences with Ductless Glands. S. Block, Brooklyn.—p. 125.
94 Effects of Tonsil Operations in Singers; Analysis of Five Thousand Cases. I. W. Voorhees, New York.—p. 131.
95 Health Insurance from Public Health Viewpoint. A. Krida, Schenectady.—p. 134.
96 Experiences in French Military Hospital. R. M. Eaton, Wellsville.—p. 137.
97 Experiences in Serbia During War, with Special Reference to Typhus Epidemic of 1915. E. F. Butler, Yonkers.—p. 139.
98 Honor of Profession. L. Emerick, Saugerties.—p. 144.

89. **Clubfoot Operation.**—During the past three years Le Breton has been adding to the usual wedge operation, two procedures, sometimes the one, sometimes the other, sometimes both, according to the case. These are, first, a tendon

transplantation of the tibialis anticus, and often the big toe extensor, to the outer side of the foot, and second, a tendon fixation of part or the whole of one peroneal tendon in the fibula. The transplantation robs the inner muscles of some of their excessive pull, and transfers it to the outer side. The fixation absolutely prevents a recurrence of the deformity. The author has operated in seventeen severe cases, and has done the transplantation fifteen times and the fixation six times. In three cases both the transplantation and the fixation were used with good results in general. He firmly believes that these measures, commonly used in paralytic cases only, are of great value when added to the usual operation for congenital clubfoot.

90. **Leukemia and Benzol.**—During the use of benzol (benzene, C_6H_6) in a case of myelogenous leukemia (boy, 14 years of age), Winslow and Edwards noted the following: (1) benzol produced marked diminution of white cells and its use is attended with benefit in leukemia; (2) benzol frequently produces marked irritation when given either per mouth, per rectum, subcutaneously or intravenously; (3) benzol is a dangerous drug and its administration should be carefully watched for both the symptoms of benzol poisoning and for a too marked or too rapid reduction of the white cell count; (4) benzol cannot be used intravenously.

Northwest Medicine, Seattle

March, XVI, No. 3

99 Obscure Causes of Infant Mortality. J. W. Amesse, Denver.—p. 65.
100 Cardiac Arrhythmias. B. Smith, Los Angeles.—p. 70.
101 Visceral Angioneurotic Edema; Report of Case. A. A. Matthews, Spokane.—p. 75.
102 *Relation of Pleurisy to Tuberculosis. E. A. Pierce, Portland, Ore.—p. 79.
103 Hygiene of Pregnancy. W. C. Heussy, Seattle.—p. 81.
104 Indications for and Methods of Surgical Interference in Toxemia of Pregnancy. T. Torland, Seattle.—p. 84.

102. **Relation of Pleurisy to Tuberculosis.**—Two series of cases dating from 1905 until the present time are analyzed by Pierce. In the first series of 1,767 cases of pulmonary tuberculosis, 614, 35 per cent., gave a history of pleurisy. In the second series of 518 cases, 52 per cent., gave a history of previous pleurisy. Including simple adhesions with other more marked changes in the pleura, pleuritis was found in 74.4 per cent. of 215 cases. Pierce believes that, particularly on the Western coast, where the water is so free from minerals, a condition of demineralization is very likely to prevail in the preincipient stage of pulmonary tuberculosis and is probably a factor which provides a willing host for the invasion of pleurisy. Pierce has seen many cases of pleurisy with effusion in cases in which there was no history of pain, the only inconvenience which would be recalled by the patient being a slight cough and more or less restricted breathing, with perhaps fever and an occasional chill and sweat.

Southwestern Medicine, El Paso, Texas

February, I, No. 2

105 Medicomilitary Responsibility. G. F. Keenan.—p. 12.
106 *Infectiousness of Tuberculosis. G. B. Webb, Colorado Springs, Colo.—p. 19.
107 *Heliotherapy in Treatment of Tuberculosis. A. G. Shortle, Albuquerque, N. M.—p. 30.
108 Pharynx as Point of Primary Infection in Tuberculosis. R. R. Brownfield, Phoenix, Ariz.—p. 43.
109 Therapeutic Nihilism in Tuberculosis. A. D. Wilson, Prescott, Ariz.—p. 49.
110 Gunshot Wounds of Knee; Report of Cases. F. P. Miller, El Paso.—p. 55.
111 Chronic Empyema of Maxillary Sinus. Operation by Intranasal Route. J. J. McLoone, Phoenix, Ariz.—p. 60.
112 Lymphadenitis of Mediastinum. M. P. Schuster, El Paso.—p. 66.

106. **Infectiousness of Tuberculosis.**—To take advantage of the knowledge we have gained in regard to the infectiousness of tuberculosis, Webb says, we must demand, that all consumptives should shield their mouths when coughing, especially in the presence of children, and that their expectoration shall be properly destroyed. All young children, especially infants, should be removed from contact with the spitting consumptive. The general public must be reassured that there can be no danger to them from ordinary contact with the consumptive. Schoolchildren in all communities should have the services of school physicians whose duty should be to see that children who are below par and who would seem to be candidates for active disease should be cared for and placed in open air pavilions until such dangers are passed. To stamp out consumption in adults we must begin with the child. In all cities open air pavilions or so-called preventoriums, such as at present exist in a few, ought to be built, where such children can be cared for properly.

107. **Heliotherapy in Treatment of Tuberculosis.**—New Mexico, according to Shortle, presents the ideal climatic conditions for carrying out the treatment, and is superior, not only to the rest of America, but to Switzerland as well. Shortle has used it for almost five years chiefly in pulmonary cases. He feels that there is a certain analogy between the use of heliotherapy and treatment by tuberculin. He cautions that with heliotherapy one must, with the pulmonary case, avoid too long exposures, watch the temperature and pulse closer than in the surgical types, continue the treatment over a longer period and altogether use the treatment much more cautiously than when treating other types of tuberculosis. Repress overenthusiasm in the patient and insist that they do not exceed the exposure prescribed, otherwise they are almost sure to take long exposures with the result that they will develop a fever anywhere from 100 to 103 F., together with increase in sputum, and for several days, at least, will suffer marked depression. One good resulting from the firm pigmented skin is a comparative freedom from colds. This alone, in Shortle's opinion makes the treatment worth while. Many pulmonary cases make better progress after beginning solarization.

Tennessee State Medical Association Journal, Nashville

March, IX, No. 11

113 Who Should Operate? Plea for More Careful Preoperative Study of Surgical Cases. C. P. Fox, Greeneville.—p. 425.
114 Sliding Hernia; Report of Four Cases. C. G. McMahon, Copperhill.—p. 431.
115 Case of Syphilis of Lung; Results of Treatment. J. A. Witherspoon, Nashville.—p. 435.
116 Some Fallacies in Accepted Treatment for Opiumism. H. E. Goetz, Knoxville.—p. 440.

Texas State Journal of Medicine, Fort Worth

March, XII, No. 11

117 Advance of Good Surgery. T. T. Jackson, San Antonio.—p. 417.
118 Report of Committee on Study of Venereal Diseases. H. C. Moore, Houston.—p. 418.
119 Spontaneous Cure of Tuberculosis by Nature's Processes. Protest Against Use of Tuberculin for Immunization. B. Cornick, San Angelo.—p. 421.
120 Cervical Suspension for Retrodisplacements and Prolapse of Uterus. H. S. White, El Paso.—p. 426.
121 Surgical Treatment of Retroversion of Uterus. F. C. Beall, Fort Worth.—p. 428.
122 Lange's Colloidal Gold Test. J. H. Black, Dallas.—p. 431.
123 Practical Value of Wassermann Reaction with Analysis of Over Five Hundred Tests. W. H. Moursund, Dallas.—p. 435.
124 Senile Hypertrophy of Prostate Gland. A. I. Folsom, Dallas.—p. 439.

Wisconsin Medical Journal, Milwaukee

March, XV, No. 10

125 *Prenatal and Natal Conditions in Wisconsin. D. R. Mendenhall, Madison.—p. 353.
126 Mental Disorders and Social Worker. W. F. Becker, Milwaukee.—p. 369.
127 Blood Group Determinations as Preliminary Step to Blood Transfusion. L. M. Warfield, Milwaukee.—p. 376.
128 *Blindness Cured by Intranasal Operation. F. Pfister, Milwaukee.—p. 380.
129 Yaws: Report of Two Cases. E. Evans, La Crosse.—p. 381.

125. **Prenatal and Natal Conditions.**—According to Mendenhall, more children die in Wisconsin from prenatal and natal causes, and during the first days and weeks of life, than in the average United States. Over 50 per cent. of the Wisconsin infant deaths occur during the first month of life; four fifths of these are due to prenatal and natal conditions. Over 81 per cent. of the deaths the first month in the cities, and over 85 per cent. in the rural districts, were due to similar causes, which mean that these children were born too weak, too injured or too diseased to live. The death rate from maternity is gradually increasing in Wisconsin, as it is throughout the United States. The death rate from puerperal sepsis, which accounts for nearly one half the maternal deaths, is also

rising steadily. Sixty-four per cent. of the puerperal deaths in 1915 in Wisconsin were due to sepsis or eclampsia, which are largely avoidable. Maternity can be proved to be a greater danger to women between 15 and 50 than either tuberculosis or cancer. Midwifery is not prevalent in Wisconsin. Physicians deliver five sixths of the Wisconsin babies. There is no proof that midwives are more culpable in regard to puerperal sepsis than the general practitioner. On the contrary, an inverse relation may be made out between the percentage of midwifery in most large cities and the puerperal death rate.

Puerperal deaths are inaccurately reported. Puerperal sepsis seems to be more incorrectly and insufficiently diagnosed than any other form of puerperal disease. Diagnoses often wilfully obscure or misleading are frequently found on death certificates, the inference being that the physician is unwilling to shoulder the blame following his own ignorance or carelessness. To remedy these conditions Mendenhall advises: The education of the community until every man and woman in it realizes what overwork and lack of care of the prospective mother means to her child and to herself. A widespread dissemination of the fact that puerperal sepsis is wound infection, and nine cases out of ten could have been prevented. The making of obstetrics a specialty, and the removal of the care of maternity cases from the hands of the general practitioner. The establishment or improvement of well equipped hospitals and nursing units in the rural counties or rural parts of urban counties, so situated as to be of easy access to the greatest number of the county residents. Such hospitals should have a separate pavilion for maternity work, with both free and pay beds, and a separate staff of attendants, trained especially for the work. Puerperal sepsis should be made a notifiable disease. Publicity is the best method to check the increase of mortality due to the inefficiency, ignorance or carelessness of the attendant in childbirth. The care of the childbearing woman should be a state obligation.

128. **Blindness Cured by Intranasal Operation.**—A young woman, aged 20, developed blindness of the right eye. A week previously she had some pain in her head and noticed vision was blurred in the right eye. This condition grew gradually worse. On the second day after symptoms were first noticed she was quite ill with dizziness, nausea, some pain in eye and considerable headache. By the third day vision was gone. She could not distinguish light. The right side of the nose was greatly obstructed and the right eye presented a slight condition of puffiness and exophthalmos. Under a general anesthetic Pfister removed the perpendicular plate of the ethmoid, because this part of the septum was strongly leaning over toward the ethmoidal region of the right side. The middle turbinate, which was enlarged, was also removed, likewise polyps and enlarged ethmoidal cells and granulomatous material in the posterior ethmoidal region. On exploration of the sphenoid sinus and enlarging the opening of the same, nothing pathologic was found within that cavity. Clearing away the anterior ethmoidal cells and the bulla-ethmoidalis and entering the frontal sinus intranasally, no satisfactory explanation of the puffiness of the upper eyelid could be found. Pfister opened the frontal sinus externally and found a mucocele, filling the cavity and exerting pressure. The external wound was closed primarily after the mucocele was removed and the frontal duct enlarged. A few days after the operation the patient began to notice a return of the sight and two weeks after, the sight was apparently restored to normal, and has remained so.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

January, IV, No. 15

1 Monocular Blindness Following Diffused Violence to Skull; Its Causation and Treatment. J. H. Pringle.—p. 373.
2 *Ambard's Constant and Its Clinical Importance, Especially in Urinary Surgery. K. Nakagawa.—p. 386.
3 Sacculi of Large Intestine, with Special Reference to Their Relations to Blood Vessels of Bowel Wall. H. Drummond.—407.
4 *The Secondary Suture. J. T. Morrison.—p. 414.
5 French Surgery in 1915. Tuffier.—p. 420.
6 Investigation of Histology of Tissues, Immediate and Remote from Point of Injury, in Gunshot Wounds of Liver, Spleen, Kidney, Intestines, Blood Vessels, Subcutaneous Tissue and Aponeurosis and Muscles. E. F. Bashford.—p. 433.
7 Autoplastic Transplantation of Bone in Injuries of Skull. Report of Cases. A. E. Morison.—p. 454.
8 Acquired Diverticula, Diverticulitis, and Peridiverticulitis of Large Intestine. W. H. M. Telling and O. C. Gruner.—p. 468.
9 Effects on Heart and General Circulation which Follow Wounds of Blood Vessels, and on Variations in Local Physical Signs Present at Site of Injuries. G. H. Makins.—p. 531.

2. **Ambard's Constant.**—Ambard's coefficient (especially in its extreme limits) is regarded by Nakagawa as being a very reliable method of gaging the state of renal function. A constant of normal value does not necessarily imply freedom from disease; it is frequently found in association with recognizable surgical affections of the kidneys. In such cases a normal constant indicates that the renal defect is compensated—that the kidneys have sufficient reserve capacity to meet any increase in the work thrown on them. A constant of increased value signifies some impairment of renal function, compensation being either incomplete or totally wanting. In such a case it may be either that the functionating renal parenchyma is incapable of coping with the extra work thrown on it, or that the spread of the disease in the functionating tissue is too rapid to allow of compensation. In some cases the constant is of diagnostic significance. Thus, a normal constant in association with renal tuberculosis suggests that one kidney only is affected; a constant of increased value indicates either that the tuberculous condition is bilateral, or that it is associated with a toxic nephritis of the opposite kidney.

4. **Secondary Suture.**—Morrison looks on secondary suture as a valuable method of treatment, above all, in the case of large flesh wounds. A successful result depends on how early one is able to close the wound; also to a large extent on the care taken to avoid sepsis. The bacteriologic test—even if only a rough and ready one—has been found to be a reliable guide.

British Medical Journal, London

March 3, I, No. 2931

10 Roentgenology in Clinical Medicine and Surgery. C. T. Holland.—p. 285.
11 Case of Ligation of Innominate Artery for Traumatic Aneurysm of Carotid. T. Sinclair.—p. 288.
12 Early Treatment of Compound Fracture of Long Bones of Extremities. B. Hughes.—p. 289.
13 *An Appliance for Ambulatory Treatment of Fractures of Thigh. C. M. Page.—p. 292.
14 *Drainage of Septic Knee Joints. W. A. Carline.—p. 294.
15 *Intravenous Injections of Antimony in Treatment of Malaria. G. C. Low and H. B. Newham.—p. 295.

13. **Ambulatory Treatment of Fractures of Thigh.**—The appliance described by Page in its simplest form consists of two plaster-of-Paris collars; the upper one surrounds the thigh at the level of the great trochanter, and abuts on the tuber ischii; the lower is molded onto the two condyles of the femur just above the level of the knee joint. These two *points d'appui* are united by two extension screws, which lie just behind the central coronal plane of the femur. The extension screws, when adjusted, procure long axis extension of the femur, and pass the weight of the body taken on the foot from just above the knee direct to the pelvis. The principle employed is similar to that of Hackenbruch's "Distraktion klammer." The fixation at the knee is that used by Professor Delbet in his spring splint for the thigh. The appliance leaves the knee joint free. If it is used in a case in which little or no union is present, fixation of the knee joint and an extension of the lower *point d'appui* to the ankle should be effected for a short period.

14. **Drainage of Septic Knee Joints.**—In the early cases the knee joints were washed out by Carline with 1 in 20 phenol solution. All the tubes were closed by nipping them, except that engaged by the syringe, and the knee joint fully distended by the disinfectant; the tube nearest the back of the joint was then freed and the disinfectant and pus allowed to escape,

the process being repeated until the disinfectant came away free from the pus. Lately Carline washed out the joint with a saturated solution of magnesium sulphate.

15. **Malaria Treated with Injections of Antimony.**—A patient with heavy crescent infection was given antimony injections by Low and Newham, a careful daily estimation of the crescents being made afterward. The vitality of the parasites was also tested to determine whether they would flagellate or not after the administration of the drug. The antimony had not the slightest effect on the crescents, their number fluctuating up and down quite irrespective of the injections. Six intravenous injectons in all were given, beginning with 1 grain and increasing to 2½ grains, the last three injections consisting of the maximum dose. That the parasites were not dead was proved by the fact that they were alive and active in fresh blood, and proceeded to flagellation in a normal manner. In addition to the crescents, a scanty ring infection was also present; again the drug appeared to have no effect on these. Beneficial results were obtained from quinin and increasing doses of arsenic.

Glasgow Medical Journal

February, LXXXVII, No. 2

16 *Action of Pituitary Extract on Surviving Human Uterus. F. J. Charteris.—p. 65.
17 Residual Urine in Senile Bladder; Conduct of Case so as to Postpone or Avoid Use of Catheter. D. Newman.—p. 73. To be continued.
18 Case of Mediastinal Tumor (Endothelioma) with Expansile Pulsation. W. R. Jack and J. H. Teacher.—p. 84.

16. **Action of Pituitary Solution on Surviving Human Uterus.**—Charteris' material includes nonpregnant tissue, tissue removed after early abortion, and tissue removed by cesarean section at full time. He found no essential difference in the response to pituitary solution in the pregnant and nonpregnant human tissue. Both responded promptly to pituitary solution by an increased acivity. The contractions are more numerous, the individual contraction is shorter, the relaxation is somewhat quicker, and the tonus is markedly increased. This action is very promptly produced. Within a minute of adding the pituitary solution the stimulant action is seen, and, as a rule, the stimulation lasts for several minutes (fifteen, twenty or thirty minutes). A subsequent additional dose either renews the stimulus or intensifies the action if the previous effect has not entirely passed off. In addition to pituitary solution, various other uterine tonics were tested —epinephrin, ergotin, liquid extract of ergot and quinin, but none of them produced the prompt effect of pituitary extract. Ergot was unreliable. Fresh standardized preparations were fairly active, but old preparations were inactive. Pituitary extract was, so far as possible, tested in conditions analogous to those in which it is used clinically, that is, when the uterine contractions were failing in strength or ceasing. Even in these conditions its stimulant action was well shown. When the contractions had ceased for some time, it promptly initiated regular strong contractions, and strengthened contractions which were becoming weak.

Lancet, London

March 3, I, No. 4879

19 Indian Operation of Couching for Cataract. R. H. Elliot.—p. 325. To be concluded.
20 *Treatment of Septic Wounds with Bismuth-Iodoform-Paraffin Paste. L. G. Anderson and H. Chambers.—p. 331.
21 *Bacteriologic and Chemical Action of Bismuth-Iodoform-Paraffin Paste. H. Chambers and J. N. Goldsmith.—p. 333.
22 Clinico-Anatomic Investigation of Rapidly Fatal Case of General Paralysis Due to Acquired Syphilis. T. E. K. Stansfield and F. W. Mott.—p. 335.
23 Prevalence of Spirocheta Eurygyrata in Europeans and Natives in Gold Coast. J. W. S. Macfie.—p. 336.
24 Case of Acute Dilatation of Stomach Following Gastrojejunostomy. F. Godfrey.—p. 340.
25 *Case of Inflammation in Persistent Patent Meckel's Diverticulum Simulating Appendicitis. R. M. Glover.—p. 340.

20. **Septic Wounds Treated with Bismuth-Iodoform-Paraffin Paste.**—The paste used by Anderson and Chambers is the one first used by Rutherford Morison. Its composition is as follows: 2 ounces of iodoform, 1 ounce of bismuth subnitrate and a sufficient quantity of liquid paraffin. Any consistency may be made, but the most useful are those of soft butter and thick cream. The patient is anesthetized, all gangrenous and necrosed tissue is cut away and the wound thoroughly cleansed; it is swabbed out with alcohol, and then a small portion of the paste is vigorously rubbed into the tissues, a little being left in the bottom of the wound, which in many cases is closed with interrupted stitches and dressed with gauze wrung out in alcohol. No further dressing is required for seven to fourteen days. Observation shows that (*a*) the paste maintains a continuous antiseptic action in the wound; (*b*) it acts as a lymphagogue, and a free exudation of serum washes the wound from within outward; (*c*) it does not prevent the escape of discharge; (*d*) granulation tissue grows freely in contact with it; (*e*) drainage tubes and gauze drains are unnecessary; (*f*) septic wounds heal nearly as rapidly as noninfected ones; (*g*) bone union is rapid and the tendency to form sequestra is slight. The details of a large number of severe wounds treated with bismuth-iodoform-paraffin paste have been collected and summarized. In a total of 400, only one case of secondary hemorrhage occurred. No case of gas gangrene or tetanus has developed since this treatment was begun. One case of iodoform poisoning occurred when the treatment was first begun and when larger quantities of paste were used; it was characterized by fever, emaciation and delirium. The symptoms subsided when the treatment was discontinued. The principles which underlie this method of treatment and that of Carrel and Dakin are compared. In the latter a very powerful antiseptic agent of high solubility is employed, but the effect is so transitory that it is necessary to renew it at short intervals. This paste contains a less powerful antiseptic and one which is of feeble solubility, but which is able to keep up a continuous action in the depths of the wound without requiring to be renewed for days or even weeks.

21. **Chemical Action of Bismuth-Iodoform-Paraffin Paste.**—The bacteriologic tests were made in tubes of nutrient broth containing 20 per cent. horse serum, the test organism being a twenty-four-hour culture of *Staphylococcus pyogenes.* A preliminary test showed that the paste completely sterilized after twenty-four hours' incubation, whereas pastes of bismuth subnitrate or of iodoform with small quantities of paraffin have no appreciable action. It seems clear that the bactericidal action results from the free iodin liberated from the oxidation of iodoform by oxygen and by the nitric acid formed by the hydrolysis of bismuth subnitrate. On this hypothesis it should be possible to reduce very largely the quantity of bismuth subnitrate and still obtain bactericidal action, provided oxygen is available, but in the absence of oxygen the reaction should cease, even with the usual maximum amount of bismuth subnitrate. Both these conclusions were confirmed by in vitro experiments. Numerous cultures taken from open wounds under treatment have shown, without exception, that the wounds are not bacteriologically sterile, but there is a reduction in the number of bacteria. No change in the flora has been detected. Many wounds are infected with anaerobic organisms, and *B. perfringens,* the bacillus of malignant edema, *B. Hibler* IX., and *B. tetani* have been recovered from some of these cases. Although the organisms are present in the wounds, they are not able to proliferate freely, and the wounds heal as if surgically clean. Most of the cases under this treatment excrete to a varying extent products of the decomposition of iodoform, and the general effects of iodid absorption may have some bearing on the results.

25. **Inflammation in Persistent Patent Meckel's Diverticulum Simulating Appendicitis.**—Glover's patient presented the usual signs and symptoms of an acute suppurative appendicitis, except that localized abdominal tumidity and tenderness were situated rather higher and nearer the middle line than usual. At operation, a few hours after admission, Glover opened into a localized abscess cavity with an extension downward toward the pelvis, and fecal smelling, dark colored pus at once escaped. When the pus had been removed he observed a long tube lying free in the abscess cavity. The tube was about 7 inches long, rather thicker than an average appendix, had no mesentery, and originated from the ileum. About 1 inch from its intestinal origin it was dilated to the shape and size of a

tangerine orange. The bulbous part was gangrenous, black in color, stippled with grayish points. The intestinal ostium of the tube was about 1 inch in diameter. Distally the tube tapered away to a thin fibrous cord which disappeared backward among adhesions. It was a persistent, patent, inflamed and gangrenous Meckel's diverticulum.

Medical Journal of Australia, Sydney

February 10, I, No. 6

26 Meningitis Associated with Gram Positive Bacilli of Diphtheroid Type. E. Atkinson.—p. 115.
27 Hysterectomy for Suppurating Myoma. R. H. Marten.—p. 118.
28 Traumatic Severance of Inferior Rectus Oculi; Suture; Recovery. J. C. Halliday.—p. 119.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXVI, No. 2

29 Some Experiences of Cyanocuprol against Surgical Tuberculosis. S. Omura.—p. 9.
30 Cyanocuprol and Tubercular Lymphadenitis. W. Takahashi.—p. 10.
31 Various Ways of Employing Common Salt. K. Karasawa.—p. 10.
32 Bacillus in Blood of Typhoid Patient. H. Kiyooka.—p. 13.

Archives Médicales Belges, Paris

January, LXX, No. 1, pp. 1-96

33 *The Medical Profession in Two Years of War. (Après deux ans de guerre.) M. Stassen and J. Voncken.—p. 5.
34 *War Wounds of the Knee. (Les plaies articulaires du genou par projectiles de guerre.) P. Derache.—p. 11.
35 *Malaria in Flanders. (Fièvre paludéenne des Flandres. Quelques remarques sur la ponctuation basophile des hématies.) E. Renaux.—p. 24.
36 Social Medicine in England. R. Sand.—p. 34.
37 Recent Literature on War Wounds of Peripheral Nerves. R. Marchal.—p. 44.

33. **The Medical Profession in Two Years of War.**—Stassen and Voncken comment on the overwhelming disappointment when it was found that asepsis was out of the question with war wounds. The discouragement led to an era of mutilating operations to get rid of the inevitable infection. They state that Carrel, more than any one else, is responsible for having arrested this stampede retreat of discouragement before infection. He proved that it was not necessary to amputate and cut away so much tissue; there was a chance to conquer the infection without this. This audacity on the part of the surgeons has been justified by the healing even of cavities of joints under primary suture after physiologic treatment, when all other methods of treatment had disastrously failed. Even abdominal wounds are now attacked with comparative confidence; immediate rational intervention is now the rule. The question as to the best means of managing skull wounds has not been decided as yet; the grave future of those wounded in the skull still induces hesitation as to operative intervention. Time has not yet given its decisive answer as to whether suture to prevent hernia of the brain is wise or not. Other questions which have been studied and solved in large measure are the recrudescence of malaria, icterohemorrhagic spirochetosis, trench foot, shell shock and minute hemorrhages from air concussion, the morbid consequences of fatigue and, particularly, the connection between fatigue and insufficiency of the suprarenals—all these have been studied in detail and on such large numbers of cases that decisive conclusions have been drawn. In addition to all this scientific work, the physician in close touch with the troops at the front has played the comforter, the encourager and confidant. In short, they remark in conclusion, the two years of war in Belgium have shown that the medical profession is equal to its task and is supreme in these days of the reign of suffering and death.

34. **War Wounds of the Knees.**—Derache declares that a war wound of the knee is not inevitably doomed to suppurate. If given a thorough surgical cleansing, it can be left to heal under its own natural defensive powers. If the bone has not been shattered, rubber drains should not be used, but the joint should be opened up widely and rinsed out, suturing after this the synovialis and the capsule. Early exercise of the joint from the very first few days aids materially in restoring function. A number of typical cases are reported to show the preferable technic for the different kinds of gunshot and shell wounds. Depage has recently published some statistics showing recovery with restoration of function in 24.1 per cent. of twenty-nine cases treated by drainage as was considered necessary at first. During the period after this, Carrel's method of treating wounds was strictly applied and complete recovery with restitution of function was obtained in 46.87 per cent. of thirty-two cases. Since then it has been his practice to suture the wound at once, even if the bone has been injured. After careful surgical cleansing of the region, extraction of projectiles and profuse rinsing out of the joint with Dakin's solution or ether, the bones scraped with the curet or gouge, the joint is then sutured in several tiers, leaving a small rubber drain in contact with the injured bone for twenty-four hours, and immobilizing. Of the twenty-two wounds thus treated complete recovery with restoration of function was realized in 86.36 per cent. The difference in the proportions of suppurations in these three periods is shown by the figures: 68.8, 28.12 and 4.54 per cent. The number of cases of ankylosis was respectively: 37.93, 18.75 and 13.63 per cent., while the amputations required were respectively 34.4, 15.62 and 0, and none of the patients died in the later period.

35. **Malaria in Flanders.**—Renaux remarks that although acute malaria has long had only historical interest in Belgium, yet malaria has never died out completely there. A few chronic cases have been encountered from time to time in the last few decades. But the wartime conditions, the flooding of the country as a protection against the enemy, and defective hygienic measures have led to the flaring up anew of the old embers of malaria, and he has been able to identify nineteen cases in the Bourbourg and Gravelines hospitals. Malaria had not been suspected at first, and the cases had been labeled pneumonia, grip, febrile gastric disturbance, etc. None of those affected had ever been in tropical countries. The lack of any regularity in the recurrence of the fever aided in the overlooking of the true cause of the disturbances. Even when there was a regular rhythm in the fever, it varied from daily to tertian and vice versa. Under quinin the men rapidly recovered, and only two have returned with a recurrence since. The parasites were of different sizes and seemed to represent a type midway between the quartan and the benign tertian. They take the usual stains a little abnormally. He noted in the blood of these patients numerous basophil punctated red corpuscles, such as are considered typical of anemia and lead poisoning.

Bulletin de l'Académie de Médecine, Paris

February 6, LXXVII, No. 6, pp. 161-180

38 *Adhesive Posterior Pericarditis. (Recherches et remarques sur le péricarde postéro-supérieur.) E. Delorme.—p. 162.
39 Subperitoneal Extraction of Paravertebral Projectiles. S. Mercadé.—p. 170.
40 The Electric Reactions with Local Hypothermia. H. Bordier.—p. 172.
41 *Uremia and the Internal Secretions. A. Rémond and Minvielle.—p. 174.
42 Movable Artificial Stump for Artificial Eye in Case of Enucleation from War Wounds. (Moignon mobile artificiel pour prothèse oculaire applicable dans presque tous les cas d'énucléation forcée.) A. Magitot.—p. 177.

February 13, No. 7, pp. 181-216

43 Mixing Cornmeal with Flour in Bread Making. (Sur l'addition de la farine de maïs à la farine de blé.) D. Berthelot.—p. 207.
44 *Resuscitation by Stimulation of the Accelerators of Heart Arrested in Diastole. J. P. Morat and M. Petzetakis.—p. 208.
45 *Medical Surveillance of Prostitution at Paris During the War. L. Butte.—p. 210.
46 Roentgenoscopic Localization of Projectiles. E. Albert-Weil.—p. 212.

38. **Posterior Pericarditis with Adhesions.**—Delorme refers to the inflammation localized around the mouth of the aorta and the right trunk of the bifurcated pulmonary artery. He analyzes the anatomic conditions here, and the best modes of access and exploration with a projectile in the region.

41. **Uremia and Internal Secretions.**—Rémond and Minvielle report here experiments on rabbits undertaken to detect any possible protecting action from thyroid extract, suprarenal extract, parathyroid or kidney extracts in combating uremic intoxication. All displayed a more or less favorable action except kidney extract which seemed to aggravate conditions.

44. **Restoration of Arrested Heart Action by Stimulation of the Accelerators.**—Morat and Petzetakis found that stimulation of the accelerators, or even of one of them, with a moderate electric current may suffice to start the heart to beating anew when it has stopped in diastole under chloroform. First the right auricle and then the left auricle begin to contract, while the ventricle keeps in diastole. Then suddenly the ventricle starts its movements. The auricular contractions are faint at first. This phenomenon has been studied particularly on animals chilled to 23 or 17 C. The arrest of the heart action may last for five minutes or more; then stimulation of the accelerators, after a latent period of five or ten seconds, starts up the movements of the heart, even when the thorax is opened and artificial respiration has been suspended. The heart continued to beat for a time but then stopped finally. It could be started up again if the accelerators were stimulated anew within a minute or so. The heart movements were recorded by electrocardiography.

45. **Medical Surveillance of Prostitutes at Paris During the War.**—Butte is physician in chief of the municipal *Dispensaire de Salubrité* which has surveillance of prostitutes as its main task. Notwithstanding the difficulties from the scarcity of physicians left in Paris, strict oversight over venereal diseases in prostitutes has been maintained. During the first month of the war, 207 prostitutes were sent to the special infirmary to have venereal diseases treated; the preceding month 128 had been sent to the infirmary. From the beginning of the war to the end of 1916 the dispensary has a record of 205,643 medical inspections of prostitutes made by physicians, and they thus were able to detect 4,849 cases of venereal disease, including 970 cases of syphilis. Analysis of these figures shows that the number of prostitutes in brothels has kept about the same; 23,083 medical inspections were made, and only five cases of venereal disease discovered among them, including one of syphilis. This good record of the brothels he ascribes to the fact that they are forbidden to admit minors. This simple measure, he insists, should be generalized everywhere, as minors constitute a special danger in brothels elsewhere. The registered prostitutes living alone (5,893 Jan. 1, 1915; 3,538 Jan. 1, 1916), have had medical inspection 63,812 times for those who come regularly to the dispensary to be examined, and 108,989 times for those arrested for lack of a medical certificate or for other infractions of the police regulations. Among these women, 2,189 cases of venereal disease were discovered, including 508 of syphilis. This is a larger proportion than is the rule in times of peace, and the vigilance of the dispensary has made it possible to keep this large number of infected women from infecting others during their contagious period. The great danger is from nonregistered prostitutes, the numbers of whom have materially increased since the war. They include refugees, married women and munitions workers, and the dispensary has kept special oversight over such. In 9,759 medical inspections, 2,655 cases of venereal disease were discovered, including 462 of syphilis. This is double the proportion of peace times, and emphasizes anew the importance of keeping medical surveillance over clandestine prostitution. Special measures have been taken for prostitutes still under age. Since the war began these girls are arrested, brought to the dispensary, and if they are found to be suffering from venereal disease they are sent to the Saint-Lazare Hospital. When discharged as cured they are returned to their families or taken to the juvenile court which sends them to a reform institution. Here the girls are detained until their majority, under conditions rendering it impossible for them to disseminate venereal disease. Butte adds that on account of lack of appropriations it has been impossible to apply the much desired measure of keeping syphilitic prostitutes under treatment at the dispensary during the latent phase of syphilis. Until appropriations can be obtained for this purpose, syphilis continues its ravages. The army authorities detailed a couple of physicians to aid in the medical inspections afternoons, which has much facilitated the heavy work of the dispensary. It is handicapped by the calling to the colors of the assistants, and by its defective installation and organization and by the inadequate appropriations.

Journal de Médecine de Bordeaux

February, LXXXVIII, No. 2, pp. 23-40

47 *Pseudo Tuberculosis of the Lungs. J. Carles.—p. 23.
48 The Milk Supply and Dairy Hygiene. (Le lait et la puériculture.) L. Barthe.—p. 24.
49 War Wounds of Skull, Thorax, Abdomen and Spinal Cord. (Notes sur la chirurgie à l'avant. II.) Charbonnel.—p. 26.
50 Scarlatiniform Exanthem with Septicemia. Creyx.—p. 30.
51 Waste of Alcohol in Sterilizing the Hands. L. Barthe.—p. 34.

47. **False Pulmonary Tuberculosis.**—Carles refers to patients who cough and present all the signs of active tuberculosis, and yet the trouble is merely the spread downward of some chronic trouble in the nose. Sinusitis, rhinitis, adenoids, the tonsils, may be responsible. On the side on which the patient usually lies, the lung shows signs of involvement, especially at the hilus, and the diagnosis of tuberculosis seems certain. The sputum shows no tubercle bacilli and treatment of the nose, sinus or tonsils is soon followed by the retrogression of the lung symptoms, or a focus of sclerosis may persist indefinitely. True tuberculosis may become installed if the primary condition is allowed to go untreated. Carles has encountered several cases in the last year or two in which typhoid or paratyphoid bacilli kept up a chronic congestion in the lungs simulating tuberculosis. In a recent case a simple congestion of the apex during a typical paratyphoid fever, dragging through several weeks, presented the clinical picture of "galloping consumption." All returned to normal as the paratyphoid ran out its course. In another case of supposed pulmonary tuberculosis with hemoptysis and softening of the apex on both sides, the sputum has shown only pneumococci in the year or more the patient has been under observation. In these pneumococcus cases, inhalation treatment and tonics generally cured the patients completely in time.

Lyon Médical

January, CXXVI, No. 1, pp. 1-60

52 Compass for Locating Projectiles. C. Hervieux.—p. 1.

February, No. 2, pp. 61-108

53 Acute Yellow Atrophy of the Liver in Young Woman Working on Munitions. (Ictère grave attribué à la mélinite.) R. Pauly.—p. 61.
54 *Preventive Treatment of Inherited Syphilis with Salvarsan and Arsenobenzol Courses for Pregnant Women. M. Cons.—p. 63. Commenced in No. 1, p. 14.
55 Magnet to Aid in Extraction of Foreign Bodies in Air Passages, etc. (Quelques applications nouvelles des électro-aimants à courant continu ou à courant alternatif.) L. Léorat.—p. 72.
56 The Bacillus Serpens in Pulmonary Infections. A. Mary.—p. 77.

54. **Antisyphilitic Treatment of Pregnant Women.**—Cons relates that of five pregnant women with unsuspected syphilis, only two bore viable children and one of these soon died. The other woman had been given a dose of salvarsan twelve days before delivery and this child left the hospital apparently in good condition. Fourteen other pregnant women, mostly in the second stage of their syphilis, were given specific treatment during the pregnancy and all bore viable children. One child died a month later from a congenital heart defect; the others are all apparently in perfect health.

Paris Médical

February 10, VII, No. 6, pp. 121-136

57 Correction of Ankylosis of the Jaws from War Wounds. (Constriction des machoires par blessures de guerre.) L. Imbert and P. Réal.—p. 122.
58 Taking the Blood Pressure with Potain Manometer. (Comment le praticien doit prendre la tension artérielle.) L. Tixier.—p. 128.
59 Roentgenoscopic Localization of Projectile. J. Davalle.—p. 132.
60 *Simultaneous Measurement of Both Halves of the Chest. (Ruban métrique pour la mensuration simultanée des deux hémithorax.) Perrin.—p. 135.

February 17, No. 7, pp. 137-152

61 *The Abdominocardiac Reflex. (Essai sur l'un des facteurs de l'accélération cardiaque orthostatique.) Prével.—p. 138.
62 Device for Overcorrection of Paralysis in Vicious Attitude. (Prothèse musculaire fonctionnelle.) J. Privat and J. Belot.—p. 143.
63 *Vaccination against Typhoid Does Not Affect the Retina. (Les oculaires devant la vaccination antityphoidique.) E. Ginestous.—p. 150.

60. **Measurement of the Chest.**—Perrin slits an ordinary measuring tape lengthwise and fastens the two zero points together. When this is held in the middle of the spine and the other ends crossed in front, any difference in the size of the halves of the chest becomes evident at once.

61. **The Abdominocardiac Reflex.**—Prével applies this term to the mechanism causing the acceleration of the pulse on changing from the reclining to the upright position. The contents of the abdomen slide down and this induces by reflex action an acceleration of the pulse as the gastric ramifications of the pneumogastric are stretched. The mechanism is somewhat similar to the oculocardiac reflex. He gives a number of tracings to sustain this view, showing how supporting the stomach during the change from the horizontal to the erect position may arrest the reflex. He also lists the pulse findings in twenty persons under different conditions of rest, work and position.

63. **Vaccination Against Typhoid Does Not Affect the Eyes.**—Some cases of herpes of the cornea, oculomotor paralysis and retinal lesions, developing after vaccination against typhoid, have caused concern for fear the vaccination might be responsible for them. But closer analysis of the cases has always proved them to be merely casual coincidences, so that Ginestous reiterates that, outside of ocular lesions which are in themselves the manifestation or complication of some constitutional disease, there are no contraindications on the part of the eye to antityphoid vaccination.

Presse Médicale, Paris

January 25, XXV, No. 6, pp. 57-64

64 Forms of Chronic Tuberculosis of the Kidney. N. Hallé.—p. 57.
65 Sterilized Human Skull Flap to Close Defect in Skull. J. A. Sicard and C. Dambrin.—p. 60.
66 *Quantitative Test for Calcium in the Urine. C. Mayer.—p. 61.

66. **Quantitative Test for Calcium in the Urine.**—Mayer has worked out a rapid technic for this purpose which does not require a laboratory equipment and yet, he says, it is as reliable as the old tedious laboratory methods. He boils 200 c.c. of urine with enough ammonium carbonate to have all the lime and magnesia precipitated out in the form of carbonates and phosphates. Then he dissolves these with hydrochloric acid and precipitates with oxalic acid. The calcium oxalate is filtered out, and the amount of oxalic acid left unprecipitated is determined with potassium permanganate. No weighing is required, and several samples of urine can be thus tested in the course of an hour.

It takes about ten minutes to precipitate all the calcium and magnesium in the 200 c.c. of urine, boiling it with enough ammonium carbonate to answer the purpose. The precipitate is left a few instants to settle and then the supernatant fluid and then the precipitate are poured out on the filter, first boiling up the precipitate several times with water containing a little ammonia. The funnel is then placed over a flask gaged for 100 c.c., and a boiling 10 per cent. solution of hydrochloric acid is then poured over the filter. This dissolves the calcium and magnesium carbonates and phosphates. The filter is rinsed with a little boiling water. The fluid assembled in the gaged vessel is boiled a few minutes to expel the carbon dioxid. All the calcium and magnesium are now in the form of chlorids. This solution is neutralized with ammonia until a slight tendency to precipitation becomes manifest; this is counteracted with a few drops of acetic acid. Then he adds 30 c.c. of a decinormal solution of oxalic acid (that is, containing 6.3 gm. of crystallized oxalic acid to the liter), and the vessel is filled up to 100 c.c. In case of very large calcium content, more oxalic acid is required; 50 c.c. is certain to be enough. After thorough mixing, the fluid is left to settle in the graduated vessel. When the precipitate of calcium oxalate has all been thrown down, the clear fluid above is poured on the filter. In 50 c.c. of this filtrate, the amount of the oxalic acid not precipitated by a decinormal solution of potassium permanganate corresponds exactly, cubic centimeter to cubic centimeter, to the titrated solution of oxalic acid. If n equals the number of cubic centimeters of the permanganate used, then the number of cubic centimeters of the solution of oxalic acid having served to precipitate the calcium is $30 - 2n$. If to 1,000 c.c. of the oxalic acid solution correspond 2.8 gm. of calcium, then to $(30 - 2n)$ cubic centimeters will correspond

$$\frac{2.8 \times (30 - 2n)}{1{,}000} \text{ of calcium.}$$

For 1 liter of urine this figure would have to be multiplied by 5:

$$\frac{2.8 \times 5 \times (30 - 2n)}{1{,}000} = 0.014 \times (30 - 2n)$$

For practical use it is enough to use the last formula alone, substituting A for the number of cubic centimeters of the oxalic acid solution:

$$0.014 \times (A - 2n).$$

Progrès Médical, Paris

January 27, XXXII, No. 4, pp. 29-36

67 Association of Sulphur with Mercury in Treatment of Syphilis. M. Loeper, A. Bergeron and K. Vahram.—p. 29.
68 *Encircling with Wire for Contention of Scraps of Shattered Long Bone. (Cerclage au fil métallique dans le traitement des éclatements des os longs par projectiles de guerre.) M. Sénéchal. —p. 31.

68. **Encircling a Shattered Long Bone with Wire.**—Several illustrations show the utility and fine outcome of simply passing a wire around the long bone shattered by a projectile.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 27, XLVII, No. 4, pp. 97-128

69 *Skin and Venercal Diseases in Swiss Army. (Die dermatolog.-veneralog. Abteilung der Etappen-Sanitäts-Anstalt Solothurn.) H. Merz.—p. 97.
70 Substitute for Sugar in Infant Feeding. (Nutromalt, ein Ersatzpräparat des Nährzuckers.) A. Hotz.—p. 107.

February 3, No. 5, pp. 129-160

71 War Neuroses. (Im Nervenlazarett,) E. Sigg.—p. 129.
72 *Occupational Diseases and Industrial Poisoning. (Gewerbevergiftungen und Berufskrankheiten.) D. Pometta.—p. 147.

69. **Skin and Venereal Diseases in Swiss Army.**—Merz reviews the experiences at the special service for these affections at the Solothurn base hospital. There has been only a slight increase in the proportion of venereal diseases during the war, although Switzerland is surrounded on all sides by belligerents among whom venereal diseases are making havoc. There is reason to assume that the opportunities for infection will soon become more numerous in Switzerland, and he urges the necessity for strict regulation and medical oversight of prostitutes. Not only professionals, but every source of infection should be sifted out and made harmless. For this he advises compulsory treatment in a special clinic or private medical care under strict guarantees that treatment will be thorough. The men should be enlightened as to the dangers of every extraconjugal intercourse. He adds that the ignorance and indifference in this respect of large numbers of the men are almost incredible. They think that red cheeks and sound teeth guarantee them against infection. He deplores that the enlightenment was not made years ago. Practically nothing has been done in this line in Switzerland to date, he says. Partly from lack of initiative and partly from false modesty, no attempts at sexual enlightenment have been made, but no time should be lost now. Moral admonitions alone do not suffice.

72. **Industrial Diseases.**—Pometta is the chief medical officer of a Swiss accident insurance company and he here reviews the new legislation on workingmen's compensation for accidents and affections acquired at work. The Swiss legislature has recently made out a list of chemicals, etc., which expose to particular dangers in the industries, and has modified the law so that the affection in question need not be due exclusively, but only predominantly, to the toxic substance involved. Pometta adds that it is a difficult matter to estimate correctly all the phenomena entailed by a severe occupational intoxication. But every physician should be able to suspect industrial poisoning, and direct his examination accordingly. The new Swiss state insurance organization has begun to compile statistical and casuistic material on the subject. It is better equipped for this purpose than other states, as it provides for direct treatment, from the very first, instead of waiting for thirteen days as in Germany and other countries where social insurance is in vogue. As the compensation is paid in form of a pension, it will be possible to keep the injured workman under surveillance, and thus get the complete record of each.

Pometta cites authorities who emphasize, to begin with, that there is scarcely any sickness from industrial poisons that

cannot develop, with about the same symptoms, from some entirely different cause. He mentions, as instances, the resemblance between certain forms of arsenic poisoning and cholera, between toxic and other nephritis, between nervous affections of toxic and primary nature, and between stomach irritation from an alkali salt and chronic gastritis. The patient's statements are of no aid; often he has no suspicion of having been injured by anything about his work; the poison may have been disguised under some fancy name. Or the man may conceal his suspicions, not wishing to lose his job, or he may conceal other affections. The physician may have to contend with simulation, the man reproducing the symptoms he had watched in some mate, particularly as so many of the phenomena with intoxications are subjective. He warns further that idiosyncrasy is often an important factor in intoxications, and the physician should strive to detect the idiosyncrasy early, and get the man out from under this special noxious influence. The idiosyncrasy may be acquired. Certain chemicals, like certain diseases, increase the susceptibility, while others confer a kind of immunity. Autointoxication may also enhance the intensity of an industrial poisoning. This is especially true of alcohol; even a small amount may open the gates to the industrial poison. This is well known among manufacturers. In certain factories in the manipulation of certain chemicals known to have a special affinity for alcohol, only workmen known to be total abstainers are employed. In conclusion he remarks that the deepening of the diagnosis in the direction of etiology is not only becoming more and more important from the medical-biologic point of view, but it is demanded by the legislation of the day. The state requires it and has to rely on physicians for this.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 25, XXXVIII, No. 7, pp. 97-112

73 *Determination of Acetone Bodies in the Urine. (Nuovo metodo rapido di riconoscimento dei corpi acetonici dell'orina.) E. U. Fittipaldi.—p. 99.

January 28, No. 8, pp. 113-128

74 Paralysis of Left Recurrent Nerve from War Wound of Chest. N. Samaja.—p. 113.

February 1, No. 9, pp. 129-144

75 Hemolytic Jaundice Consecutive to Destruction of Lung Tissue from War Wounds; Two Cases. C. Oliva.—p. 129.

76 Immobilization of Fractured Clavicle by Fastening Hand on Opposite Shoulder. G. Onano.—p. 133.

73. **Improved Nitroprussid Test for Acetone Bodies in the Urine.**—Fittipaldi describes a modification of the usual tests for acetone in the urine which, he says, elicits an exclusively specific acetone reaction. It also shows up the diacetic acid, while the technic is simple, takes little time, the color reaction is durable, and the test is as sensitive as any of the current technics in vogue. He adds about 0.02 gm. of finely pulverized sodium nitroprussid to 4 or 5 c.c. of urine in a 12 c.c. test tube. They are mixed until the salt is entirely dissolved, and then he superposes on the urine, pouring it along the wall of the tube, 1 c.c. of ammonia and the whole is left untouched for fifteen minutes. There is then a colored zone between the two fluids. If this zone is yellow to chestnut color, the acetone content is within normal range. If the zone is of a more or less deep chestnut color, there are traces of acetone, but no diaceturia. If the zone is violet, there is considerable acidosis. In this case he mixes the fluid and adds acetic acid by the drop until the fluid is slightly acid. If the reddish purple tint throughout the whole disappears as the acid is added, we can be sure that there is more or less pronounced acetonuria, but without diaceturia. On the other hand, if the purple blends into a durable ruby red, there is diaceturia and probably also pronounced acetonuria in addition.

Policlinico, Rome

February 4, XXIV, No. 6, pp. 165-200

77 Treatment of War Wounds of the Skull. (La cura delle ferite craniche di guerra.) T. Pontano.—p. 165.

78 *Test for Sugar in the Urine. A. Angiolani.—p. 173.

79 Italian Precursor of Intratracheal Insufflation, 1703. (L'insufflazione intratracheala detta di Auer-Meltzer e di Baglivi.) G. Bilancioni.—p. 182.

80 *Treatment of Pleurisy with Effusion in Country Practice. M. Canali.—p. 187.

81 What the General Practitioner Should Know of Treatment of Ear, Nose and Throat. (Sul diritto alla ignoranza in fatto di otorino-laringologia.) G. Bilancioni.—p. 194.

78. **Estimation of Proportion of Sugar in the Urine.**—Angiolani gives some tables and describes a set of test tubes with various strengths of the Fehling reagent. On comparison with these it is easy to compute from the table the sugar content of the urine under examination.

80. **Treatment of Pleurisy with Effusion.**—Canali states that in his experience as a village physician he has treated about a hundred patients for pleurisy with effusion by evacuating up to 3 liters at a time and has had no mishaps from it in eighteen years, while benefit was marked in every case. He never attempts to introduce air, but sometimes reinjects subcutaneously 10 c.c. of the effusion. His patients all recovered promptly, and he does not know the extent to which this autoserotherapy cooperated in the cure as a rule. In a recent case, however, he is convinced that this was the main factor in the prompt recovery. Immediately after subcutaneous evacuation of 2 liters of fluid and reinjection of 15 c.c., the fever subsided, copious diuresis followed and sweating, with prompt and complete recovery. A previous thoracentesis, six days before, without the autoserotherapy, had been followed by immediate reproduction of the fluid. In other cases the temperature dropped by a crisis after evacuation of 2 liters of fluid plus the autoserotherapy. Canali commends this method in particular to country practitioners.

Riforma Medica, Naples

1916, XXXII, No. 50, pp. 1369-1396

82 Mirror Writing. (Sulla scrittura a specchio.) L. Siciliano.—p. 1380.

No. 51, pp. 1397-1424

83 Contracture of Joints from Peripheral Trauma. (Mioipertonie degli arti per traumi periferici.) G. Rummo and F. Ferrannini.—p. 1397. Conclusion.

84 Reaction Suggesting Anaphylaxis under Antitetanus Serum. G. Marsiglia.—p. 1404.

85 *Importance of the Vasomotor System in Injury from Freezing. (L'importanza del sistema vaso-motorio nella genesi del congelamento.) V. Neri.—p. 1406.

85. **Vasomotor Predisposition to Freezing Injuries.**—Neri shows that a vasomotor predisposition plays an important part in frostbite. His research suggests further that thyroid treatment might aid in prevention and also in treatment in the earliest stages. His work further confirms that a part once exposed to freezing is peculiarly predisposed for it to occur again.

Brazil-Medico, Rio de Janeiro

February 3, XXXI, No. 5, pp. 35-42

86 Nematode Parasites of Rodents. (Nematodeos parasitos de roedores.) L. Travassos.—p. 35.

87 *Beriberi or Beriberic Syndrome? C. Fraga.—p. 35. Conclusion. Commenced in No. 2, p. 9.

88 Heliotherapy in Brazil. A. Moncorvo Jr.—p. 37. To be continued.

87. **Beriberi in Brazil.**—Fraga remarks that there has been considerable confusion in Brazil as to the incidence of beriberi. Chagas recently demonstrated that cases of supposed beriberi in the Amazon region were merely instances of polyneuritis in persons with chronic malaria. Chagas admits that beriberi can occur in the Amazon district, but the cases he happened to encounter were all of this malarial type. Fraga states that beriberi seems to be endemic in his region, the Bahia district, but it is rare. In five recent years at the medical clinic in his charge 513 cases of intestinal helminths, or polyverminosis, as he calls it, were encountered, but only 5 cases of beriberi. The hospital at Bahia has recorded 914 cases in the last fifty years, averaging about 18 a year. The range was from 3 cases in 1869 to 42 in 1910. At the penitentiary, there have been 287 cases during these fifty years, but this included an epidemic of 112 cases in 1908 with mortality of 62. Since 1908 there have been only 18 cases with 8 deaths. In the Bahia insane asylum nearly all the inmates were affected in 1914, and only 66 were living of the 136 at the commencement of the year. The inmates were then transferred to more hygienic quarters, and all recovered. No new cases developed until 1914, when there was an epidemic of

30 cases with 16 deaths; in 1915, 15 cases with 4 deaths, and in 1916, 18 cases with 8 deaths. An epidemic of beriberi also broke out among the troops at a certain barracks in 1878 and 1880, but was stamped out by change of quarters. The epidemics of beriberi at Bahia have occurred exclusively in institutions. The evolution of the disease is more rapid in the dropsical type and slower in the paralytic, but a combination of both types is the rule at Bahia. The course is usually from one to six months but the frequent relapses may render it difficult to estimate the actual course. The multiplicity in the clinical forms, the variety in the manifestations and the gravity of the symptoms on the part of the vegetative nervous system, render differentiation and prognosis often difficult. The apparently most serious cases may recover as if by magic while the mildest cases may take a sudden fatal turn. It is evident, Fraga remarks in conclusion, that it is a disease of a certain geographical distribution, a conjunction of phenomena developing under the influence of the same cause.

Cronica Medica, Lima

January, XXXIV, No. 643, pp. 1-40

89 Morphin plus Atropin plus Pituitary Solution for Painless Labor. (Contribucion a la analgesia obstetrica por el estudio clinico de la formula No. 3 del Dr. B. J. S. Artola de Lima.) M. H. Vallenas.—p. 1.
90 Present Status of Tabes. E. Odriozola.—p. 20.
91 Errors and Dangers for Demography and the Medical Sciences of the Bertillon Method of Classifying Diseases. R. P. Sauri.—p. 25.

Semana Medica, Buenos Aires

1916, XXIII, No. 52, pp. 667-700

92 Vaccine Therapy. (La terapeutica esencial.) N. S. Loizaga.—p. 667.
93 *The Oculocardiac Reflex in the Insane. (El reflejo oculo-cardiaco en 721 enfermos mentales.) F. Gorriti.—p. 671.
94 *The Diet in the Tropics. J. G. Ruiz.—p. 674.
95 Subcutaneous Injections of Oxygen. A. Cetrangolo.—p. 678.
96 Case of Cutaneous Sporotrichosis. E. Accame.—p. 680.

93. **The Oculocardiac Reflex in the Insane.**—Gorriti mentions that Vernet and Petzetakis noticed that potassium bromid usually reduces the intensity of the oculocardiac reflex, and Gorriti found that a similar effect was evident when a few drops of a 10 per cent. solution of cocain were instilled into the eyes. Among the 721 insane inmates of the national asylum tested for the oculocardiac reflex, 2 had transient syncope for a few seconds, the patients falling to the ground as if suddenly stricken. These were among the 70 to whom the test was applied standing. Nothing of the kind was ever noticed in the hundreds to whom the test was applied while reclining. The reflex occurred as in normal conditions in 589; the reflex was inverted in 74, and there was no reflex action in 56. The response was more pronounced when the subject was erect. The whole series is tabulated according to the mental affection, but no connection with any special affections was evident. The response was normal in the 4 epileptics, 7 imbeciles, in a number of alcoholics, in cases of acute and chronic melancholia, and in cyclic insanity. In 20 cases of dementia praecox it was normal in 175, inverted in 16, and there was no response in 16. In 24 cases of vesanic dementia it was normal in 20, inverted in 3 and one gave no response. In 40 cases of delirium with delusions of persecution the reflex was normal in 34, inverted in 2 and absent in 4. Gorriti warns that the sex, age, height, interval since eating and character of the meal, the hour of the day, the position, and emotions are all liable to affect the response to the test. He cites Roubinovitch's report of examination of 200 insane for the oculocardiac reaction. His conclusion was that the absence of the reflex is a sign of an organic lesion, possibly inherited or acquired syphilis. In Gorriti's series the only patients giving absolutely no response were the above mentioned 16 with dementia praecox, 11 with subacute alcoholism with delusions of persecution, 2 with the same plus signs of degeneracy, 2 with the confusional type of insanity of alcoholic origin, one chronic alcohol addict with delusions of persecution, 3 with alcoholic melancholia, 3 with alcoholic mania, 1 with vesanic and 2 with senile dementia, 4 degenerates with melancholia, 2 with the latter plus maniacal excitement, 1 idiot, one paranoiac, 1 epileptic idiot, 4 with delirium and delusions of persecution and one with religious mania. In the whole series there was no type of mental disease giving exclusively negative findings.

94. **The Diet in the Tropics.**—Ruiz is chief of the department of food hygiene in the national public health service of Argentina. He emphasizes that a laboring man in a tropical country does not need as much by 500 calories as in the temperate zone. His food should be rich in carbohydrates, scanty in fat, and moderate in proteins. It would be better, he asserts, if laborers on the ranches and in the forests were paid partly in food supplies instead of in cash, so that they would be sure of nourishing food instead of wasting their wages on liquor and improper food. These laborers at present have no idea of thrift and hygiene, and the state should make laws to insure their getting proper food.

Siglo Medico, Madrid

January 27, LXIV, No. 3294, pp. 49-64

97 *Oxaluria. T. Hernando.—p. 50.
98 Treatment before Diagnosis is Complete. (El tratamiento de las enfermedades desconocidas y la terapeutica sintomatica.) R. R. Villanova.—p. 60. Concluded in No. 3295, p. 74.

February 3, No. 3295, pp. 65-80

99 Spanish Literature on Parasitology. P. L. Marcos.—p. 67.
100 Asystoly. F. G. Aguilar.—p. 71.

97. **Oxaluria.**—Hernando has found oxalate crystals in the stools of patients with mucous colitis or gouty-rheumatic trouble. He thinks that oxalic acid may play a part in the joint troubles of gout, and in any event that it is better to prevent the accumulation of oxalic acid in large amounts in the tissues. Vegetables and fruit rich in oxalic acid should be avoided or else they should be boiled and the water thrown away. Meat containing much nuclear substance or gelatin and other food that aids in production of oxalic acid should also be avoided. Rice, potatoes and bread contain magnesia and are useful. A tendency to hyperchlorhydria should be combated as this favors absorption of oxalic acid. In De Sandro's case, the oxaluria stopped as soon as starchy foods were avoided. In treatment, calcium salts after meals favor the production of the insoluble calcium oxalate which prevents absorption of the oxalic acid. Magnesium salts neutralize the gastric acidity and impede precipitation of the oxalic acid in the urine. Sodium and magnesium citrate also promote the solution and elimination of oxalic acid. Maguire has also called attention to sodium acid phosphate as a solvent for oxalate concretions.

Russkiy Vrach, Petrograd

1916, XV, No. 49, pp. 1153-1176

101 *Major Operations Close to the Firing Line. V. A. Oppel—p. 1153.
102 *Sugar Exalts Virulence of Germ of Gas Gangrene. (Ob aggressivnosti glucosi. Sluchai gazovoi gangreni.) A. A. Bogomoletz.—p. 1163.
103 Management of War Wounds of the Vessels and Traumatic Aneurysms. N. A. Dobrovolskaya.—p. 1165. Continuation.

101. **Surgery at the Front.**—Oppel pleads for having the most competent surgeons and surgical consultants close to the firing line so that major operations can be done at once as needed. This presupposes of course proper surgical equipment and provisions for caring for the men on the spot afterward. The less reliance that is placed on transportation and on surgical measures later, at the base hospital, the better. He mentions in the report of his experiences at the front since the beginning of the war, that he had never seen or heard of a case of gas gangrene developing in a skull wound. The conditions as to circulation and the consistency of the tissues evidently do not favor gas gangrene.

102. **Sugar Enhances Virulence of Germ of Gas Gangrene.**—Bogomoletz cultivated anaerobically a germ from a case of gas gangrene which responded to all the tests characteristic of Fraenkel's *Bacillus emphysematosus.* It did not seem to be pathogenic for rabbits unless sugar was injected along with the culture. When this was done, the animals all developed typical and speedily fatal gas gangrene. Injecting 1 c.c. of a bouillon culture on the right and left side of a rabbit, one with addition of 0.2 gm. sugar and the other without, showed absolutely no reaction on the latter side while typical necrotic gas gangrene developed on the sugar side.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 20, I, No. 3, pp. 133-200

104 *Test for Motor Functioning of the Stomach. (Is de rest-bepaling volgens Mathieu en Rémond betrouwbaar?) J. W. T. Lichtenbelt and E. H. Janninк.—p. 142.
105 *Research on the Physiology of the Sense of Taste. (Smaakgewaarwordingen, waarop door andere, specifiek ongelijke smaakgewaarwordingen invloed wordt uitgeoefend.) J. H. Kremer. —p. 149.
106 *Intravenous Magnesium Sulphate Treatment of Tetanus. C. A. Cammaert.—p. 158.
107 Incarcerated Hernia in a Diabetic. W. F. Gnirrep.—p. 162.

104. **Estimation of Motor Functioning of the Stomach by Mathieu's Method.**—This communication from Talma's clinic at Utrecht reports personal experiences with Mathieu's method and summarizes the published reports of others' experience. The consensus of opinion is all in favor of the reliability of the Mathieu technic, not only theoretically but practically. The findings can be accepted with confidence. Mathieu's familiar method is to aspirate part of the stomach content and record its acidity. Then a given amount of fluid is poured into the stomach and is withdrawn again, and the acidity of this diluted remainder is determined likewise. By comparing the findings, the original quantity of chyme in the stomach can be estimated. When this technic is applied after a bouillon test meal, and then 500 c.c. of water are used for the afterrinsing, to ensure rinsing out the pylorus region, the findings can be relied on. If more than 500 c.c. water is used, it is liable to be passed on into the bowel. The test is usually made with 200 c.c. of water and this is not enough.

105. **The Sense of Taste.**—Kremer discusses the mechanism of the sensation of taste, and the influence on the perception of the taste of one article by other, specifically unlike articles. He discusses further the sense of taste as modified by some preceding application. The work issues from the Physiologic Institute at Amsterdam.

106. **Magnesium Sulphate in Tetany.**—Cammaert injected intravenously 50 c.c. of a 10 per cent. solution twice a day in a case of tetanus in a young man. The symptoms of tetanus had developed about five days after a rusty nail had pierced one of his toes. There were no further general spasms after the first injection of the magnesium sulphate, and all the symptoms gradually subsided to complete recovery by the end of the second week. The drug was so strikingly effectual in this case that Cammaert suggests that it might prove useful also in eclampsia, in uremic convulsions, and for children with convulsions from whooping cough or other cause.

Norsk Magazin for Lægevidenskaben, Christiania

February, LXXVIII, No. 2, pp. 145-280

108 *Cancer of Various Organs at Different Ages. (Statistik over kræft. Kræft i ung alder.) F. Harbitz and E. Platou.—p. 145.
109 *Paroxysmal Hemoglobinuria. C. Johannessen.—p. 179.
110 Intraperitoneal Rupture of the Bladder. O. Borgen.—p. 214.
111 *Complications of Gastro-Enterostomy. S. Widerøe.—p. 218.

108. **Cancer at Different Ages.**—Harbitz and Platou analyze the 2,101 cancer cases examined at the Christiania Institute for Pathologic Anatomy in the last fifteen years. The list includes 765 sarcoma cases. In 385, necropsy records were available, in the others the excised tumor and the clinical history only. Charts and tables present the statistics in graphic form, especially with reference to the 71 cases in young people, that is, under 30. The curve for the sarcomas shows 7 congenital, 61 in children under 10, 85 between 10 and 20, and the others scattered almost evenly through the other decades, the maximum, 134, between 40 and 50. The sexes are about equally represented. With carcinoma, on the other hand, the women far outnumber the men, 1,304 to 797, on account of the 481 mammary cancers and 256 uterine cancers. There were 5 cases of carcinoma in the young between 10 and 20, and 66 between 20 and 30, including 47 women and 19 men. One boy of 12 died from a primary carcinoma of the liver. In this as also in a case of carcinoma of the liver in a 17-months infant there was pronounced cirrhosis of the liver, but this was not apparent in a third case, a young man of 19, who also succumbed to cancer of the liver. There was nothing to suggest a teratoid tumor in either case. Another youth of 18 had two cancer nodules in the appendix. A carcinoma of the rectum was found in the cadaver of a man of 28, and cancer of the colon in a woman of 28. Besides these, a small "carcinoid" tumor was found in the small intestine of a 3 months' babe, and five similar tumors in the ileum of a man of 31. A girl of nearly 16 had a large ovarian tumor removed. It had been causing symptoms for about a year. Cancer was also found in one ovary in 4 young women between 20 and 25. Mammary cancer was encountered in 17 young women of about this age, and uterine cancer in 10. In the mammary cases in the younger women the malignant disease involved both breasts from the start. In 5 cases the cancer had developed on the face, nose and scalp. These patients were men of 27 and 34, a boy of 16 and girl of 13 with cancers of the nose, and a woman of 25 with cancer of the scalp that had been eight years developing. The face cancers had developed on an ulceration in the face starting at the seventh and twelfth years. In conclusion they describe the necropsy findings in a case of scirrhous cancer of the stomach in a man of 20.

109. **Paroxysmal Hemoglobinuria.**—Johannessen presents a summary of our knowledge to date of paroxysmal hemoglobinuria, and the various theories proposed to explain it, and describes in detail a case from his own practice. The man of 59 had a history of old syphilis. His attacks of hemoglobinuria during cold weather incapacitated him for work of any kind. Johannessen gave him a thorough course of antisyphilis treatment, and this seems to have cured permanently the tendency to hemoglobinuria. He has had no attacks during the two years since, and his earning capacity has been entirely restored. The autolysin seems to be still present in his blood, however, and the lymphocytosis still persists. Johannessen intends to give him a course of cholesterin if the attacks of hemoglobinuria should return. Lindbom has reported that cholesterin is able to check hemolysis under the influence of saponin, cobra venom, etc. The action of cholesterin is transient however; it lasts only as long as the cholesterin is in the body.

111. **Complications of Gastro-Enterostomy.**—Widerøe refers to hemorrhage, diarrhea and peptic ulcer as well as to the vicious circle. He had a case in which less than three hours after the posterior retrocolic gastro-enterostomy the stomach nearly filled up with blood from two small gaping arteries close to the first suture in the mucosa. These were ligated through a small transverse incision in the anterior wall of the stomach, and there was no further trouble. A well drawn up continuous suture obviates any bleeding from this source. Widerøe agrees with Rovsing that it is better not to trust to clamps, as this may mask conditions permitting hemorrhage after the clamps have been taken off. The pressure from the clamp in itself is liable to entail bleeding later. He reviews the literature and statistics on the vicious circle, relating a case of the typical symptoms coming on two and a half days after the gastro-enterostomy. The abdomen was opened again and nearly the whole of the small intestine was found protruding through a slit in the mesocolon. The incarcerated bowel was cyanotic but recuperated at once as soon as released. To avoid mishaps of this kind, any slits in the mesocolon must be sutured. If the vomiting after a gastro-enterostomy persists after lavage of the stomach and changes of position, no time should be lost before opening up the abdomen anew. In case of need, a supplementary anastomosis between duodenum and jejunum is better than operating anew on the stomach as a rule. He has never known of diarrhea or peptic jejunal ulcer developing after a gastro-enterostomy in his service. The gastro-enterostomy is always made by the posterior retrocolic technic, with the shortest possible loop. He cites numerous statistics all showing that complications after a gastro-enterostomy are rare. Van Roojen compiled fifty-two cases of peptic ulcer after anterior gastro-enterostomy and twenty-five after the posterior operation. The relative proportion was much less after the posterior operation. But no technic excludes all danger of peptic ulcer. Medical-dietetic treatment afterward is indispensable, especially when there is a tendency to hyperacidity. Widerøe insists on a month in bed after the gastro-enterostomy in case of extreme hyperacidity.

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MEDICAL RESEARCH IN ITS RELATION TO MEDICAL SCHOOLS*

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One of the striking features of the phenomenal development which medicine has undergone in recent years is the diminishing emphasis laid on it as an art and the increasing emphasis laid on it as a science. This has come about through a great growth of the spirit of research and a great increase in its achievements. The change is found in all countries, but is especially marked in America, where the development of research had previously been slow. The greater bulk of medical research has been, and is still being, carried on in medical schools, although the gradual increase in the number of independent research foundations has resulted in augmenting greatly the mass of original contributions to medicine.

This investigative feature of modern medicine naturally raises the general question of medical research in its relation to medical schools. Such a broad inquiry resolves itself into a number of component questions, such as: Shall the schools devote their energies solely to teaching? If not, how and to what extent shall they encourage research? Shall all, or only certain, schools undertake research? If undertaken, by whom shall it be carried on? Shall there be within the schools professorships or other positions devoted to research alone and distinct from teaching positions, and departments of research distinct from teaching departments? What is to be the relation of medical schools to research foundations? It is the purpose of this report to present the topic in its various relations and afford grounds for its fuller discussion.

SERVICE RENDERED BY RESEARCH

It will be well early in the report to analyze somewhat the conception of research. There are two ways of looking at the phenomena of nature — here we include all those natural phenomena which constitute medicine in its broad sense — and, correspondingly, those who engage in the study of natural phenomena may be divided, more or less definitely, into two classes. Those of the one class are content to dwell on present knowledge and to follow the beaten path. For them, present knowledge is sufficient in itself. They derive satisfaction from its acquisition, from the appreciation of the order and the relationships of things as they now appear, and some of them also from the utilization of present knowledge in the service of mankind. Those of the other class, while appreciating and utilizing present knowledge, regard it not as a finality but as a means to an end, the end being the acquisition of new knowledge.

These two mental attitudes toward natural phenomena and their followers may be called, respectively, the static and the dynamic. The static man of science is the contemplator of the known; the dynamic man of science is the investigator. With the investigator, existing knowledge never wholly satisfies. He is ever longing for something beyond the limits of the known. Even the static man of science may go as far as this. He may have aspiration, and aspiration means something beyond the dead level of existence, even if it never achieves. Those are numerous who desire to investigate but never make or utilize the opportunity to do so. No one can long conduct a laboratory without meeting the dreamer, the man who has visions of achievement. The value of his aspiration and his dreams appears when he is set to work at a laboratory table and is made to submit his visions to rigid tests exactly controlled. With the investigator, aspiration does not end in dreaming. Imagination he must have — this is one thing that lifts him above the level of his plodding fellows. With imagination there should be the ability to form hypotheses, and then the willingness and the perseverance to submit his hypotheses to actual trial. Thus he is led to institute a systematic search for new things, to undertake a specific inquiry into something that is unknown, and if he is successful, to make known to others the results of his work. The published paper is the tangible evidence of the research.

The spirit of research means all of these things, and when it is fully developed in the individual it endows him with a large breadth of outlook and an unquenchable desire to extend the boundaries of knowledge. The spirit of research is a mental attitude, but it is not one that comes to its possessor as only a spontaneous gift of nature. It may, indeed, come thus and it may be transmitted from father to son; but, on the other hand, it may result from training. Whether a man's future outlook is to be narrow or broad is decided, probably with most persons, during the formative period of his scientific conceptions. Whether he shall become a static or a dynamic man of science

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depends largely on the way in which in his student days he has been taught to look at science. Thus the responsibility resting on his instructors is great. The teaching of even the elements of a science may be from either the static or the dynamic point of view, and the beginnings of the future investigator may thus be laid in the classroom. All of these considerations apply equally to whatever branch of science one may elect to follow, to the follower of medical science as to any other.

MEDICINE AND THE UNIVERSITY

In the past, science, like all other branches of human learning, has been fostered mainly by the universities, and this is probably true of medical science as well. Although numberless important medical discoveries have been made outside academic circles, it doubtless remains true that the greater volume of original contributions to medicine has been made under the influence of the universities. In the United States the medical schools were at first slow to appreciate the advantages of university connections; but in recent years they have experienced a great change of heart, and the independent school is rapidly ceasing to be. Thus here, as elsewhere, the home of the medical schools will, in the future, be within the universities.

RESEARCH IN OR OUTSIDE OF UNIVERSITIES

The question may here be raised whether or not the schools will continue to be the chief seats of medical advance. The establishment of special research foundations, under the various names of institutes, commissions, laboratories and other titles, constitutes a notable feature of recent medicine. They have increased greatly in number, especially in America, and have become a powerful agency in medical progress. Their success forces on us the question whether they will not gradually usurp the research functions of the schools and themselves make the chief contributions to future medicine. It is desirable, therefore, to look into the nature and the relations of such organizations.

There exist in the United States at the present time, apart from fellowships and scholarships, approximately twenty-six special foundations which are engaged primarily in medical research. These are given in the accompanying tabulation.

A noticeable feature of this list is that more foundations for research exist inside than outside universities, the proportion in the two groups being about 2:1. Most of the foundations have been established by single individuals and are supported by the wealth of their founders. With few striking exceptions their funds are comparatively limited, and they are not apt to be increased by donations from other than the original sources. It seems probable, therefore, that in the future, although here and there very wealthy philanthropists may still establish research institutions independent of the universities, they will not multiply considerably.

There are many advantages in university ties for research foundations. Through an encouraging appreciation and illustrious examples the university tradition is favorable to research; a wise administration of the funds given for research is assured; large libraries are directly available; investigators in science allied to medicine are at hand for consultation and stimulus; but especially important is the facility for coming into touch with young men whose careers are not yet determined and, consequently, the possibility of influencing them in the direction of a scientific career. Medical investigators isolated from university relationships are liable to fail in the important service of discovering and developing investigators — they must depend on medical schools for the recruiting of their own ranks. There is thus every reason to believe that the medical schools will continue to be not only the chief communicators of medical learning, but also the chief promoters of medical advance.

RESEARCH A DUTY OF THE MEDICAL SCHOOL

Even, however, if they are not so fortunate as to possess special foundations for research, the medical schools have a much greater duty to perform for the medical profession and the world at large than the routine teaching of medicine as it is. This has been their traditionary feature; to it everything else has been subordinated. There may be those still existing who believe that a school should be only a teaching institution and that its teaching functions would be imperiled if its teachers should allow themselves to be led away by the desire to investigate. To this it can be replied that never yet has a purely teaching institution in an actively changing science been able long to maintain itself as an exponent of the science of the day. It cannot keep pace with progress and must inevitably be left behind. Moreover, with medical tradition being broken every day and the demand for opportunities for research becoming constantly more insistent, it is daily becoming more difficult for the schools to remain mere teaching institutions. It is not to decry their teaching function if we point out that research has become for them a duty. Indeed, if only we perceive that the inevitable result of greater knowledge of disease will be greater power to control its ravages, we are obviously under a moral obligation

FOUNDATIONS FOR MEDICAL RESEARCH

Name	Location	University Affiliation
William T. Bull Memorial Fund	New York	Columbia
George Crocker Special Research Fund	New York	Columbia
Harriman Research Laboratory (Roosevelt Hospital)	New York	None
Huntington Fund for Cancer Research	New York	Cornell
Loomis Laboratory	New York	Cornell
International Health Board of the Rockefeller Foundation	New York	None
Rockefeller Institute for Medical Research	New York	None
Russell Sage Institute of Pathology	New York	None
Henry Phipps Institute for the Study, Prevention and Treatment of Tuberculosis	Philadelphia	Pennsylvania
John Herr Musser Department of Research Medicine	Philadelphia	Pennsylvania
William Pepper Laboratory of Clinical Medicine	Philadelphia	Pennsylvania
Wistar Institute of Anatomy and Biology	Philadelphia	None
James A. Patten Fund for Medical Research	Chicago	Northwestern
Memorial Institute for Infectious Diseases	Chicago	None
Otho S. A. Sprague Memorial Institute	Chicago	Chicago
Nelson Morris Memorial Institute for Medical Research	Chicago	None
Cancer Commission	Boston	Harvard
Nutrition Laboratory of the Carnegie Institution	Boston	None
Phipps Fund for the Study of Tuberculosis	Baltimore	Johns Hopkins
Phipps Psychiatric Clinic	Baltimore	Johns Hopkins
Coffin Research Fund	San Francisco	Leland Stanford
George William Hooper Foundation for Medical Research	San Francisco	California
Francis E. Loomis Fund	New Haven	Yale
New York State Institute for Malignant Disease	Buffalo	None
H. K. Cushing Laboratory of Experimental Medicine	Cleveland	Western Reserve
Mayo Foundation	Rochester	Minnesota

to secure more knowledge, which is quite as imperative as our obligation to relieve suffering by methods already known to be efficacious.

The results of advance in science and the effects of medical and surgical practice are the same — the lessening of disease and suffering and the prolongation of life. The chief difference between the two is that whereas practice by established methods in the main concerns comparatively few individuals, the results of investigation are likely to have effects which can be applied by physicians all over the world to innumerable patients through unlimited time. Just so far as possible, therefore, medical schools have the duty of acquiring new knowledge quite as much as they have the task of teaching knowledge already acquired. Not all medical schools have recognized this obligation for double service, but those schools that have done so and are contributing to medical progress already stand confessedly out from and above those that do not. This is apparently destined to be so more and more; and, unless the purely teaching schools extend their activities, an undesirable class distinction is sure to arise; and the schools that do not encourage and even go farther and insist on research will become known as lower grade schools, and sooner or later their existence will be imperiled.

We thus come logically to the conclusions that the medical schools of the future must perform both teaching and investigating functions, and that this applies to all schools. It is idle to deny that research, like teaching, is dependent not only on men, but also on money, and that, given the men, that school which is the better equipped financially will be able to perform the more research. But quantity is here a matter of little moment. The mere fact that it cannot do as much need not deter the small school from doing what it is able to do. The great discovery often comes from the humble laboratory.

PRESENT EXTENT OF RESEARCH IN MEDICAL SCHOOLS

Within the better medical schools at present there may be found various classes of persons engaged in investigation. Almost invariably some of them are members of the regular academic staff, and more are engaged also partly in teaching, but a few have purely research positions, giving their whole time to research. Then there may be postgraduate students, some of whom are working for the higher academic degrees of master of arts and doctor of philosophy; there may be those who are primarily practitioners of medicine, but who give a portion of their time to investigative work; and in smaller number there are often found undergraduate medical students who are impelled by one motive or another to undertake the investigation of minor problems that are of immediate interest to them. The existence of such varied groups and the necessity of providing for all of them raises the question as to the means by which within the schools research may best be encouraged and promoted.

RESEARCH BY PRACTITIONERS OF MEDICINE

We do not need to dwell here on the matter of research by postgraduate students, or by those who are primarily practitioners of medicine and not university officers. More and more are the departments of our medical schools being sought by students who are preparing for purely scientific careers, and we must be prepared to carry such students on to the higher academic degrees. Much honor is due those practitioners here and there who do not allow their ambitions to be quenched by the demands of routine practice. In the history of medicine their contributions often stand out as shining marks of progress. Edward Jenner was a country practitioner when he studied the relation of cowpox to smallpox and made his first vaccination. Ephraim McDowell was a practitioner when he performed his first ovariotomy. Even the busy army medical officer occasionally finds time to make notable contributions to medicine, as did William Beaumont when he made his immortal observations on gastric digestion, and Reed, Carroll and Lazear, who laid bare the method of transmission of yellow fever and opened the way for its elimination. Medical literature is constantly receiving valuable accessions from practitioners who are at the same time investigators. With the increasing complexity in technical methods and the increasing demands for apparatus of precision, much of it expensive, those practitioners who are seriously ambitious to investigate will seek the university laboratories and the university hospitals more and more, and, if they are capable men, the laboratories and the hospitals should always be open to them.

MORE RESEARCH WITH LARGER NUMBER OF FULL-TIME TEACHERS

In the gradual elevation of the standard of medical schools it has come about that research is expected more and more of members of the regular academic staff. This can only be commended. The ability and the disposition to investigate should, indeed, be regarded as an important sine qua non of appointment to an academic position, and not only of appointment but also of subsequent maintenance of the position. It should be clearly understood that no holder of such a position is performing his full duty to his school unless he investigates. This is being generally recognized by the best schools in the medical sciences, but it is as true of the clinical as of the preclinical studies. That in this respect there still remains a distinction between the two groups of studies is due to the fact that the evolution of clinicians and of clinical departments from their traditional position as exclusively teaching factors of the schools has been slower than evolution in the preclinical departments. Such a distinction is wholly artificial and is destined to pass away as we get farther removed from our early notions regarding the place which the schools should occupy in medical science.

The establishment of full-time chairs, already achieved in the preclinical and greatly to be desired in the clinical branches, will help to break down this distinction and, moreover, will help to free the schools from every suggestion of commercialism. The great obstacles will be, as they have been in the past, two types of individuals, of whom our schools possess far too many, who give only a part of their time to the school work, who are not investigators, and who possess little appreciation of investigation and little taste for it.

One of these is the clinician who has acquired a practice that is materially too successful and allows it to command him, while at the same time he endeavors to hold a responsible position of leadership as the head of a department in the school. Although not an investigator himself, he may, indeed, perceive the signs of the times and endeavor to satisfy a sensitive conscience through investigation by his assistants, forgetful of the ethical principle that no man can ever do his full duty vicariously. Rarely, however, is his vision so clear as this, and in his position of depart-

mental leadership he may exert a baneful influence in two directions: first, on his departmental staff by virtually discouraging research, and, secondly, on his students by introducing into their receptive minds wholly wrong ideals of the work of the practitioner.

The other obstacle is the subordinate instructor who is struggling to acquire a practice and who holds his school position for its salary, or in the belief that a connection with the school will be of future material benefit to him, or because he is thus enabled to continue his training in his special branch, and who does not realize that the performance of worthy research offers the strongest recommendation for his future advancement. We are too prone to put the intimate, elementary instruction of medical students into such hands.

Investigation by the staff, from the heads of departments down, should be prominent throughout the whole school and should set the standard for the school's activities. Investigation tinges the teaching itself. Welch has aptly said:

> The power of imparting knowledge, gained second hand, fluently and even skilfully, is not an uncommon gift and is possessed by many who have never engaged in research and have no especial inclination or aptitude for it; but the teaching of him who has questioned Nature and received her answers has often, and I think commonly, in spite it may be of defects of delivery, a rarer and more inspiring quality.

RESEARCH SPIRIT SHOULD PERMEATE MEDICAL SCHOOL

The question may here be raised whether and in how far it is advisable for medical schools to establish separate chairs and separate departments for research only. That there is a tendency among universities to establish research chairs in both medical and other schools is evident, and there are notable instances in which independent departments of research have been instituted with successful results. Such independent chairs or departments may be unlimited in the scope of their researches; or, either because of the terms of the gifts of funds which have enabled them to come into being or because of the tastes of their occupants, they may devote their energies to certain specific topics. So far as they supplement and work in cooperation with other research activities of the school, they are to be commended and their multiplication is to be welcomed. But so far as they assume the sole research functions of the school and afford an excuse for other chairs or departments to refrain from such activities, they can offer only an imperfect, inadequate and, it may be, even harmful substitute for better conditions. The conditions can be ideal only when the whole school is permeated by the spirit of research, when this spirit characterizes all departments, whether preclinical or clinical.

ARGUMENTS FOR RESEARCH BY UNDERGRADUATES

Investigation by undergraduates has been encouraged in the past more in Germany than in other countries, and the inaugural dissertations that are required of all prospective graduates of the German universities represent an appreciable contribution to the sum of human knowledge. In medical history there are striking instances in which subsequent leaders have begun their life work as undergraduate students, a notable case being that of Ehrlich, who was a student at Breslau when he first studied the dyestuffs and thus laid the foundation for his later work on tissue affinities and chemotherapy.

How far is it desirable to encourage the spirit and the performance of research by undergraduates, and by what means may it best be accomplished? Students on entering the medical school are usually regarded as so much raw material which, under the tuition of school and hospital, is to be worked over and fashioned into doctors of medicine, who are then sent out into the world to pursue their careers, the most of them as practitioners, a few as investigators, teachers or administrators, while still fewer will combine two or more of these activities. They come to the school with various mental equipments, inclinations and capacities. Some are already filled with the spirit of modern science, enthusiastic to learn of its achievements and eager to follow its allurements. Others know little of it and have never heard its inspiring call. The school has a great opportunity, an opportunity to mold the student mind and determine its attitude toward medicine throughout all later life.

Shall the practitioner follow the static or the dynamic path?

The static mind in medical practice is satisfied to utilize what is already tried and accepted. It becomes habituated to a routine. If the patient possesses certain symptoms he has a certain specific disease; if he has a specific disease he is to be treated in a specific manner. If, therefore, a physician of this type can once get his patient properly labeled, the routine is started. The static mind in medical practice is like the botanist or zoologist who searches for species; it is like the academician in painting who follows established rules. An exceptional symptom is an anomaly, a thing to be neglected because it does not fit into the preestablished scheme. Resemblances, not differences interest him. In surgery, the static mind is often an attribute of the brilliant operator whose technic is the envy of his younger colleagues and is measured by the number of minutes in which he is able to perform a given operation. The static mind is not averse to learning new methods and new points of view, provided they have once been pointed out by others; but, once acquired, the new becomes again the conventional and a new routine replaces the old.

GREATER PROGRESSIVENESS OF THE INVESTIGATIVE MIND

To the dynamic mind in medical practice, on the other hand, a disease is not primarily and solely a pathologic entity, but an indication of a deranged complex physiologic mechanism, and it requires the most careful observation and analysis. Each new case of a disease is not simply the replica of previous cases, but presents a problem for investigation, a new topic for research. A different symptom is a thing of interest, which is to be referred back to its physiologic basis and may alter the course of treatment fundamentally. The dynamic mind is never closed; it is constantly looking for new points of view and new methods of diagnosis, of prevention and of treatment; it is the progressive mind, the mind that recognizes medicine, not as an art, but as a science, one that is actively in the making and demands contributions from all of its followers.

Of these two lines of thought and practice unquestionably that of the investigator means more for medical progress and more for the benefit of mankind. It is that which every practitioner ought to follow, and it is that which every practitioner can follow in greater or less degree. Whether or not he shall follow it depends probably in most cases on the influence which he has received from his medical school. Is it a

school which is permeated with the spirit of research? Are the facts and principles presented to the student as finalities or as steps on the way toward something better, something toward the gaining of which he himself may contribute? Furthermore, is he encouraged, or even allowed, to undertake investigation during his undergraduate days?

INCREASING OPPORTUNITIES FOR UNDERGRADUATE RESEARCH

Here we find that the practice of our American medical schools varies greatly. As the result of a questionnaire conducted by Dr. Cecil K. Drinker five years ago it was found that of twenty-five selected schools of different grades, but including the foremost schools in the United States and Canada, seventeen allowed their undergraduates to undertake research in conjunction with their regular medical work; but of these only nine aided it by a concession of hours in the regular roster. It is doubtful whether any others of the 120 schools then existing offered a similar privilege, and hence the percentage of American schools favoring undergraduate research in 1912 would probably not have been over 7.5. This number has probably increased slightly within the past five years, since there is a growing tendency among the better schools to introduce elective work, a part of which may be devoted to research. Thus, although a distinct change in the condition would probably appear if the schools of today were compared with those of twenty-five years ago, the encouragement of undergraduate research is still small.

UNDERGRADUATE RESEARCH TO BE ENCOURAGED, NOT REQUIRED

That there should be undergraduate opportunity to investigate is hardly open to question. Deliberately to close the laboratories and hospitals to those students who desire to go beyond existing knowledge cannot be considered. At the opposite extreme and equally inadvisable may be placed the forcing of research on all. That research, however, should be constantly kept before the student as his ideal hardly admits of discussion. This can be done only when the spirit of research permeates all medical teaching, from the student's entrance to his graduation. There is perhaps no science in which less can be taken for granted than in the science of medicine. No topic here can be regarded as a closed chapter. In the teaching of such a rapidly growing science there is no place for ex cathedra statements, or for appealing to supreme authority, whether of doctrine, person or fact, for doctrine and person and fact are frequently dethroned. Such teaching can exert only a pernicious, deadening influence on the pupil's mind; it imposes on his mental processes shackles which can be broken later only with difficulty. The attempt to turn out a finished product, a young doctor crammed to the utmost with existing knowledge and a familarity with existing methods of diagnosis and treatment, is fatuous. In a few more years the finished product will be behind the times and much of his knowledge will be useless. The student should be taught to have, not indeed a captious, but a wholesome, hesitation to accept authority blindly. He should be led to seek the conditions of discovery. He should be equipped with the means of progressing after his student days are over. There is no single way to accomplish this more surely than by encouraging him to undertake before he leaves the school some piece of original investigation.

RESEARCH AND THE OVERCROWDED CURRICULUM

The objection will here be raised that with the enormous mass of material now to be learned and the already excessively crowded curriculum there is no time for the student to do anything outside of his routine studies. Here a glance at the origin of the present curriculum may be of value. When the addition of a fourth year to the former three years' course was contemplated it was believed by the leaders in medical education that the student would be given opportunities for research. But the demands, partly for laboratory work in the preclinical subjects, and chiefly for more routine clinical work, were too great to be resisted, and the added time was parceled out among the departments of the school and devoted to more routine work. From time to time still further routine work has been added, also chiefly clinical, until we have the present 4,000 hours of prescribed work, with many schools going beyond this amount, and all schools overburdening their pupils.

Although this condition rests on the plausible contention that the enormous volume of present-day medicine requires the present crowded curriculum, it is, nevertheless, contrary to rational ideas regarding educational methods. The present four years' curriculum requires a stuffing of the student's mind, with all too little time for mental digestion. It should be critically and impartially reexamined with a view to the judicious omission of unnecessary matter. The undergraduate ought not to be expected to acquire pronounced technical skill.

We must give up, too, the idea that we can train the specialist during his undergraduate life. We do not even attempt this with the student who is to be an anatomist, a physiologist, a pathologist, a bacteriologist or a pharmacologist; we should not attempt it for the future ophthalmologist, otologist, laryngologist, neurologist, obstetrician or even the operative surgeon. All these must acquire their special training during their postgraduate years. It must soon be recognized that only the fundamentals should be taught the undergraduate, and the curriculum must be made to include only the fundamentals.

A fifth year appears now to be a practical certainty, soon to be realized by all schools. Here a warning should be raised. Unless those who favor undergraduate research assert themselves there is a danger that this new year will meet the same fate as its predecessor. Every attempt to devote it to routine hospital duties or parcel it merely into additional routine instruction of any kind should be resisted. There is every reason to believe that with the curriculum organized rationally, time can be found for many undergraduates to test their powers as investigators.

RESPONSIBILITY OF MEDICAL SCHOOLS

In the gradual evolution of medical schools from humble beginnings we have not yet come fully to realize how great is the part that they may play. They should be the supreme leaders in medical science. They should know its history and be wise in conserving the best and most worthy of its traditions. They should be the chief exponents of the medicine of the day and the teachers of its future disciples. They should be foremost in making the medicine of the morrow and in training its future discoverers. They can do all of these things if they will. It is for them to decide whether or not they shall rise to the full dignity of leadership.

THE BACTERIOLOGY OF FOODS*

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While the bacterial examination of water in this country has led for some years past to fairly uniform results and has given information of the highest value for estimating the sanitary quality of a water, the bacterial examination of foods and its interpretation have been followed in many cases by a conflict of competent opinion and by a confusion of official and semiofficial rulings that have caused some bewilderment. A brief survey of the situation may be useful in drawing attention to certain points at issue.

It will be recognized that the value of bacterial food examination has definite limits. Actual discovery of pathogenic bacteria in food is a rare occurrence, and in particular cases may have little or no practical significance. Few workers would think of advocating a routine bacterial examination for the purpose of ascertaining whether or not specific articles of food can safely be eaten. Milk, the food most frequently subjected to bacterial examination, is never, so far as I know, examined with the view of determining the presence or absence of disease germs before it is consumed. To most bacteriologists there is no need to dwell on the futility of such an attempt.

It is true that in certain instances in which food poisoning due to bacteria or their products has occurred, pathogenic bacteria have been found in the remnants of the food after the event; but at most such findings afford some degree of corroboration, and oftentimes do not greatly strengthen the evidence connecting the outbreak of poisoning with a particular food. Infections due to milk are traced to their origin almost altogether through use of epidemiologic data, and as, for example, in most milk-borne typhoid outbreaks, the finding of a specific germ in the food itself, even if possible, would add little, if at all, to the weight of the evidence. It is not likely that the occasional cases of meat poisoning due to *B. enteritidis* and its allies could be materially diminished by any practicable system of bacterial meat examination.

Direct preliminary examinations of food being, therefore, of little or no value, there remains the method of attempting to estimate the possibilities — not actualities — of danger on the basis of bacterial findings. This method has been applied especially in the case of milk, oysters and a few other foods, and its use has been apt to lead to the adoption of standards of bacterial purity which serve to condemn or approve. It is precisely this subject of standards that has given rise to sharp controversy and has been surrounded with much misunderstanding.

Although the fixing and interpretation of standards has been much discussed in connection with water analysis, there is still some difference of opinion, tacit or expressed, as to what shall constitute a standard and what standards are for, anyway. The significance of a standard weight or standard measure can be generally appreciated even by those without technical training, but not so that of a standard of interpretation. The earlier chemical understanding of a "standard of purity" is still current, and it is a common conception that bacteriologists test food or drink to determine the presence therein of definite harmful bodies as the chemist tests for arsenic or lead. This is doubtless partly due to the feeling that all bacteria are harmful and that the fewer bacteria in milk or water the safer or more wholesome are these substances. This belief also colors the acceptation by laymen of bacteriologic opinion and their interpretation of bacteriologic data, as when Albert Shaw[1] construes the bacterial limit proposed for filtered water by the German health authorities as "a warning to the municipal governments of the country not to supply their citizens with a drinking water containing more than 100 cholera germs to the cubic centimeter," and adds, "It was considered that water infected to no greater extent could be used without serious danger."

The arbitrary adoption of a standard yard, pound or bushel is largely for the purpose of protecting the community against fraud, and this is true to only a slightly less degree of such measures as the fixing of a standard for the butter fat and total solids in milk. Nearly all chemical food standards fall in this category. It is evident, however, that bacterial standards for water, milk and foods in general are of a completely different character. Such standards merely express the expert opinion of one or, more commonly, of a group of persons that indications of sanitary unwholesomeness are afforded by the presence of a certain number or kind of bacteria. The history of science is full of illustrations of the danger of applying too rigorously or too mechanically any such standards of interpretation. One of the most familiar of these is the famous case of the chemical standards for drinking water. The value of the chemical examination of a water as a guide to its sanitary quality is now admitted to be very slight; some sanitarians would deny it altogether. And yet for years an enormous amount of energy was expended on making chemical analyses of water and ingeniously interpreting the results, usually on the basis of shrewd observation of the water sources. There is no doubt that the strict application of such chemical standards led frequently to the condemnation of perfectly wholesome water and sometimes to the sanction of potentially dangerous supplies.

While these facts respecting the tentative and fallible character of standards of interpretation are generally familiar to all scientific workers, it is well known that an open avowal of this situation is not always satisfactory to public officials and others who have decisions to make. Judge and jury would prefer the assurance that the thing is wholesome or unwholesome rather than the opinion of the witness that it may be so. It is all the more desirable to make clear to the public the fact that all bacterial standards of interpretation are but the expression of a more or less general consensus of opinion and are not claimed by any competent worker to be final or absolute. It is universally found that all standards of interpretation as soon as they are adopted must face so-called exceptions in which experience is at variance with the rigid application of the standard and overweighs the latter. Take, for instance, the standard prepared by the commission appointed by the Treasury Department to recommend standards of purity for drinking water supplied to the public by common carriers in interstate commerce.[2] The numerical limit proposed (100 colonies per cubic centimeter developing in twenty-four

* Chairman's address, read before the Section on Sanitary Bacteriology of the Society of American Bacteriologists, Dec. 29, 1916.

1. Shaw, Albert: Municipal Government in Continental Europe, p. 398.
2. Reprint 232, Public Health Reports, Nov. 6, 1914.

hours at 37 C.) is, as such standards generally are, the result of a compromise; it should have been somewhat higher in the opinion of some members of the commission, lower in that of others; others still would have omitted a colony count standard altogether. In point of fact, however useful the numerical limit may be in affording leverage for an expert opinion, it can hardly be maintained to be valid as an absolute criterion. In several instances I have found that deep well waters stored at a low temperature give a high 37 degree colony count in a few days. One such water giving no gas in 100 c.c., developed only twenty-eight colonies per cubic centimeter at 37 C.; but when stored for five days in a clean glass vessel at 10 C., developed 12,300 colonies. It is difficult to believe that any real change in the wholesomeness of the water occurs in such cases.

When the exhaustively studied and relatively simple water standards are subject to such exceptions and reservations, it is certainly not to be expected that bacterial standards for food will be any more satisfactory. The curious state of affairs with reference to bacterial criteria for the purity of milk exemplifies the uncertainty that actually exists. An "excessive number" of bacteria in milk seems to signify to some workers a number of over 200,000 per cubic centimeter, to others, over 1,500,000, and to some perhaps any counts that run above 10,000. The accuracy of the methods of milk examination current in recent years does not strengthen the case for arbitrary judgment. Many attempts have been made to standardize the methods of bacterial milk examination, and yet in the cooperative investigation conducted by four large New York laboratories and reported by Professor Conn, it was found that the final report on one and the same sample of milk — to select one case — might vary as much as from 30,000 by one laboratory to 2,410,000 by another.[3]

Apart from such difficulties, which are due to divergence in laboratory practice and can be in part although probably not altogether overcome, there is the question that already has given rise to much discussion, namely, the interpretation to be placed on consistently high bacterial counts in milk, numbers, let us say, ranging by the ordinary plate method quite uniformly above 200,000. It seems now to be established that the number of bacteria in market milk depends chiefly (*a*) on the initial contamination from the cow and from unsterile utensils, and (*b*) on the bacterial growth occurring between the collection and delivery of the milk. These two sets of factors are often summed up by saying that large bacterial numbers indicate that the milk is either dirty or stale or both. The use of words with offensive connotations is probably not without some justification, but should not be allowed to affect too much the judgment which experienced workers accord to the facts.

As regards numbers due to initial seeding, it is plain that the general cleanliness of the cow may conceivably be a matter for sanitary as well as esthetic consideration. There is less likelihood that dangerous bacteria will get into the milk from a clean animal than from one slovenly kept. Just how important a safeguard against infection this sort of cleanliness is cannot be even approximately estimated. It is unquestionably far less valuable than attention paid to the animal's health. As has been demonstrated many times, a clean but diseased cow is more dangerous than an ill kept healthy one. It must not be forgotten, however, that clean and orderly methods react favorably on the morale of the industry, and their practice unquestionably stimulates interest in the far more significant matter of the health of the animals and of the employees.

The other main source in the initial seeding, the bacteria derived from apparatus and utensils, is of less sanitary importance. Pease[4] has shown how a large amount of bacterial multiplication may occur in milk cans even after "reasonably efficient, obvious and bacterial cleaning." In view of what is known of the conditions necessary for the multiplication of pathogenic bacteria, it is difficult to believe that these cans are to be properly considered as "breeding places of disease germs." We must admit that bacteria from utensils that have been thoroughly cleaned but not sterilized are not likely to belong to dangerous varieties, although their presence in large numbers may impair the keeping qualities of the milk, and so be of commercial importance. In point of fact, the treatment that milk and other foods get in the ordinary well conducted household is likely to add many bacteria of the same general character as those under discussion. To call milk "dirty" if the number of bacteria exceeds 10,000 or 200,000, or what not, is to substitute rhetoric for scientific precision.

The second factor in producing high bacterial counts in milk is the time for which, and the temperature at which, the milk is held. There is no need to rehearse the numerous experiments that have been made showing the rapid rate of bacterial propagation at high temperature and the slackening produced in this rate by chilling. Milk at the start relatively poor in bacteria may, if not cooled, develop as many bacteria in a few hours as another lot kept at low temperature will in several days. Regardless of the time elapsing since collection, milk containing many bacteria is sometimes said to be stale, or if few, to be fresh.

The real question here of course concerns the effect of bacterial multiplication in milk and its sanitary bearing. If certain kinds of pathogenic bacteria enter milk at the time of, or soon after, collection, there is evidence that they multiply and so increase the chances of serious infection. Possibly this danger is somewhat lessened if they do not enter until after the multiplication of the ordinary milk bacteria has passed into the hundred thousands; but we possess little certain information on this point. Since in the great majority of cases pathogenic bacteria are not present or cannot be demonstrated, the problem more commonly discussed is whether the products of ordinary bacterial multiplication are in themselves harmful. In some instances the use of old milk has been thought to be connected with the production of acidosis in children who were not well nourished or who had suffered previously from gastro-intestinal disturbance.[5] It cannot be assumed offhand that all bacterial products are injurious; some may increase the palatability and possibly the digestibility of food substances. Milk intentionally seeded with *B. bulgaricus* has been used acceptably and in the experience of some physicians beneficially by invalids and persons in delicate health. It is yet uncertain whether the products of *B. coli* or other organisms present in the healthy mammalian alimentary tract are not highly beneficial if not essential to normal digestion. So far as the bacterial products in

3. Conn, H. W.: Reprint 295, Public Health Reports, Aug. 13, 1915.

4. Pease: Am. Jour. Pub. Health, 1916, **6**, 563.

5. Chapin, H. D., and Pease, M. C.: Acidosis of Gastro-Intestinal Origin, THE JOURNAL A. M. A., Nov. 4, 1916, p. 1351.

milk are concerned, we cannot be positive that a given sample of milk containing 200,000 or 2,000,000 bacteria as determined by the ordinary colony count and about which nothing else is known is any more or any less likely to produce injury than one containing only 10,000.

With respect to the living micro-organisms themselves the situation is much the same. It might be argued that if 200,000 bacteria per cubic centimeter are present, there is a greater likelihood that some of them are dangerous than if there are only 10,000; but that this is not conclusive is shown by the fact that the multiplication of saprophytes is held by some to be an obstacle to the growth or the continued existence of pathogens. Large numbers of milk bacteria, irrespective of kind, in themselves and without reference to their sanitary implications, have never been shown to be definitely injurious.

In brief, bacteria in market milk may owe their origin either to a diseased or healthy cow, a diseased or healthy human being, unsterile apparatus or utensils, or to multiplication — which may have been either rapid or slow — of an initially large or initially small number. It is obvious that the sanitary importance of these several sources is very different and that the ordinary colony count affords no means of distinguishing between them.

In consequence of the uncertainty often attaching to the interpretation of the colony count, numerous attempts have been made to find specific bacteria whose presence in milk would determine more definitely whether the milk was "bad" or "good." As is well known to workers in dairy bacteriology, these attempts have not been successful, and no organism has been found the relative abundance of which in milk is considered to throw light on the character and sanitary history of the milk in the way in which *B. coli* has proved useful in water examinations. The search for such organisms, however, has not been altogether abandoned.[6]

Evidently the most that can be claimed for the bacterial examination of milk is that it offers indications more or less precise of possibilities of danger. It cannot often enable us to declare positively that a particular lot of milk — I am speaking here of raw milk — is safe to use. A milk with a relatively low bacterial content has been known in more than one instance to give rise to epidemic infection, as in the extensive Boston outbreak of septic sore throat in 1911, when the responsible milk gave counts below 10,000 in fully half the samples examined throughout the months when the epidemic occurred.[7]

In general, the interpretation of results would be facilitated by a closer coordination between the laboratory work and the dairy inspection. High numbers — again let us say numbers above 200,000 — may perhaps arouse suspicion as to the general care taken in collecting and handling the milk; but the source of the suspected trouble and the degree of danger to the public health can be arrived at only by the aid of dairy inspection. On the other hand, inspection may uncover sources of danger of which the bacterial examination gives no hint. More important than either dairy inspection or bacterial examination as a means of preventing the dissemination of infection by milk is the control of the modes of procedure in the milk business. Particularly important as concerns the use of raw milk is the strictness of supervision exercised over the health of all employees. Prevention of the infection of milk from human sources should be always a primary aim. Yet such precautions are peculiarly difficult to carry out in practice. In how many certified dairies are all employees examined for the possible presence of typhoid carriers? And what safeguard have we that a healthy milker may not, one time or another, pick up a streptococcus or diphtheria bacillus from some unsuspected source and become a carrier over night? Such familiar apprehensions point to the importance of the procedure which thus far has proved more important in checking the spread of milk-borne disease than any other measure — the practice of pasteurization. Needing, as it does, to be controlled bacterially and otherwise at every point, it nevertheless constitutes at present our chief reliance in preventing the dissemination of infection by milk.

These considerations throw perhaps some light on the real value of bacterial examinations of milk. Such examinations must be regarded as primarily useful as guides to proper procedure in handling and distributing and not as furnishing absolute criteria of wholesomeness. Even if we are safe in condemning milks containing consistently over 200,000 or 2,000,000 bacteria, we cannot endorse all milk with less than 10,000 as surely free from all possibility of conveying infection. In point of fact, our interpretation of the significance of numbers varies with our knowledge of the conditions. That different constructions must be placed on the numbers of bacteria in raw and in pasteurized milk is universally recognized. The grading of milk in small communities is on a different footing from the grading in large cities. Other circumstances also are taken into account. The New York City board of health allows its Grade B milk to contain 1,500,000 before pasteurization in the city, but only 300,000 before pasteurization in the country. The excellent use that the New York board of health makes of bacterial counts in controlling the grading of milk is typical of the trend of opinion in this matter.[8] The numbers of bacteria in milk have little meaning unless the sanitary history of the milk is known; when this is the case, they often become useful in controlling procedures and detecting possible sources of danger; they can never be used as absolute and rigid standards for condemnation or approval; they are guides to investigation; they are not, taken alone, a basis for final judgment.

The situation with respect to the bacteriology of foods other than milk has not been so exhaustively studied and is, broadly speaking, of less sanitary importance. As is well known, the share of milk in the dissemination of infection far surpasses that of

6. Attempts have been made to establish standards for the numerical abundance of B. coli in foodstuffs similar to the standards proposed for drinking water. These have not met with general acceptance for the reason that the significant conditions are quite different, one important distinction being that multiplication of the initial seeding is usual in foodstuffs, and rare or altogether absent in most waters. No evidence seems to have been brought forward that the multiplication of B. coli in foods is any more likely to be accompanied by injurious consequences than, say, the multiplication of B. subtilis. In sausages and in presumably wholesome eggs, B. coli has been found in numbers far exceeding the admissible limit for drinking water. In the one case an abundance of this organism connotates a strong possibility of the presence of disease germs; in the other case, such a possibility is highly remote. Esthetic sensibilities are sometimes appealed to, and B. coli to the uttermost generation is held up to shame as being "always of fecal origin." Whether such a way of regarding the facts is justified or not, the following out of this reasoning chemically as well as bacteriologically would involve certain difficulties. The phobia of absolute bacterial cleanliness in the derivation of foods may be cultivated to the exclusion of more essential things. It is of little use to complain that B. coli is present in a palatable egg or sausage while we leave the preparation of the food in our clubs and restaurants to possible typhoid carriers and submit to the inhalation of droplets of saliva discharged by coughing neighbors in an assembly room or street car. B. coli in water is a sanitary index; its significance in foods is dubious.

7. Winslow: Jour. Infect. Dis., 1912, **10**, 73.

8. Brown, L. P.: Am. Jour. Pub. Health, 1916, **6**, 671.

all other foods, partly because of its origin, partly because of the extra hazards to which it is exposed during collection and delivery, and partly because it is consumed soon after entering the household and often without heating. Many other foods, however, are subject to occasional invasion by pathogenic and putrefactive bacteria, and their bacteriology is of growing importance.

The flesh of cattle and of swine, especially the latter, has frequently been implicated in outbreaks of food poisoning, and there can be no doubt of the importance of safeguarding the community against meat-borne infection. In many meat-poisoning outbreaks there is convincing evidence that the offending bacteria, for the most part of the *B. paratyphosus* and *B. enteritidis* groups, were derived from a diseased animal; but in other cases infection by a human carrier engaged in preparing or serving food cannot be excluded. Practically nothing is known as to the original source and habitat of such organisms as *Bacillus paratyphosus* B and *Bacillus paratyphosus* A, or of the reason for the relatively greater rarity in some parts of the world of the latter organism in human infections. The connection of the different types of paratyphoid bacilli with hog cholera and with other diseases of food animals is quite obscure.

If we ask what relation the number of bacteria in meat bears to its liability to convey disease, we are met by the same set of difficulties experienced in interpreting the colony count in milk. Small numbers of bacteria do not necessarily connote freedom from infectivity. Zweifel[9] and others have made numerous examinations of chopped meat without bringing forward any demonstration of a relation between numbers and wholesomeness. "Standards," however, have been suggested, that of 10,000,000 per gram for hamburger steak being one of the most recent. Whether such standards in the minds of those proposing them are based on some connection conceived to exist between numbers and liability to infectivity or on the hypothesis that the presence of a certain number of bacteria betokens the accumulation of an injurious amount of decomposition products is not always clear. If the latter, then it seems to be assumed that the products formed by bacteria in meat are less harmful than those formed in milk, since the permissible bacterial limit for the latter is usually set at a much lower figure. In the present state of our knowledge, any standard established on such a basis is so conjectural as to have little practical value. The uncertainty that prevails is illustrated also by the varying interpretation placed on the number of bacteria in sausage. A limit of 2,000,000 per gram has been proposed by V. d. Slooten,[10] but Savage[11] believes that little importance can be attached to the number of bacteria present, and his opinion is shared by Cary[12] as the result of a recent study of sausages in Chicago. *B. coli* is commonly present in sausage, often in numbers ranging from several hundred to several thousand per gram. In any given case it may be impossible to determine whether a high bacterial content is due to lack of cleanliness in production or to multiplication, in the absence of preservatives, of an initially small number.

Bacterial standards again have been proposed for shell oysters, but reliance on such standards alone would be misplaced. While no one can question that the bacterial examination of oysters has afforded information of considerable value, especially with reference to seasonal conditions, there are great difficulties in the way of condemning or approving oysters on the sole basis of bacterial enumeration. If along with palatability an exemplary source and sanitary purity are assumed, the actual bacterial content at the moment of consumption is relatively negligible. When the proper method of sanitary control over the oyster industry has been worked out with the aid of bacterial examinations, attention may be safely focused on the supervision of procedure rather than on bacterial findings.

The bacteriology of eggs has been studied by Rettger,[13] Hadley[14] and others, with the outcome that as a rule the whites of normal fresh eggs are found to be sterile, but the yolks often contain bacteria. Furthermore, it is said, so long as the shells are kept clean and dry, extensive bacterial invasion seldom occurs. The soiling and moistening of the shell under ordinary conditions leads to rapid decomposition. Standardization of the individual shell egg is not attempted except by the rough physical method of candling, and the practical application of bacterial methods is confined to the examination of frozen and dried eggs. The value of such examinations as a guide to the control of the commercial industry has been finely demonstrated by the work of Miss Pennington,[15] through which marked improvements have been brought about in the methods used in the egg-breaking houses. There has been a reluctance on the part of well informed workers to set up a definite bacterial standard for eggs. There is no doubt that eggs containing many bacteria often pass the candling test and are placed on the market. Some such eggs yield no evidence of decomposition to the senses and are used for food without question. In a general way the amount of ammoniacal nitrogen as determined by the Folin method corresponds with the number of bacteria, and both agree with the organoleptic indications. Relatively large numbers of bacteria, however, may be present without other signs of decomposition,[16] and in the opinion of many workers it will continue to be difficult, if not impossible, to establish any definite relationship between colony count and wholesomeness. Miss Pennington and her co-workers state that after a comprehensive examination of different types of market eggs, "the eggs constituting the samples of July and August firsts, seconds, dirties and checks would be used without compunction by the housewife, baker or confectioner," although the bacterial content of some of these eggs was over 1,000,000 per gram, including many colon bacilli.[17] This is in accord with general experience. Eggs, although highly perishable, do not appear to have been definitely implicated in the causation of illness nearly as frequently as some other foods. This fact has been thought to indicate that for one reason or another poisonous bacterial products as well as bacteria pathogenic for man are rarely present. Rettger[18] and his associates, however, have pointed out that eggs derived from fowls with ovarian infection which harbor *B. pullorum* in large numbers in the yolk may produce abnormal conditions when fed to young rabbits and some other animals. It is not known to what extent this organism and its products

9. Zweifel: Centralbl. f. Bakteriol., Part 1, 1911, **58**, orig., 115.
10. V. d. Slooten: Abstr., Centralbl. f. Bakteriol., Part 1, 1909, **43**, ref., 193.
11. Savage: Med. Press and Circ., 1908, n. s. **86**, 167.
12. Cary: Am. Jour. Pub. Health, 1916, **6**, 124.
13. Rettger: Centralbl. f. Bakteriol., Part 2, 1913, **39**, 611.
14. Hadley: Bull. 164, Rhode Island Agric. Exper. Station, 1916.
15. Pennington: Bull. 224, U. S. Dept. Agric., April 28, 1916.
16. Bull. 51, U. S. Dept. Agric., p. 73.
17. Bull. 51, U. S. Dept. Agric., p. 70.
18. Rettger: Jour. Exper. Med., 1916, **23**, 475.

are dangerous to man. Ovarian infection of fowls is said to be very common throughout the United States, and investigators of food-poisoning outbreaks will do well to bear this situation in mind. The danger, such as it is, is of recent development, since the wide distribution of the fowl infection has occurred only in the last few years. No recent increase in number of food-poisoning cases has been remarked. Whatever may be the possibility of specific infection with *B. pullorum,* a conservative tendency with regard to the creation of numerical bacterial standards is noticeable among workers in this field. The experienced observers of the U. S. Department of Agriculture content themselves with the statement that "canned eggs with the majority of samples having counts of less than 5,000,000 bacteria per gram, and with 100,000 *B. coli* or less can be prepared in the producing section from the regular breaking stock, provided strict cleanliness and careful grading have been observed."[19] The apparent admissibility of such high numbers of bacteria in a food substance would have been eyed askance by some sanitarians a few years back, and is today perplexing to many laymen. Water with a similar bacterial content would be looked on as next door to sewage. Perhaps no clearer demonstration could be afforded of the fact already insisted on that the significance of the bacterial examination of foodstuffs lies in its use as a guide to procedure, not in the disclosure of a specific danger.

Considered broadly, the present value of the bacteriologic examination of a food depends largely on the nature of the food and on the information that has been previously obtained regarding the conditions of production and distribution. Uncleanliness and carelessness in handling, and neglect of proper preservative methods lead as a rule to an increase in the number of bacteria. To the extent to which these factors favor opportunities for specific infection to that extent do numbers afford some indication of unwholesomeness. According to the available evidence, however, derivation of food material from an ailing animal or contact with a diseased human being is far more crucial from the sanitary point of view than simple uncleanliness. Mere enumeration of bacteria throws little light on the real possibilities of danger. Bacterial examination may be quite superfluous. When one sees a swarm of flies alighting indiscriminately on bread, meat, fruit and all kinds of organic matter, a bacterial examination is not necessary to demonstrate the undesirability of the condition.

With reference to the effects due to multiplication of bacteria in foodstuffs, more evidence is needed. The determinations of ammonia in egg products seem to indicate that any measurable degree of chemical decomposition is accompanied by a very large number of bacteria, much larger, for example, than the number ordinarily held permissible in milk. The Chinese preserved egg known as pidan shows a very large amount of ammoniacal nitrogen, and there is no doubt that marked decomposition of the egg protein has taken place.[20] This decomposed egg substance is eaten freely in China, and its common use is not known to be followed by any ill effects. In view of the apparent innocuousness of the bacterial products in some foods, such as cheese, butter and sour milk, which are consumed without being heated, it is perhaps hasty to assume that all indications of bacterial activity should be stigmatized as attesting the presence of "ptomains" or the "poisonous products of decomposition." On the other hand, it has never been demonstrated that the products of bacterial growth in protein foods may not be insidiously injurious. The truth is that a great many foods technically more or less decomposed by bacterial growth are habitually eaten without apparent harm. We simply do not know at what point the products of bacterial growth become hurtful, or even what effect is caused by the growth of specific kinds of bacteria. Are most of the products of bacterial growth in foods physiologically indifferent in the quantities in which they are ordinarily consumed, and when injurious products are present, are they due to rare accidental contamination, or do all bacteria growing in milk, meat or eggs generate noxious substances which can inflict damage on the human organism, albeit such danger is not immediately recognized? Such questions cannot be satisfactorily answered at the present time, and need but to be asked to make clear the limitations of our present knowledge and the necessity of further investigation.

On the practical side it seems desirable that recommended procedures, standards and the like should keep pace with our advance in knowledge, not outrun it. In the dairy industry great stress has often been laid on barn conditions, and dairy farmers in some parts of the country have been forced to expend large sums of money on the assumption that specified barn conditions are essential to the sanitary production of milk. It is somewhat disconcerting to find that the most recent dairy studies indicate that "the condition of the barn and its surroundings exert practically no influence" on the bacterial milk counts.[21] No surer method of undermining public confidence and generating a reaction against sanitary measures can be found than the enforcement of regulations that are shown in a few years to have been unjustifiable and that must be rescinded. Confidence in "experts" and in "science" itself is shaken, and it becomes more difficult to carry out measures on which we are all agreed. We are sometimes forced to act on the basis of what knowledge we have, although it is notoriously insufficient, but we can avoid being dogmatic and extreme. Our so-called standards are often nothing but working guides for the experienced bacteriologist, and but ill adapted for crystallization in official regulations, where enforcement rests in the hands of the technically uninformed.

Since the bacteriology of foods presents today many unsolved problems, both of fact and of interpretation, it is clear that further investigations in this field will be of practical service in protecting against food infection, in encouraging cleanliness and common sanitary decency, in preventing economic waste by decomposition and by the condemnation of wholesome food on technical grounds, and perhaps in safeguarding the public health against dangers not now realized.

19. Bull. 224, U. S. Dept. Agric., p. 21.
20. Jour. Biol. Chem., 1916, **28**, 125.
21. Harding: Am. Jour. Pub. Health, 1916, **6**, 562.

What it Costs to Educate a Physician at Columbia University.—Dr. Walter Mendelson, president of the Physicians and Surgeons Alumni Association, in his annual report, states that the total cost of each student's education in the medical department of the university is $3,000. Of this amount the student contributes only $1 to every $2 expended by the university. He estimates that the teaching staff contributes each year between $24,000 and $30,000 toward the maintenance and expenses of the medical department of the institution.

THE RELATION BETWEEN PEDIATRICS AND GENERAL MEDICINE*

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The evolution of pediatrics into the dignity of a specialty has been of comparatively recent date. It is still in process of development. Many obstacles have been encountered in the ascent of this important branch. Some questions are yet in process of settlement. The relation between pediatrics and general medicine, and the position the former is destined to occupy will be determined largely by societies and occasions such as this. It is not necessary to dwell on the great importance of pediatrics before any medical assemblage.

The general public, professional as well as lay, however, often seems slow in recognizing relative values in the different departments of medicine. The beginnings of life certainly constitute the most favorable period for studying all the phenomena of life — normal as well as abnormal. It is here that we make a distinction between a broad and a narrow specialty. The extreme specialist by the exclusive treatment of one organ or even of several correlated parts of the human body may relieve suffering and prolong life, but here his service ends. The pediatrician likewise relieves pain and conserves life, but his efforts serve not only the individual but, in a large sense, the race as well. This is where our labors broaden out and touch life in its widest relations. It is where our specialty differs from others and, we believe, should give it a place of overmastering importance. We are working in line with Nature's most insistent efforts — the conservation and improvement of the race. We must hence be careful not to narrow our outlook or confine too rigidly the scope of our work.

Pediatrics is simply the application of the study and practice of internal medicine to one part — and that the most important period of life. Here, as in other branches of medicine, we must avoid the danger of overspecializing. When pediatrics is treated as an extreme specialty, the tendency is to detach it too much from general internal medicine, and both thereby are apt to suffer.

We see this proneness especially exemplified in those specialties occupying a narrow field in which a high degree of technical skill is required but which tend to detach one's view from a broader outlook in medicine. Perhaps this danger is best exemplified in the case of dentistry. For many years most of the efforts of its workers have been carried out in perfecting exceedingly fine and difficult mechanical problems. They did not seem to grasp the widespread ramifications that are sometimes seen in connection with diseases of the teeth. A broader outlook now discovers that certain affections of the joints and other structures may have a very close connection with undrained abscesses at the roots.

This may seem to be an exaggerated example of the narrowing effects of extreme specialism, but it must be confessed that this tendency is seen in other directions as well. With such a broad specialty as pediatrics this danger may not be so great, but still it undoubtedly exists and must be guarded against. Perhaps it is best shown in the too common treatment of infant feeding. This is often detached from the great underlying problem of nutrition, and handled apart from the laws of biology and nutrition in general. Any period of life is a part of all life, and must not be too much detached from what precedes and follows.

It is thus a mistake to carry to extremes the specialization of any branch of medicine. While there may well be specialization in technic, it should ever be kept in mind that infants, children and adults are not different species, but merely different forms or stages of a single species. If there were sharp divisions between these forms of the same individual, it might be possible for one specialist to take hold where the other left off. But there are no such divisions. The life history of every individual consists of a gradual developing process that extends over a long period of years, a process in which the building up eventuates in reproduction and a later period of gradual disintegration.

In the earliest stages of life, building up is extremely rapid, and in the last stages disintegration is also rapid. Toward the crest of a life curve, movement in either direction is slow. Life processes are always continuous. The changes that take place during the life cycle are not basic but secondary, a gradual change in form being accompanied by a gradual change of function. The following quotation from Dr. Abraham Jacobi[1] puts this thought in a concrete manner:

> I am quite sure that the pediatrist cannot succeed in his practical work without being a close student of nosology in general, and on the other hand, that the internist, the general practitioner and physician does not, without being at the same time a pediatrist, reach a standard by which he may be of real use either at the individual bedside or as a sanitarian in the councils of the nation. The world is entitled to demand of every one of us a complete knowledge of and profound interest in the physical life both of the young and the old.

In the great problems of nutrition, the continuity of life in all its forms and periods stands out most prominently. Both before and after birth, it is the overmastering question, as nutrition means everything at the beginning of life. It concerns growth — which means creation as well as operation.

The chemical basis of life is the same at all stages of the life cycle. The same fundamental food materials are used by the embryo, the infant, the child, the adult and the aged. The form of the food materials may not be the same at all stages of life, for change in form of the food goes hand in hand in some instances with a change of form and structure in the individual. Milk is a striking example of this fact. Here is a liquid food which turns into a solid under the action of the stomach secretions, the degree of solidity keeping up with the capacity of the stomach to utilize food of increasing density. The casein of milk has a developmental as well as a nutritional function which has been brought out by a study of the biology of nutrition in connection with the various milks.

The essential unity of the nutrition problem stands out clearly when one sees the same form of food being utilized by every form of life from the single cell individual to man in the period of the infant, the adult and the aged, despite their difference in form, structure and method of performing vital functions. In the management of infants, nutrition is the most important factor, for the building up process depends on proper nutrition, and any serious mistakes here are apt to show lasting effects.

* Address delivered at Philadelphia, Dec. 12, 1916, at the twentieth anniversary meeting of the Philadelphia Pediatric Society.

1. Jacobi, Abraham: Introduction to Nascher's Geriatics.

The finest possible training for the general practitioner and specialist can be procured by paying full attention to the problems of infant care and nutrition. Here the physician must depend on his own powers of observation, for the infant cannot tell him anything. It is almost like a laboratory training.

The chemical processes of nutrition in the adult are the same as in the infant, and if they were better understood it would not be difficult for the same physician to manage this problem with either infant or adult. As long as the stress is laid on matters of form and technic in nutrition, so long will it be necessary to specialize in this direction. The remedy for this overspecialization is a more complete knowledge of the basic principles of general nutrition in connection with the changes of form and structure during development.

The study of disease at different eras of life is largely an investigation of the changed reactions of the body to the different infections as they occur during these periods. Thus by a change in the method of looking at diseases, the same physician might readily understand the diseases of both infants and adults. The maladies generally considered as peculiar to infants are due to the fact that the infant has not yet adapted itself to its environment. As it is attacked by one after another of the infectious diseases, it acquires an immunity which usually lasts through life. Consequently these diseases are not commonly encountered in adults.

The problem, then, might be studied under the subject of immunity and not necessarily under that of infancy. Anaphylactic shock is more often seen in early years while tolerances are being established. The recent interesting and valuable studies on acidosis and protein sensitization, and the recognition of food idiosyncrasies have been carried on with the young. We may add that immunity, if understood, is just as applicable to the adult as to children.

Some diseases, while not exclusively limited to early life, have such a preponderance at this time that the period of study and observation is largely limited to the time of growth. A rapid growth is always accompanied by instability. Pathologic development is often largely the end-product of an overstrained physiologic activity.

While the study of pediatrics in its broadest outlook reaches out into almost every field of endeavor, there are thus some phases that are peculiarly its own. It is often necessary to start with embryology and consider developmental defects and diseases of the fetus itself in order to understand fully conditions that may ensue after birth.

Of the three great critical periods of life — birth, adolescence and beginning old age — the first is the most important. Accidents at this time, especially the brief asphyxia intervening in the change from the placental to the systemic circulation, may cause a meningeal apoplexy that will handicap the individual through the whole of his human existence. Other accidents may occur at this time that may either have only a temporary effect or disastrously cripple the whole life. The great phenomenon of the first entrance into life must always be investigated and considered by one who would understand certain conditions that may later unfold themselves.

Diseases of the newly born and of the early years, infant feeding, the exanthems, diphtheria and pertussis come, of course, within the special sphere of the pediatrician.

Young protoplasm is highly irritable, and actively reacts to all stimuli; hence the predominant rôle played by infections of all kinds. Symptomatology of many diseases appearing also at later periods of life is often specially differentiated in the young. Pneumonia, pleurisy and empyema, appendicitis and tuberculosis may be mentioned in this connection. In the latter disease, as is well known, the lymph glands, bones, joints or peritoneum may bear the brunt of the infection instead of the lungs, as in the adult.

While tuberculosis is a disease of all ages, its ravages are peculiar and widespread at the beginning of life. Children contribute a large share of the awful record of one seventh of all the deaths in the world. In order to treat this disease successfully, early recognition, before much destruction of tissue has taken place, is imperative. Early diagnosis means a successful cure in a large proportion of cases. Humpbacked children from tuberculosis of the spine, and permanent lameness from hip joint disease are rapidly becoming misfortunes of the past. Not only the way in which the tubercle bacilli act in various tissues, but also the methods of their transmission are now known, owing to animal experimentation and the study of the disease in children. A knowledge of its possible spread by meat and milk has led to the careful inspection of carcasses and an improvement and cleaning up of the milk supply in large areas of country by medical commissions and municipalities.

The whole tuberculosis crusade, in which children are so largely the direct beneficiaries, cannot fail to have a benign effect in later life as well, as many now believe that most adult tuberculosis has had its beginnings from a focus of infection starting in the infant or young child. As a result of modern study and treatment, in a period of twenty years, the death rate from tuberculosis in New York was reduced approximately 40 per cent., and in Boston 45 per cent. Investigations showing that tuberculosis is not inherited have removed the hopelessness that naturally went with such a belief, as regards both the child and the adult. A knowledge that this dreaded disease is often both preventable and curable — at all ages — cannot fail to stimulate renewed and successful efforts for its final elimination.

It would take too long to recall the whole list of diseases that so well repay special study during the early years of life. Rickets, the commonest developmental disease of infancy, may be particularly mentioned as warranting future study. The susceptibility of infants to bacteria, owing to their active metabolism, is shown in many kinds of sepsis, and must always concern the practitioner.

The study and treatment of actual disease is not all that concerns the pediatrician. No branch of medicine opens out into such a wide field of prevention and sociologic investigation. Nowhere does medicine touch life in such a close connection as with the child. Permanent race betterment must be accomplished entirely through the young. Infant mortality is thus a grave and pressing problem for the pediatrician. Much has already been accomplished along this line by correcting faulty diet and hygiene; but much more remains to be done. It is interesting to note that it has been the success in saving infant and child life that has led to the average prolongation of life in recent years. While largely through the efforts of individual physicians and pediatric societies the expectation of life has been increased for infancy, childhood and early adult life,

the same is unfortunately not true of middle age and later life. Many factors have entered into the accomplishment of infant preservation, but the credit belongs largely to pediatricians.

When we consider the estimation that 40 per cent. of the deaths occurring during the first year take place during the first month, and that one baby in five dies before reaching the age of 1 year, we see what a field of improvement opens out at the very beginning of life. As 88 per cent. of babies that die before the end of the first year have been bottle fed, we can see why even the ablest feeders among the pediatricians have been preaching the conservation of breast feeding.

These and other problems as to the hygienic care of infants and little children have been much aided by the establishment of child welfare organizations and milk stations in the poor and congested parts of our great cities. The same agencies are much needed in the sparsely settled regions of the country, where poverty and ignorance are just as disastrous in their effects as in the cities. It is a significant fact that in recent years the death rate of New York City has been lower than the general death rate of the state. This is due largely to the extra care given to the saving of infant life, and the city is usually ahead of the country in this respect in spite of the obstacles arising from overcrowding.

In later years, school hygiene should be regulated more by the pediatrician than by the politician. Too long sessions, cramped positions from improper chairs and desks, imperfect ventilation, poor lights and a bewildering variety of studies are all too frequently present and handicap the child during the school age. Not only health departments but school boards and even legislatures should include competent physicians in their membership. The pediatrician is needed to instruct the pedagogue in some fundamentals of child nature and growth. The latter might not fail so frequently if he had the benefit of such instruction.

Many other questions, such as the great abuse of competitive athletic contests in our schools and colleges, should be decided by educated physicians rather than by professional athletes. The various problems connected with institutional life — where children are sometimes exploited — all await a rational solution. Child labor and the working of pregnant women must concern those who are looking to the future of the race. Finally, it may here be of interest to put on record the fact that hospital social service in this country owed its first conception and successful operation to the children's division of a general hospital.[2]

One of the great services that pediatrics may render to medicine is in the field of original research. It offers today the most promising field for advanced work in scientific and experimental medicine. Fully to occupy this field, however, its followers must apply the broad methods of science at large to the solution of its problems. The best period for advanced study of disease is during the rapid evolution of the organism. The principal portals of the body are then open to infection, and the various tissues quickly react. As an example, the lymph vessels in the nasal and pharyngeal mucous membranes by their size and number quickly take up the germs that so readily attack the nerve centers and other parts of the body. No wonder that poliencephalitis, poliomyelitis, and meningococcus and tuberculous meningitis are so frequent when their active germs are abroad. Their future conquest may consist not only in a study of the life history and action of these germs but also in guarding the gateways more carefully.

We may recall in this connection that the greatest modern triumph of medical therapeutics — diphtheria antitoxin — followed the discovery of the germ and its effects as seen and studied in children. Antimeningococcus serum may now be added to the list, and future remedies will doubtless follow in other diseases from the combined researches of the pediatrician and the laboratory student. The workers in the various fields of medicine must combine and collaborate more in their efforts.

This will obviate the tendency to extreme differentiation that has detached too much the part from the whole. Partly owing to this, the various specialties have been accepted without much appreciation of their relative values. Those of fundamental importance are grouped with others having only local forms that minister to comfort and utility. It is thus right to make a sharp distinction between a major and a minor specialty. Of the former, pediatrics should take the highest place, as it deals with the formative period of life and consequently renders the most lasting service to the race.

In order to start right in this regard, medicine, as distinguished from surgery, should be handled in our universities in three great divisions: (1) pediatrics; (2) internal medicine as applied to adults, and (3) diseases of the nervous system. The threefold plan will start with the study of disease as manifested in the opening years of life, will next continue an investigation of the character of disease as seen in riper years, and finally study the great degenerations that are largely brought about by defective action of the nervous system induced principally by faulty and failing metabolism.

The minor specialties should occupy a very subsidiary space in the curriculum.

All the specialties require a thorough grounding in the underlying principles of scientific medicine. The old idea that work in any specialty should be preceded by wide experience in general medicine still holds. The quick step from the medical college to a specialty, without this previous experience, has proved disastrous. It has produced a group of skilled medical mechanics rather than broad minded physicians who can work in a specialty without detaching it too much from all relations to general medicine. Pediatrics should be one of the broadest of the specialties — it has been aptly described as the specialty of the general practitioner.

The twentieth anniversary of the founding of the Philadelphia Pediatric Society is one of the occasions that should mark an epoch in the advance of this branch of medicine. It is the glory of our profession that each medical generation hands on the torch of knowledge from age to age always with a brighter and steadier flame to illumine the dark places of ignorance and suffering. It is for the healing of the nations.

We believe that this society will make its fair contribution to the ever widening knowledge of the hidden things of life. You have the inspiration of living in this old time cradle of true Americanism and liberty. May your contributions be commensurate with your privilege. We believe in you. We look to you in the future as in the past to uphold the best traditions of our guild. We shall take pride in your achievements and shall, above all, believe that you have the will to

2. The Children's Division of the New York Post-Graduate Hospital, 1890; Forum, March, 1894; Arch. Pediat., April, 1905.

labor and achieve. May you translate vision into action and thought into deed. You can, at least, heed those familiar and inspiring lines from Addison's "Cato":

'Tis not in mortals to command success;
But we'll do more, Sempronius—we'll deserve it.

AUSCULTATORY BLOOD PRESSURE DETERMINATION

A SOURCE OF POSSIBLE ERROR *

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We desire to call attention to a phenomenon which we have noted in the course of routine blood pressure determinations by the auscultatory method. It has doubtless been observed by others, but so far as we know there is no mention of it in the literature.

It will be recalled that Korotkoff, in first describing the auscultatory method of blood pressure determinations, called attention to the fact that in lowering the pressure in the cuff from above the systolic pressure down to zero a succession of sounds was heard over the artery below the cuff. The initial sound, first audible when the cuff pressure corresponded to the systolic pressure, was of a sharp, tapping character, which, as the pressure in the cuff continued to fall, changed into a loud hum; then, still later, into a tapping sound again and finally into silence. Later observers divided this return of the tapping sound, or "third phase," into two distinct parts, a longer portion corresponding to a sharp tapping, and a shorter portion in which the sharp sound becomes suddenly soft and muffled. In a former article we offered proof of the fact that the incidence of this muffled sound or "fourth phase" marks the diastolic pressure.

Our present observation has to do with the humming or roaring sound of the second phase. In a certain number of cases of hypertension, which we estimate roughly at 5 per cent., the humming sound of the second phase is very feeble or may be replaced by a period of complete silence, so that most careful concentration on the part of the observer may fail to detect any sound. The sharp tap of the third phase sets in rather suddenly and, as the cuff pressure continues to fall, the third and fourth phases follow the usual course.

We believe that the occasional variation is of considerable practical importance, and that the unwary observer may be led into distinct error by disregarding the possibility of its occurrence. The usual technic of obtaining the systolic pressure, by the auscultatory method, is, after properly adjusting the cuff and placing the stethoscope in position, to raise the pressure quickly in the cuff, giving passing attention to the tapping sounds that are produced as the pressure ascends above the diastolic, and to stop the inflation as soon as the tapping is no longer noticed. Now in those cases in which the second phase is marked by complete silence, the inflation is very likely to be stopped at this point, the pressure being then gradually lowered and the beginning of the third phase incorrectly noted as the systolic pressure. When the blood pressure is very high, this source of error may lead the observer to recognize only a moderate hypertension. In cases of moderate hypertension, on the other hand, this point will correspond approximately to normal systolic pressure, and the error may not be suspected unless a somewhat high point for diastolic pressure puts the observer on his guard.

The means of avoiding this pitfall is plain. We always make a preliminary, approximate estimate of the systolic pressure by the palpatory method, and subsequently a more accurate determination by auscultation, being careful to raise the pressure above the point of systolic pressure as perceived by the palpating finger. In this way an error, which would often amount to as much as 50 mm. of mercury, may with certainty be avoided.

We are in doubt as to the explanation of this anomalous second phase. Its occurrence is certainly not dependent on the absolute height of the systolic pressure, but may bear some relation to the thickness of the arterial wall. In general, the more rapidly the entire estimation is made, the less apt one is to meet this period of silence. If the pressure in the cuff is raised to a point above the systolic pressure and then slowly lowered, the second phase will be replaced by a period of silence more frequently and more completely if the observer lingers about the point of systolic pressure, in an attempt to estimate the latter accurately, than if the cuff pressure is allowed to drop steadily and somewhat rapidly.

Erlanger recently suggested the following explanation of this phenomenon:

It is possible to arrange a compression chamber and stethoscope on the isolated femoral artery of the dog so that the Korotkoff sounds can be followed just as in blood pressure observations in man. If with this arrangement the artery below the stethoscope be temporarily occluded while the compressing pressure is held stationary at a level at which the sounds are in the first or second phases, it is found that the sounds became fainter and often disappear.[1] Experiments, the reports of which have not yet been published, indicate that this disappearance of sound is due to the forcing open of the lower end of the compressed artery by the blood which accumulates in the blind end. The sounds do not disappear when the artery is occluded while the third or fourth phase sounds are in evidence.

If it is permissible to assume that the hypertension in those cases in which this phenomenon is observed is the result of a high peripheral resistance, the conditions which determine the disappearance of sound in the dog would be supplied in man. During decompression, the sounds of the first phase would disappear as usual; but during the second phase, when the volume flow of blood into the lower artery becomes fairly rapid, the pressure there, owing to the high peripheral resistance, might mount to such a height as to open up the lower part of the artery within the compression chamber. The sounds might then disappear. They would reappear only when the more intense sounds of the third phase developed. This explanation finds considerable support in the fact that in these cases the period of silence is less apt to occur when the decompression is rapid than when it is slow; for it is obvious that slow decompression would favor engorgement of the peripheral artery.

* From the Department of Internal Medicine, Washington University Medical School.

1. Erlanger, Joseph: Am. Jour. Physiol., 1916, **40**, 113.

DIPHTHERIA IN A SCHOOL FOR THE DEAF AND DUMB

REPORT OF AN OUTBREAK

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Nov. 8, 1916, I was requested by the state board of health to go to Delavan, Wis., to determine what was necessary to be done in connection with a number of cases of diphtheria which had occurred in the School for the Deaf and Dumb, located there.

I found on investigation that, since the opening of school, there had been an unusual number of cases of sore throat among the pupils, but not being severe, they were all diagnosed as tonsillitis, with the exception of seven, which were in special quarantine, and under treatment for diphtheria.

In the institution there were 200 pupils, varying in age from 3 to 20 years, and fifty others, teachers and help, who either lived in the institution or came back and forth from the town daily.

The place was immediately quarantined. Schick's test, together with nose and throat cultures, was decided on. The plan was to immunize with antitoxin all who gave a positive Schick test and to isolate all who gave a positive culture to diphtheria bacilli, in either the nose or throat, until two successive cultures, taken three days apart, were negative.

RESULTS OF TESTS *

Case No.	Throat Culture		Nose Culture		Schick Test
	Diagnosis	Release	Diagnosis	Release	
57038	—	—	+	—	—
57082	+	+	—	+	+
57116	—	—	+	—	—
57136	+	—	+	+	+
57147	+	—	+	—	—
57240	+	—	+	+	—
57300	—	+	+	C	+
57302	+	—	+	—	+
57338	+	+	+	—	—
57396	+	+	+	+	+
57423	—	+	+	+	+
58712	+	+	+	+	—
57020	+	—	+	—	—
58082	+	+	—	+	—
57616	+	—	+	—	+
57286	—	—	+	—	—
57978	+	+	+	+	—
57976	—	—	+	+	—
57312	+	—	+	—	—

* In this table, + = positive; — = negative; C = contaminated.

Accordingly, 250 tests were made, and a nose and throat culture taken from each person. Of this number, 151 gave a positive reaction to Schick's test, and were, therefore, given an immunizing dose of antitoxin, while nineteen gave a positive culture for diphtheria bacilli and were isolated.

After the immunization of the nonimmunes and the isolation of those giving positive cultures, no other cases of diphtheria developed.

It has been interesting to note the relation of the nose and throat with reference to the results of the cultures, positive or negative, and to see how those giving positive cultures to diphtheria bacilli reacted to Schick's test. The accompanying table shows these results.

Of those patients giving a positive culture to diphtheria bacilli, only thirteen showed the organism in the throat, while in seventeen cases bacilli were found in the nose at the time of diagnosis; in two cases, the throat culture became negative before that of the nose.

It will be seen further that, of those who gave positive cultures, seven gave a positive and twelve a negative Schick test, thus indicating that the seven without an immunizing dose of antitoxin would soon have come down with diphtheria, and that the twelve, while being immune themselves, could pass the disease on to others.

THE PROVOCATION OF THE LUETIN TEST IN NONSYPHILITIC PATIENTS *

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AND

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CLEVELAND

An exact cutaneous test for syphilis is greatly desired by syphilologists. From a practical diagnostic standpoint, an easy, exact and cheap cutaneous test for syphilis is a thing much to be hoped for.

As early as 1909, Charlet, Gautier, Favre and Nicholas had experimented with congenital syphilitic liver extract, which they termed "syphilin," and like experiments had been tried in Neisser's and Jadassohn's clinics and in several others. Fischer and Klausner, with the same idea, had also worked with "pallidin," a suspension made from pneumonia alba (the lungs of congenital syphilitics rich in *Spirochaeta pallida*).

Noguchi's report on his luetin reaction was received, therefore, with satisfaction, and the test is used quite extensively in this country and more or less abroad.

In attempting to explain its mechanism, Neisser noted that the skin of patients with late syphilis reacted not only to the luetin test but also with many other foreign bodies. On their being injected intradermally, there was a reaction much like the luetin test which Neisser termed an *Umstimmung* of their skin. Boas and Ditlevsen[2] have reported that they were able to produce the luetin reaction with gonococcal and colon bacillus suspensions in late syphilis without a gonorrheal infection or gastro-intestinal symptoms being present. They also found that with the "luetin control," which contains the culture mediums of agar-agar and ascitic fluid but no *Spirochaeta pallida,* in a series of tertiary and hereditary syphilitics, they were able to obtain nearly as many positive reactions as had been found with the luetin itself, and of almost the same intensity.

This *Umstimmung* of the skin of patients with old syphilis is not enough in itself to discredit the luetin reaction as a practical therapeutic test; but it might be found that these patients would react to some cheap substance in a way which would be of great help in diagnosis and guidance in treatment, especially if normal persons did not so react. This, however, is the especial criticism that we wish to raise. In the first place, Boas and Stürüp,[3] in 1914, working with an extract of chancroidal bubo, found that they were able to achieve Klausner's results with pallidin. Secondly, a number of workers, including ourselves, have

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* This investigation was undertaken at the suggestion of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

1. Noguchi, Hideyo: Jour. Exper. Med., 1911, **14**, 557.
2. Boas and Ditlevsen: Arch. f. Dermat. u. Syph., 1913, **116**, 852.
3. Boas and Stürüp: Arch. f. Dermat. u. Syph., 1914, **120**, 730.

noted an occasional positive reaction in a normal person. Two delayed pustular reactions produced by Noguchi's original luetin in medical students are shown in the accompanying illustrations. These men had repeated negative Wassermann reactions with absolutely negative histories and physical findings. Thirdly, Sherrick[4] has reported that an involuting luetin reaction can be revived by the use internally of

4. Sherrick, J. W.: The Effect of Potassium Iodid on the Luetin Reaction, THE JOURNAL A. M. A., July 31, 1915, p. 404.

AMOUNT OF DOSAGE AND DURATION OF ADMINISTRATION*

Case	Diagnosis	Control Test before Drug Was Given		Drug Administered	Daily Dose, Gr.	Total Dose, Gr.	Time During Which Drug Was Administered	Luetin Injection	24 Hrs.	48 Hrs.	72 Hrs.	4 Days	Normal Saline Control	Wassermann on Blood	Spinal Fluid	History of Syphilis
		Luetin	Normal Saline													
1. Me.G.	Typhoid fever	0	0	KI	15	75	10/11 to 10/15	10/14	papule +	papule +	0	0	0	0	...	0
2. A. P.	Typhoid fever	0	0	KI	15	75	10/16 to 10/20	10/21	papule +	papule +	0	0	0	0	...	0
3. H. J.	Lobar pneumonia	0	0	KI	45	180	10/11 to 10/14	10/14	papule ++	papule ++	pustule ++	pustule ++	0	0	...	0
4 R. P.	Dermatitis	0	0	KI	60	240	8/ 8 to 8/11	8/11	0	0	0	0	0	0	...	0
5. M. L.	Neurasthenia	0	0	KI	48	240	9/20 to 9/24	9/24	papule +	papule ++	pustule ++	pustule +++	0	0	...	0
6. B.	Dermatitis	0	0	KI	48	240	10/ 6 to 10/10	10/11	papule ++	papule ++	.....	.....	0	0	...	0
7 I. B.	Rheumatism	0	0	KI	48	240	10/ 6 to 10/10	10/11	papule ++	papule ++	.....	.....	0	0	...	0
8. M. G.	Neurasthenia	0	0	KI	48	240	10/11 to 10/15	10/14	papule +	pustule +	pustule ++	pustule +++	0	0	...	0
9. C. D.	Endocarditis†	0	0	KI	15	300	9/ 1 to 9/20	9/17	papule +	papule ++	pustule +++	pustule +++	0	0	...	0
10. M. G.	Rheumatism	0	0	KI	51	360	9/20 to 9/26	9/24	papule +	pustule ++	pustule +++	pustule +++	0	0	...	0
11. G. B.	Acute bronchitis	0	0	KI	51	300	9/20 to 9/26	9/24	papule +	pustule +++	pustule +++	pustule +++	0	0	...	0
12. P. B.	Multiple sclerosis	0	0	KI	50	600	8/18 to 8/29	8/26	pustule +	pustule ++	pustule +++	pustule +++	0	0	0	0
13. J. F.	Hanot's cirrhosis	0	0	KI	50	600	8/18 to 8/29	8/26	papule +	pustule ++	pustule ++	pustule ++	0	0	...	0
14. F. G.	Depressed fracture	0	0	KI	50	600	8/18 to 8/29	8/26	papule +	pustule ++	pustule ++	pustule ++	0	0	0	0
15. E. M.	Chronic arthritis	0	0	KI	50	600	8/12 to 8/23	8/22	0	0	0	0	0	0	...	0
16. D.	Tuberculous kidney	0	0	KI	55	720	9/14 to 9/26	9/24	papule +	papule +	pustule +++	pustule ++	0	0	...	0
17. V. B.	Typhoid fever	0	0	NaBr	120	360	10/11 to 10/13	10/14	papule +	0	0	0	0	0	...	0
18. M. S.	Rheumatic fever	0	0	NaBr	120	480	10/12 to 10/15	10/14	papule +	0	0	0	0	0	...	0
19. R.	Neurasthenia	0	0	NaBr	120	720	10/17 to 10/22	10/21	papule +	papule +	0	0	0	0	...	0
20. F. K.	Influenza	0	0	KNO_3	72	360	11/ 5 to 11/ 9	11/ 7	papule +	papule +	0	0	0	0	...	0
21. F. R.	Endocarditis	0	0	KNO_3	100	700	11/ 9 to 11/15	11/13	0	0	0	0	0	0	...	0
22. B.	Acute articular rheumatism	0	0	KNO_3	100	800	11/17 to 11/24	11/22	papule +	0	0	0	0	0	...	0
23. H. J.	Lobar pneumonia	0	0	KNO_3	120	840	11/13 to 11/19	11/17	papule +	papule +	pustule +	0	0	0	...	0
24 J. H.	Chronic endocarditis	0	0	KNO_3	80	800	12/12 to 12/21	12/20	papule +	papule +	pustule ++	pustule ++	0	0	...	0
25. St.	Lobar pneumonia	0	0	KNO_3	120	960	12/ 4 to 12/11	12/ 9	0	0	0	0	0	0	...	0
26. S. B.	Rheumatic fever	0	0	KNO_3	120	960	12/ 4 to 12/11	12/ 9	papule +	papule +	0	0	0	0	...	0
27. W. J.	Lobar pneumonia	0	0	KNO_3	80	1120	12/ 8 to 12/21	12/19	papule +	pustule +	pustule +	0	0	0	...	0
28. J. B.	Pediculosis	0	0	KBr	100	500	11/ 2 to 11/ 6	11/ 5	papule +	0	0	...	0	0	...	0
29. F. T.	Asthma	0	0	KBr	100	500	11/ 2 to 11/ 6	11/ 5	papule +	0	0	0	0	0	...	0
30. W.	Pulmonary tuberculosis	0	0	KBr	100	600	11/ 6 to 11/11	11/ 9	papule +	0	0	0	0	0	...	0
31. A. P.	Typhoid fever	0	0	KBr	100	700	11/13 to 11/19	11/17	papule +	0	0	0	0	0	...	0
32. P.	Lobar pneumonia	0	0	KBr	120	960	12/ 4 to 12/11	12/ 9	papule +	0	0	0	0	0	...	0
33 G. V.	Cirrhosis of liver	0	0	KBr	120	960	12/ 4 to 12/11	12/ 9	papule +	0	0	0	0	0	...	0
34. J. K.	Lobar pneumonia	0	0	KBr	120	960	11/27 to 12/ 4	12/ 2	papule +	0	0	0	0	0	...	0
35. J. K.	Lobar pneumonia	0	0	KBr	100	1000	11/ 6 to 11/15	11/13	papule +	papule +	papule +	0	0	0	...	0
36. M.	Chronic endocarditis	0	0	CaBr	100	600	10/17 to 10/22	10/21	papule ++	papule ++	papule +	0	0	0	...	0
37. J. H.	Lobar pneumonia	0	0	NaI	28	280	12/12 to 12/21	12/20	papule ++	papule ++	pustule ++	pustule ++	0	0	...	0
38. A. W.	Cerebellar cyst‡	...	...	None	...	...	.....	9/26	papule ++	papule ++	pustule ++	pustule ++	0	0	...	0
39. G. P.	Typhoid fever	...	...	None	...	...	.....	10/15	papule +	pustule ++	pustule ++	pustule ++	0	0	0	0

* In this table:
+ = positive
++ = strongly positive
+++ = very strongly positive
+ for 24 hrs. = faintly positive reaction
+ for 48 hrs. or more = positive reaction
0 = negative
† Necropsy revealed no signs of syphilis.
‡ Cyst found at operation, nonsyphilitic.

		Pos.	Ft. Pos.	Neg.
Number on potassium iodid	16	14		2
Number on sodium bromid	3	1	2	
Number on potassium nitrate	8	5	1	2
Number on potassium bromid	8	1	7	
Number on calcium bromid	1	1		
Number on sodium iodid	1	1		
Number without drugs	2	2		
Total	39	25	10	4

potassium iodid, or that intradermal injections of a 0.5 per cent. suspension of agar gives rise to a reaction indistinguishable from the luetin test after administration of potassium iodid. Moreover, a nonsyphilitic person taking potassium iodid or having taken it some time before, up to a space of three weeks in his experience, generally responds with a positive test to the luetin reaction. This work has been substantiated by Kolmer, Matsunami and Broadwell[5] and others. In addition, Stokes[6] has found that many normal persons react to intradermal injections of emulsions of normal and pathologic skin, agar-agar and bismuth subnitrate. The purpose of our investigation was to determine especially whether the provocation of the luetin reaction in nonsyphilitic persons is specific for potassium iodid, or whether other substances may have a similar action. This is a matter of some interest from a diagnostic standpoint, for evidently the presence of all provocative substances should be excluded when a diagnostic luetin test is to be made.



Fig. 1.—Delayed pustular reaction in normal medical student; control not visible.

Dr. Sollmann also suggested that the knowledge of the iodid-luetin and related reactions may contribute to the understanding of the mechanism of the iodid action in syphilis and iodism.

Incidentally, we also gathered information as to the frequency of the occurrence of the luetion reaction in normal persons controlled by the Wassermann test, and on the influence of the dosage of the iodid.

Our first work was done with potassium iodid, the usual technic being to make a luetin[7] and Wassermann test, and if negative, to give the patients the drug in 10 or 15 grain doses and upward, three times a day after meals from three to five days or a week, and then apply the luetin test. The accompanying table shows the doses used and the duration of their administrations.

Out of eighteen such cases, fourteen reacted with strongly positive, papular and pustular reactions; two of them were negative, and the other two gave strongly positive reactions to the control test. One of these was a case of a cerebellar cyst with a negative lumbar puncture which afterward came to operation and showed absolutely no signs of syphilis. The other case was one of typhoid with no history or evidence of syphilis and with a negative Wassermann test.

We have, therefore, substantiated the work of Sherrick, Kolmer and others, that (1) some nonsyphilitics respond to luetin spontaneously, and (2) in those nonsyphilitics who do not respond spontaneously, the reaction can generally be provoked by iodids.

Our next problem was to determine whether or not other drugs could provoke the reaction and positive results be attained with bromids and nitrates, which are closely related to the iodids.

Of eight patients on potassium nitrate, five gave strongly positive reactions, one faintly positive, and two negative. With potassium bromid, there was one strongly positive reaction and seven weakly positive out of eight patients tested. We did not try the sulphocyanid ion because of its toxic qualities.

We thought we would try the drug, using another positive ion instead of potassium in the form of the iodids and bromids. The one patient put on sodium iodid gave a strongly positive reaction; the same was also true of one patient on calcium bromid. Out of three patients put on sodium bromid, one had a strongly positive reaction and two weakly positive.

SUMMARY

Out of thirty-nine cases tested by the luetin reaction, two normal persons gave pustular reactions to the control test. Among eighteen taking potassium iodid, sixteen gave positive reactions, these being most strongly positive in those patients who had received from 200 to 600 grains.

This action is found not to be specific for potassium iodid alone, as it was caused, though in a lesser degree, by sodium bromid in three cases tested, by potassium nitrate in six out of eight cases tested, and by calcium bromid and by sodium iodid each in one case tested.

In a future communication we expect to publish the results of our experiments with organic iodin compounds. Perhaps then we shall be in a better position to draw some conclusions as to the action of iodin and as to the syndrome known as iodism.

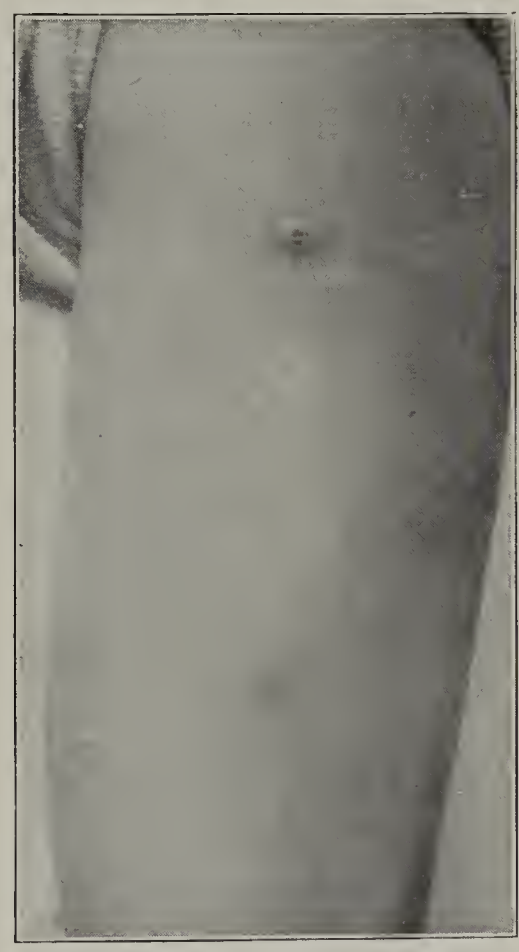


Fig. 2.—Delayed pustular reactions in normal medical student; control not visible.

2073 East Ninth Street.

5. Kolmer, J. A.; Matsunami, Toitsu, and Broadwell, Stuart: The Effect of Potassium Iodid on the Luetin Reaction, THE JOURNAL A. M. A., Sept. 2, 1916, p. 718.

6. Stokes, J. H.: Jour. Infect. Dis., 1916, **18**, 402, 415. We are indebted to Stokes' careful articles for a portion of the historical material on the luetin reaction already quoted.

7. The luetin used in this investigation was kindly furnished by the H. K. Mulford Company.

Early Psychology.—To laugh, if but for an instant only, has never been granted to man before the fortieth day from his birth, and then it is looked on as a miracle of precocity.—Pliny the Elder, "Natural History."

A "LUETIN" REACTION IN SYPHILIS PRODUCED BY AGAR

WITH A BRIEF CONSIDERATION OF ITS MECHANISM *

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ROCHESTER, MINN.

The enthusiasm with which cutaneous tests for diagnostic purposes have been incorporated into clinical practice is a striking tribute to the uncritical frame of mind in which we are prone to receive what promises to present the golden combination of simplicity and usefulness. Few better illustrations of this ready acceptance of the plausible as gospel could be found than the reception accorded the luetin reaction.

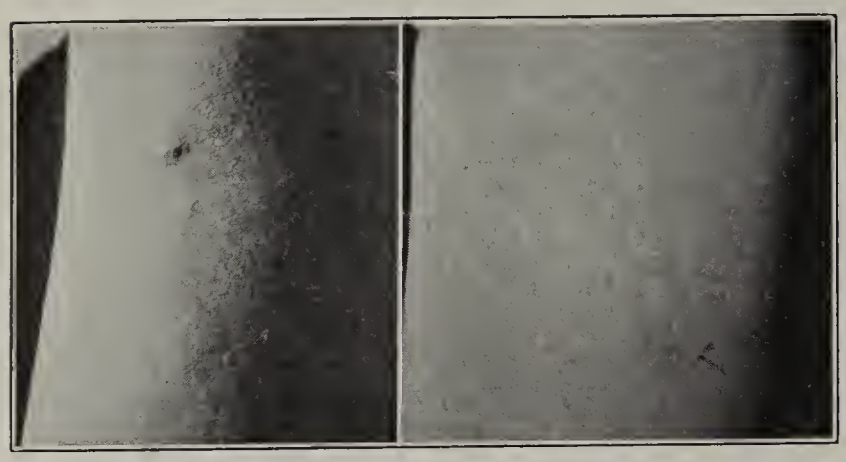


Fig. 1.—The positive (left) and negative (right) reactions to agar on the fourth day after injection of 0.1 c.c. of a 0.7 per cent. suspension. Both patients (women) had syphilitic periostitis and total inhibition Wassermann tests. The oil controls (indicated by the arrows) are negative.

Before Sherrick[1] noted the effect of iodids on the reaction, the literature was flooded with favorable, but now almost worthless reports, from a large percentage of which it is impossible to determine what controls were used and in which controls were even admittedly dispensed with. Here and there more critical observers called attention to the uncertainties of the reaction, and to the behavior of some of the control suspensions distributed with authentic Noguchi preparations of luetin. My own interest in the specificity of the reaction and its possible mechanism was first aroused by the production of a very convincing luetin reaction in a case of late syphilis in which I was studying the sensitization phenomena of psoriasis by means of intradermal injection of an emulsion made from normal skin. Following this I discovered to my surprise that as the apparent result of a series of injections of homologous protein emulsions made from our own skins, my skin and that of my assistant reacted to a typical colloid (agar) in a way clinically identical with the tardive luetin reaction.[2] This sensitivity apparently diminished slowly after the experiments were discontinued. Having in the meanwhile developed a theory of the mechanism of such reactions based on the newer physicochemical conceptions of anaphylactic phenomena, founded on the work of Bordet, Mutermilch and Kopaczewski, Keyser and Wassermann, Jobling and Petersen, Novy and DeKruif and others, I undertook to see whether a typical colloid suspension, whose properties as an anaphylatoxin-former were well understood, would give rise to reactions like the luetin reaction, in states of dermal hypersensitivity such as we know to exist in a certain percentage of syphilitics. The purpose of this paper is to report the success of the attempt based on these theoretical considerations, the fuller consideration of the significance of the result being deferred for a future paper. Sherrick[1] and Kolmer[3] have both noted that a reaction occurred under potassium iodid, but neither has observed its reaction when potassium iodid has not been administered, possibly because of its slow development, which sometimes calls for a period of observation of not less than fourteen days fully to identify a positive reaction.

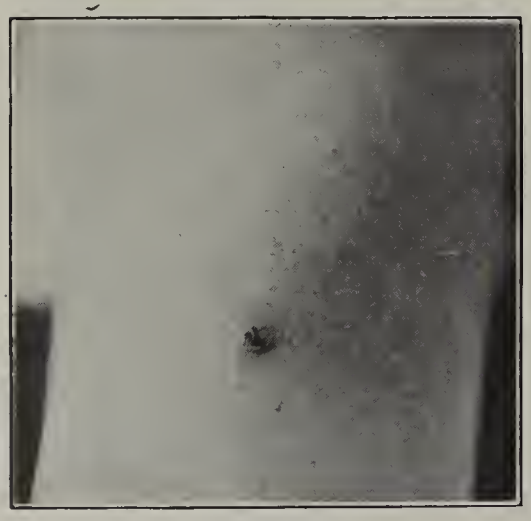


Fig. 2.—The positive shown in Figure 1 (left), on the eighth day. Hemorrhagic pustule.

Agar presents the striking advantage over many of the bacterial protein suspensions, toxins, etc., used for intradermal tests, that its behavior in vitro and in vivo has been fairly well worked out in the development of newer immunologic conceptions. It has been shown with reasonable definiteness that as a colloidal suspension it is able, by an absorptive action, to render homologous serums, which are supposedly nontoxic, extremely toxic, and that this effect is related to the colloidal properties of blood serum. This generation of anaphylatoxin by agar, its ability to disturb colloidal equilibrium along certain constant lines without itself being broken up or subjected to chemical change, makes it a very favorable medium for the study of the colloidal equilibrium of tissues in normal and disease conditions. The ability to show that agar in proper concentration, intradermally injected, gives rise, in states of dermal hypersusceptibility, to inflammatory reactions clinically similar to the luetin reaction, suggests that the mechanism of luetin is at least in part physical and not chemical. Moreover, it is possible that the hypersensitiveness which permits of such a reaction is also a physical state, the peculiarities and

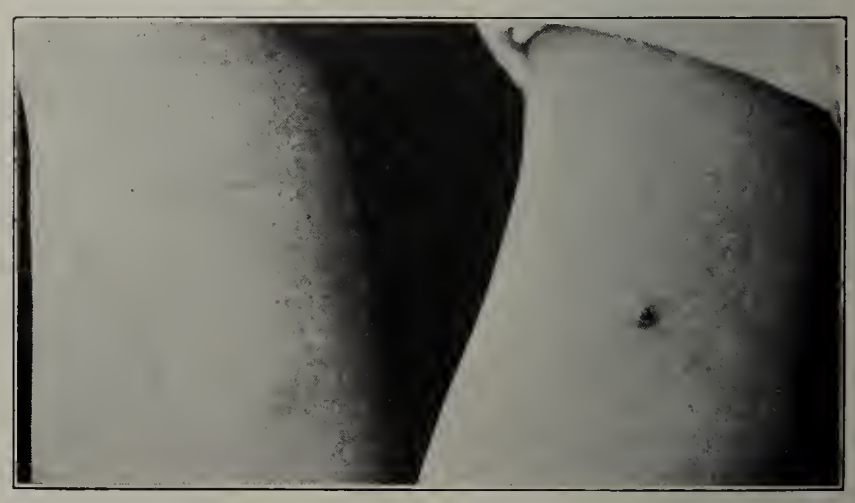


Fig. 3.—The reactions shown in Figure 1 on the ninth day: right, positive; left, negative.

* From the Section of Dermatology and Syphilology, Mayo Clinic.

1. Sherrick, J. W.: The Effect of Potassium Iodid on the Luetin Reaction, THE JOURNAL A. M. A., July 31, 1915, pp. 404-405.

2. Stokes, J. H.: Studies on Intradermal Sensitization, II, An Intradermal Reaction to Agar and an Interpretation of Intradermal Reactions, Jour. Infect. Dis., 1916, **18**, 415-436.

3. Kolmer, J. A.; Matsunami, Toitsu, and Broadwell, Stuart: The Effect of Potassium Iodid on the Luetin Reaction, THE JOURNAL A. M. A., Sept. 2, 1916, pp. 718-719.

origin of which can be worked out along physical lines of investigation. As a result of my studies of the behavior of this substance when substituted for luetin, I am inclined to regard the hypersensitiveness of the skin in late syphilis, familiarized as *Umstimmung* by the studies of Neisser, Finger and Landsteiner and others, as a colloidal phenomenon, and to regard the action of luetin largely as that of a mixture of colloids, the adsorbent action of which makes possible the liberation of anaphylatoxin in the tissue in which it is injected, with a resulting inflammatory reaction about the site of injection. Critical analysis of the composition of luetin as originally prepared by Noguchi[4] justifies this belief, since the anaphylatoxin-forming properties of ground *Spirochaeta pallida* have been demonstrated[5] as well as those of agar. To justify this theory it remained to show that, independent of the influence of iodids, a reasonable percentage of syphilitics would react to a colloidal adsorbent in suitable concentration in a way clinically similar to the luetin reaction. While the series of cases here reported is not large, it certainly suggests that there is a hitherto only partly appreciated element of nonspecificity in this reaction. It is not proposed to attack the clinical serviceability of luetin in the diagnosis of obscure syphilis, or to propose agar as a substitute without considerably more study. On the other hand, it cannot but give us pause in our enthusiasm for the diagnostic value of luetin and its immunologic significance to find that not only can the reaction be utterly invalidated by a little potassium iodid, but that it can be perfectly imitated by a sterile colloidal suspension which experimental studies seem to indicate remains chemically inert and acts presumably only through its physical properties. The reaction to agar as here described was negative in a variety of nonsyphilitic conditions and in the normal persons on whom it was tried. It was mildly positive on five occasions in clinically and serologically nonsyphilitic persons, two of whom, however, had gonorrheal arthritis, and three of whom had been receiving massive injections of vaccines, the ability of which to alter the colloidal state of the body and bring about so-called ferment mobilization has been suggested by the work of Jobling and Petersen[6] and others.



Fig. 4.—A positive reaction on the third day, which then subsided. Rated as doubtful and discarded. Hereditary syphilis with a negative Wassermann test.

The preparation used in my work has been a sterile 0.5 per cent. suspension of granular or powdered agar in physiologic sodium chlorid solution (unfiltered), sterilized in the autoclave. In more recent reactions I have used a 0.7 per cent. suspension. Several preparations of agar have been employed to eliminate the possibility of the presence of peculiarities due to the method of manufacture. The gel, undiluted, is injected intradermally in amounts of 0.1 c.c. An equal amount of mechanical trauma, inflicted by the injection of 0.1 c.c. of sterile olive oil as a control, has failed thus far to produce any positives, even when

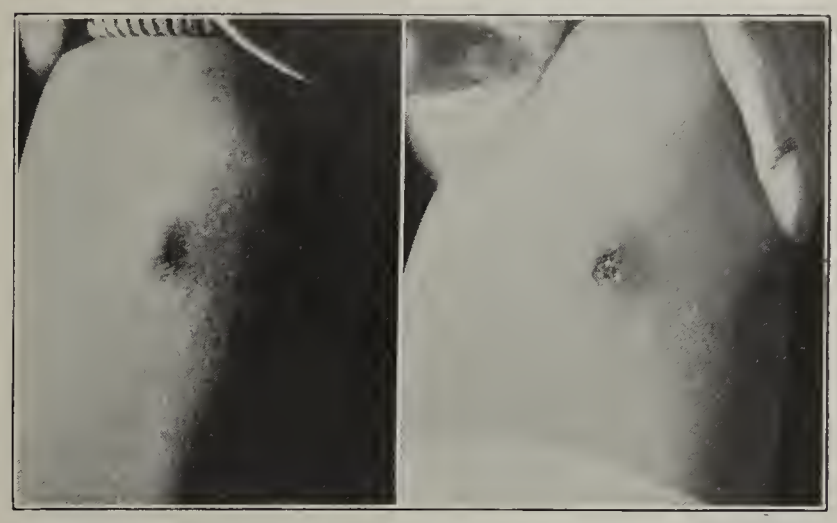


Fig. 5.—A reaction which was positive on the third day, subsided and lighted up again on the eighth; left, pustulobullous lesion on the eleventh day; right, ruptured and drying pustule on the fourteenth day. Tabes dorsalis, blood Wassermann test positive, no iodids.

the agar reaction is positive. The course of the reaction is quite similar to that of luetin, with emphasis on the tendency to tardive reaction. Pustulation occurs, in marked cases, usually after the fifth day, and often as late as the tenth or twelfth. The pustule is rather more hemorrhagic than the typical luetin lesion, and occasionally bullous. Cultures from the fluid in several lesions and microscopic examinations have shown it to be sterile. There is a distinct variation in the intensity of the reaction with the concentration of the agar, and it is my impression also that certain obscure properties of the colloid suspension, such as may result from shaking it before it has gelled, and chilling it affect its behavior. Even though they seem to have been made up in the proper percentage strength, preparations occasionally give unsatisfactory results, especially when they are thin and watery or very flocculent. Variations of this type can scarcely have been avoided in the manufacture of luetin, and may explain the occasionally erratic behavior of even authentic preparations.



Fig. 6.—Drying pustule on the ninth day in latent syphilis with a positive Wassermann test. Mercuric succinimid intramuscularly, and salvarsan; no iodids.

It must be apparent that luetin, as a marketable preparation for the diagnosis of syphilis, is an uncertain entity and that, to say the least, it needs standardization.

4. Noguchi, N.: A Cutaneous Reaction in Syphilis, Jour. Exper. Med., 1911, **14**, 557-568.
5. Nakano, H.: Ueber Kutireaktion bei Syphilis, Part I, Arch. f. Dermat. u. Syph., 1913, **116**, 281-312.
6. Jobling, J. W., and Petersen, William: The Nonspecific Factors in the Treatment of Disease, THE JOURNAL A. M. A., June 3, 1916, pp. 1753-1756.

In the summary of results in the accompanying table, reactions have been interpreted as positive with conservatism. Slight infiltrations, bluish macules, and even small papules which failed to show the tendency to central softening have been rated as doubtful and discarded. No reaction has been considered until after the third day. Marked reactions are unmistakable, and give rise to a deep pustule which may enlarge as if by process of peripheral digestion of the tissues, until it becomes flaccid or is evacuated, discharging a grumous pus and leaving a marked bluish or purple scar. The reaction is slower to develop than the luetin, and on the whole more indolent, and it is this tardive tendency perhaps which has caused other observers to overlook it. The inflammatory areola, which may disappear after the second day, may reappear when the reaction begins to light up. The reaction is usually markedly accelerated by iodids, forms a higher, firmer nodule, and evacuates sooner. In two cases, one of latent syphilis and one of actinomycosis (moribund), the reaction failed to develop even under liberal doses of potassium iodid.



Fig. 7.—Fifteenth day pustule, early secondary syphilis receiving only intramuscular injections of mercuric salicylate.

In the Chicago cases, studied through the courtesy of Dr. F. G. Harris at the Cook County Hospital, the percentage of positives was higher than on my own service at Rochester, possibly because the former patients were subject to the uncertainties of outside treatment with possible iodid administration, whereas in the cases of the latter the question of iodid administration was effectually eliminated, the majority of the patients being under my care for some weeks without iodids before the reactions were started, and the diagnosis of syphilis having been made on most of them for the first time when they entered the clinic. In the Chicago series a 0.5 per cent. suspension was used, and in the Rochester series a 0.7 per cent. suspension. Suspensions of 0.1 per cent. and 1.0 per cent. were tried, but gave unsatisfactory and usually negative results. In comparing with my results the percentage of positives obtained for luetin by observers before the influence of iodids was recognized, it should not be forgotten that the published percentages for luetin are undoubtedly inflated by the unsuspected effect of iodids and should therefore be lower than the reports indicate.



Fig. 8.—Tardive pustulobullous lesion, twenty-first day. Nodulo-ulcerative late syphilid of the face, gumma of the palate. Salvarsan; mercuric succinimid intramuscularly; no iodids.

The nonsyphilitic cases in which negative reactions were obtained included 6 cases of psoriasis, 3 of eczema, 2 of toxic erythema, 1 of chancroid, 3 of pulmonary tuberculosis, 1 of acne vulgaris, 1 of pellagra and 1 of actinomycosis of the appendix.

A positive reaction was obtained in one case in which syphilis certainly was not present — a case of urticaria pigmentosa in an adult. Of three cases of gonorrheal arthritis, two were positive to agar with negative Wassermanns, but both of these patients had been receiving vaccines with marked reactions and, moreover, syphilis could not be excluded. In another case from which syphilis could not be excluded but which was Wassermann-negative, the patient reacted positively while receiving vaccine for a sycosis, with marked febrile responses. With reference to gonorrhea it will be recalled that Boas and Ditlevsen,[7] among others, secured positive luetin reactions in several patients with gonorrhea in their series, and even in persons who were apparently normal.

In the Chicago series of twelve patients with syphilis, two reactions were discarded as doubtful, and seven (70 per cent.) reacted positively.

In the Rochester series (0.7 per cent. agar used), of thirty-five patients with syphilis, five reactions were discarded as doubtful, and fifteen (50 per cent.) reacted positively. Rating the doubtfuls as negative, the percentage of positives was 42.3.

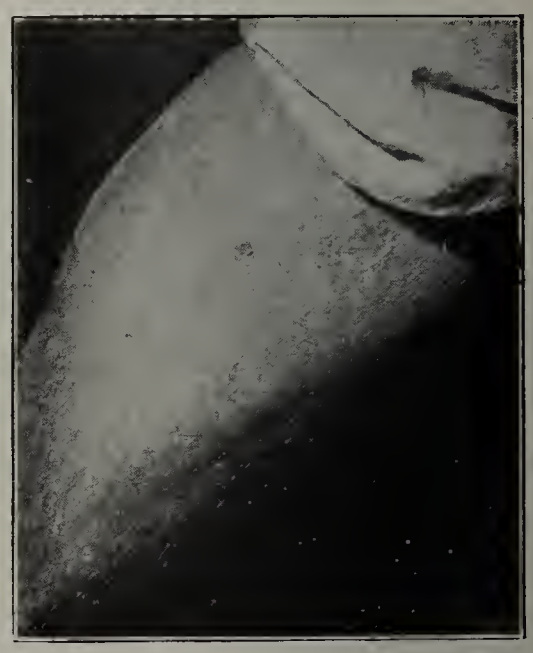


Fig. 9.—Negative reaction in bullous erythema multiforme. Patient seen some weeks later; no signs of lighting up.

The accompanying table combines the two series, omitting all doubtful reactions.

It is interesting to note that positive reactions were obtained for all but two of nine tabetics (about 78 per cent.). The increasing frequency of positives in the later stages of the disease is in keeping with the behavior of luetin.

From my observations as the work has progressed, I have gained the impression that the positive reaction can be brought out by intensive treatment, exclusive of iodid administration, notably by intramuscular injections of mercurial salts. This is in keeping with the opinion of observers of syphilis and will be discussed with the theoretical considerations in another paper.

CONCLUSIONS

Agar hydrosol, from 0.5 to 0.7 per cent., in physiologic sodium chlorid solution, when injected intradermally in doses of 0.1 c.c., gives reactions clinically similar to those produced by luetin. Controls of

7. Boas, H., and Ditlevsen, C.: Untersuchungen über Noguchis Luetinreaktion, Arch. f. Dermat. u. Syph., 1913, **116**, 852-864.

equal amounts of sterile olive oil, producing similar trauma, do not give rise to reactions.

The agar reaction differs from the luetin reaction chiefly in a tendency to a more torpid course and a slower development.

Papular and pustular reactions may be produced, the latter being somewhat more hemorrhagic than those produced by luetin.

The percentage of positives in known syphilitics, eliminating doubtful reactions, varied in two series aggregating forty cases, from 50 to 70 per cent.

The normal persons and nonsyphilitics in my series did not react. The only positive case in which syphilis seemed to be eliminated was a case of urticaria pigmentosa with factitial urticarial phenomena. Two patients with gonorrhea in a total series of seventy-six reacted positively. Both were receiving vaccines with marked reactions. One patient with sycosis barbae, receiving vaccines with marked reaction, also reacted positively to the agar.

The influence of iodids could be eliminated from the series in which 50 per cent. reacted positively.



Fig. 10.—Iodid reaction to agar. Pustule ruptured on the sixth day. Patient with syphilitic aortitis, receiving salvarsan, intramuscular injections and 20 grains of potassium iodid, three times a day.

The positive reaction to agar as brought about by the internal administration of iodids was observed in typical form in three cases. It is simply a severe form of the luetin and agar reactions. In two cases in which iodids were being administered, the reaction to agar was negative.

The cutaneous reaction to both luetin and agar in syphilis is interpreted as nonspecific in character and as a colloidal adsorption phenomenon in a hypersensitive or labile skin. The theoretical considerations on which this view is based have been published in part, and a review of their possible bearing on the immunologic mechanism of syphilis will be published shortly.

RESULTS OF TESTS

Form of Syphilis	Positive		Negative
	Number	Per Cent.	Number
Primary	2	66	1
Latent	2	40	3
Secondary	3	43	4
Tertiary	6	55	5
Cerebrospinal	8	62	5
Total Early	..	46.6	..
Total Late	..	58.3	..

The importance of a further study and standardization of preparations of "luetin" is suggested. The foregoing studies suggest that the fragmented *Spirochactae pallidae* are not indispensable in the production of the reaction clinically known as the luetin test.

THE NAVY, AND ITS RELATION TO THE MEDICAL PROFESSION IN TIME OF WAR

R. C. HOLCOMB. M.D.
Surgeon, United States Navy
WASHINGTON, D. C.

For more than two and a half years we have been watching the evolution of a gigantic conflict involving



The naval hospital, Mare Island, Calif. This is one of a large system of naval hospitals maintained by the navy at the various naval stations along the east and the west coast of the United States.

the peoples of the greater part of Europe and Asia, our near neighbor Canada, and far off Australia. In these fateful days our sober thoughts search for a lesson from which we may profit. Our nation has been profoundly stirred by the horrors of this war, and it is not surprising that, being thus deeply stirred by the dangers of a general war conflagration, patriotic impulse searches for a method of expressing itself. Individuals and organized groups of individuals are coming forward, offering their skill and their services. But if we are without a clear understanding of the



Members of the hospital corps at drill. There are three large hospital corps training schools located at the various training stations, where the members of the hospital corps are instructed in their duties before going to naval hospitals or to duty aboard the hospital ships.

fundamental needs of the situation, if we are without a sympathetic exchange of purpose, if we are without a definition of requirements, the result will not aid our military and naval services, but will lead only to misunderstanding, confusion and bewilderment.

I have often found in discussing the needs of the Medical Department of the Navy that the subject is confused with the needs of the army. Plattsburg

camps and base hospitals occupy the field of mental vision, and the ocean and ships are somewhere far over the mental horizon. It is my purpose, therefore, as briefly as possible, to outline a concise statement as to where we should look for aid, and what circumstantial, national and other considerations must direct us.



Ward aboard the Hospital Ship *Relief*, utilized by the army as a hospital ship during the war with Spain, and later taken over by the navy. She is now unseaworthy, but is still used for hospital purposes at the Naval Station, Olongapo, P. I.

To begin with, the fighting ships of the navy must be built before war descends on us. The protection that stands between our coasts and an enemy from over the sea is vested in the navy. Of all our frontiers, our ocean frontier is the greatest. Against an over-sea enemy the navy is the first line of defense. Our strength or our weakness at the beginning of hostilities will decide whether or not the invader can secure a foothold on our shores. What I wish to emphasize is that unlike an army, which can expand and expand as long as there is land to hold it and men to constitute it, the navy has limitations as to personnel and its requirements, limitations which can be quite accurately determined by the number of its fighting units before the outbreak of hostilities. It is not the number of men that constitutes a navy, it is the number of ships with trained men to man them. Battleships cannot be built in a day. The need for power on the sea, so far as our country is concerned, would be immediate. The navy must always be ready for war, not tomorrow, but today. For the navy that is unprepared there may be no tomorrow; for the personnel of such a navy tomorrow may be too late.

Our naval medical officers are a highly efficient body of specialists, always seeking the solution of the problems which are peculiarly theirs, and which belong to the man who must separate himself from normal or usual considerations. In the march of sanitary progress the naval medical officers have sought a place in the van. It is not, therefore, assistance in reorganizing the Medical Department of the Navy that we need, but assistance in organizing the civilian facilities outside of our sphere of naval influence to supplement the organization already a part of a great machine, so that when war comes, order and preparedness will take the place of confusion.

RECRUITING OFFICERS

We should first need to recruit our navy and marine corps to full strength. For this purpose, additional recruiting medical officers are lacking. Medical officers for our auxiliaries must be supplied. Auxiliaries are ships which carry supplies for the fleet — a sort of floating base which carries supplies of fuel, food and ammunition, and which contains ships employed as district scouts, ships employed with submarine and aeronautic activities of a district, and, not the least of these, the hospital ships.

To man most of these ships with medical officers we must look to our professional brethren who are now engaged in peaceful pursuits. The duties of the medical officer will take him on the ocean where his professional isolation is complete, and where he must solve from his own resources all the problems that may confront him. He should be a young man ready for any hardships, and possessing a large fund of temperamental compatibility.

When our ships turn back from the sea bringing their sick and wounded, their destination will not be Chicago or St. Louis, but coast cities where we have our navy yards and stations, such as Boston, New York and Philadelphia, where the navy maintains navy yards and naval hospitals. As some of these hospitals may not be large enough to meet the requirements, we must look to the civilian hospital facilities at these places to help us out. Hence our interest is keen in the hospitals of these particular coast cities, and therefore



Dispensary aboard a battleship.

we have carefully compiled information of all the large municipal and private hospitals in these cities, tabulated, filed and kept up to date.

As not all of our bases promise such facilities as places like New York, Boston or Philadelphia, we have asked the Red Cross to organize five hospital units. We have requested that three of these units be organized on the east coast, preferably at Boston, New York and Philadelphia, and that two be organized on the west coast, preferably at San Francisco and Los Angeles.



The sick bay of a battleship. This is the name given to the hospital ward aboard a ship of the navy. These spaces vary in size from a compartment containing half a dozen bunks to a large compartment containing sometimes as many as forty bunks.

I do not wish to convey the impression that all the interest of the navy in civilian hospital facilities is limited to hospitals adjacent to existing navy yards and stations, for this is not true. The navy defends the whole coast, so that every hospital on the east or west coast or adjacent to these coasts commands our special interest. For purposes of defense the coast of the United States is divided into districts. Each of these districts has its scouts, submarines and ships of defense, its coast guard, and other district naval activities. Therefore a survey has been made and information compiled concerning all the important civilian hospitals in each naval district, so that these district ships and naval activities may know their district hospital facilities. In these hospitals we have the same keen interest that we have in the hospitals of those cities in which are located the large navy yards and stations — the home bases of our fleet in time of peace or war.



An operating room aboard a battleship. This room is completely equipped with sterilizing equipment, consisting of dressi ng, utensil and instrument sterilizers.

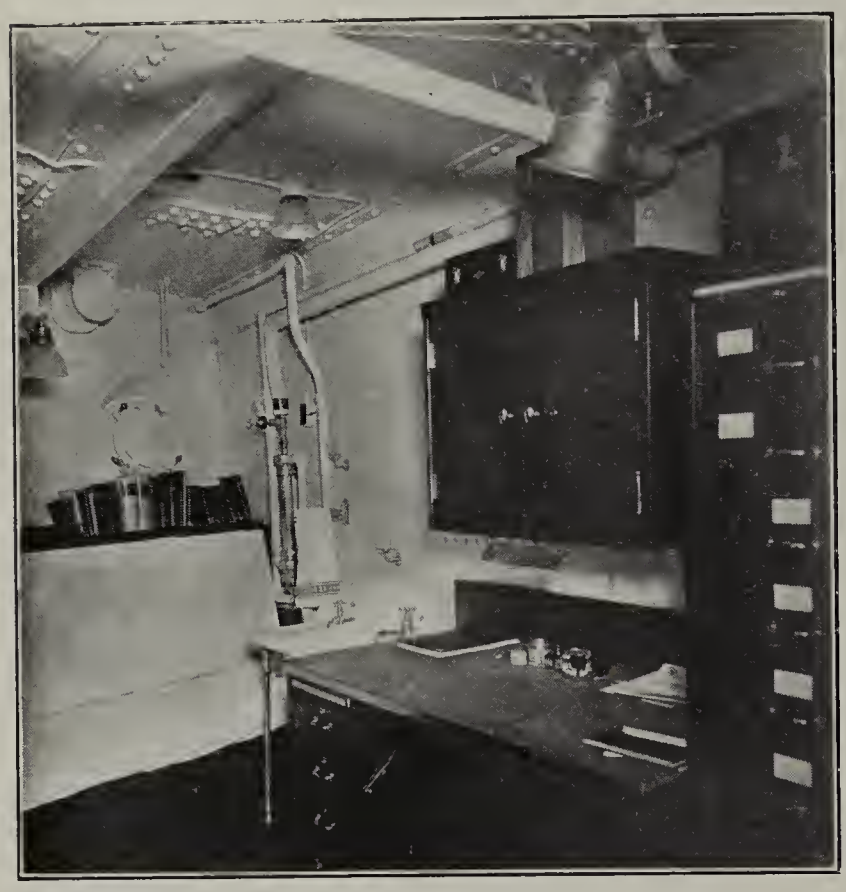
NAVAL CASUALTIES

There are never the overwhelming numbers of wounded after a sea battle that there are after a battle on land, for a modern sea fight is not a fight among individuals, but a fight of ship against ship, a fight between monsters, a fight for annihilation, and we probably should come back as victors or not at all. Some authorities have placed the possible casualties in a naval battle of large fleets, including the rescued enemy, at 3,000 wounded, 5,000 being the outside number of those who would have to be cared for. Certainly no naval fight up to the present time has left the fleets with such a large number of wounded as this. But there would also be the usual morbidity which is experienced in time of peace, the result of exposure, and the hazard of life on the sea. No one can say when, how or where an enemy will strike, and it therefore behooves us to be ready to handle the results of morbidity and battle anywhere along our thousands of miles of coast, where the activities of the navy may take us.

New problems of warfare are confronting armies. This may be illustrated by referring to Germany's western front. No longer do visible armies meet each other for a quick and decisive victory, but foes invisible to each other, encamped in dugouts and fighting from trenches, are carrying on a sort of subterranean warfare, terrible and ruthless. Not that the older type has passed away, for the eastern front of Germany and Austria has been characterized by sharp and decisive campaigns of rapidly advancing troops; but this new type of warfare has been added to the older. The value of cavalry and light artillery has not been destroyed.

And so, too, navies are confronting a new type of warfare. But this newer method of warfare has been added without destroying the power and usefulness of battleships. This added menace, like the new problems confronting armies, is invisible in its essentials. It is submarine in character. In place of the trench and dugout we have the submersible boat. Medical personnel must adjust its ideas to the newer type of warfare as well as to the older. Brilliant triumphs in

surgery have little place here. Physical, chemical, bacteriologic and physiologic problems in their relation to the atmosphere and the human mechanism will demand careful consideration to insure the physical fitness and safety of the men who go down into the sea in these boats.



Surgeon's examining room aboard a battleship.

THE SICK OF THE NAVY

The sick of the Navy and Marine Corps are cared for solely by the medical officers of the service. There are two classes of medical officers; those who enter the regular service and adopt it as a calling for life and those who enter in a reserve capacity for four years at a time, obligating themselves to go on active duty at the call of the president.

PRELIMINARIES FOR APPOINTMENT

The preliminaries for appointment differ principally in the character and scope of the professional examination, which is more searching in the case of those coming in permanently, and due to go to the Naval Medical School for instruction and after this course to be examined, graded and commissioned in the regular service.

The regular medical corps of the navy today has nearly 400 officers. There are now nearly 300 vacancies, as the numerical strength of the corps has recently been fixed by law at 0.65 per cent. of the total strength (officers and men) of the Navy and Marine Corps, including midshipmen. Automatically, each increase in the total authorized strength brings with it proportionate increase in number of medical officers.

The lower grades of the Medical Corps advance in rank from time to time along with the officer of the line with whom they take precedence up to the grade of lieutenant commander (corresponding to major in the army). The new law authorizes that 0.5 per cent. of the Medical Corps shall be medical directors with the rank of rear admiral, 4 per cent. shall be medical directors with the rank of captain (corresponds to colonel in the army), 8 per cent. shall be medical inspectors with the rank of commander (corresponds with lieutenant-colonel in the army).

QUALIFICATIONS

A candidate for appointment in this corps must be between the ages of 21 and 32 years, must be a citizen of the United States, and must submit satisfactory evidence of preliminary and medical education. Original appointment in the medical corps is made only in the grade of assistant surgeon. For each advance in rank and grade the candidate is required to undergo a physical and professional examination. The examination for appointment is in two stages. The first examination qualifies the applicant for appointment in the Reserve Force. If successful the candidate then, on full pay, attends a course of instruction at the Naval Medical School, at the end of which course he appears for final examination for appointment in the Medical Corps. The pay of the various grades of the Medical Corps is given in the accompanying table.

The physical examination is thorough and the candidate is required to certify that he is free from all mental, physical and constitutional defects.

Acuteness of vision $^{12}/_{20}$ for each eye, unaided by glasses, but capable of correction by aid of lenses to $^{20}/_{20}$, is obligatory. Color perception must be normal and the teeth good.



Surgeon-General William C. Braisted, United States Navy.
[Copyright by Harris & Ewing.]

If the candidate is found to be physically disqualified, his examination is concluded, but in the case of a candidate otherwise desirable the medical examiners may recommend that minor disqualifications or departures from standard be waived and proceed with the professional examination, subject to final approval by

the department; if found to be physically qualified, his professional examination is continued as follows:

1. Letter to the medical examiners, giving a brief statement of the candidate's general and professional education.

2. Written examination (*a*) anatomy, (*b*) physiology, (*c*) materia medica and therapeutics, (*d*) general medicine, (*e*) general surgery, and (*f*) obstetrics. Two or more questions are asked in each subject.

3. An oral examination is conducted in each of the above enumerated subjects.

4. The medical examiners will give careful consideration to composition and spelling as shown in the written papers submitted by the candidate.

5. As a general average, 75 per cent. is required.

With the consent of the medical examiners a candidate may withdraw at any time from further examination and may at a future time present himself for reexamination provided such examination is not delayed until after the date his permit would expire.

No allowance will be made for the expenses of candidates appearing for examination.

After approval of the record of examination and the recommendation of the medical examiners in the case of a qualified candidate the Bureau of Medicine and Surgery will recommend to the Bureau of Navigation the provisional enrolment of the candidate in the United States Naval Reserve Force.

The final physical examination is thorough in character. No person will receive an appointment whose physical condition may indicate the possibility of early retirement for disability.

PAY AND ALLOWANCE TABLE

Grade, Rank, and Length of Service	Pay per Annum on Shore	Allowances per Annum for Quarters*	Total Pay per Annum on Shore	Pay per Annum at Sea
Asst. surg., passed asst. surg., and surg.:				
Rank of lieutenant (junior grade)	$2,000	$432	$2,432	$2,200
Rank of lieutenant	2,400	576	2,976	2,640
After 5 years' service	2,640	576	3,216	2,904
After 10 years' service	2,880	576	3,456	3,168
After 15 years' service	3,120	576	3,696	3,432
Rank of lieutenant commander	3,000	720	3,720	3,300
After 5 years' service	3,300	720	4,020	3,630
After 10 years' service	3,600	720	4,320	3,960
After 15 years' service	3,900	720	4,620	4,200
After 20 years' service	4,000	720	4,720	4,400
Medical inspectors, rank of commander:				
After 15 years' service	4,500	864	5,364	4,950
Medical directors, rank of captain:				
After 15 years' service	5,000	1,008	6,008	5,500
Medical directors, rank of rear admiral:				
Lower half	6,000	1,152	7,152	6,600
Upper half	8,000	1,296	9,296	8,800
Surgeon general, rank and pay of rear admiral				

* Both within and (on shore duty) beyond the continental limits of the United States, but only when quarters are not furnished by the government.

Note.—There are also liberal allowances for fuel and light on shore at home and beyond the continental limits of the United States, the amount varying according to rank, season, and the latitude of the station at which the officer is serving.

The school examination will be on the subjects embraced in the course of instruction, such as naval and general hygiene, naval and operative surgery, tropical medicine and pathology, medical zoology, practical chemistry, bacteriology and serology, ophthalmology, Naval Regulations, Hospital Corps drills, and duties of the medical officer afloat and ashore.

Members of each school class, on graduating from the Naval Medical School, will be commissioned in the order of merit as determined on their examination, but not in excess of the number of vacancies in the Medical Corps.

Since no officer can be commissioned in the Medical Corps who is over 32 years of age, permits to attend the course at the Naval Medical School will not be issued to applicants who cannot complete the prescribed course and obtain their appointment while within the age limit.

NAVAL RESERVE CORPS

The act of Aug. 26, 1916, provided for a naval reserve force. A candidate for enrolment as a medical officer is first examined for enrolment in the provisional grade of assistant surgeon, rank of lieutenant (junior grade), United States Naval Reserve Force. After his enrolment, should he so desire, he makes request for active duty for confirmation in grade, and after the completion of a minimum period of three months' active service (at sea) he is again examined and, if found qualified, is recommended for a commission as an assistant surgeon, United States Naval Reserve Force.

Legislation establishing the United States Naval Reserve Force contains in substance matter referable to commissioned grades in the Medical Corps as follows:

A member must be a citizen of the United States.

He obligates himself to serve in the navy throughout a war or during the existence of a national emergency declared by the president, should either arise during his term of enrolment.

Enrolment is for a term of four years.

In time of peace, and when no national emergency exists, a member may be discharged on his own request, on reimbursing the government for any clothing gratuity that may have been furnished during his current enrolment.

A provisional grade (assistant surgeon) is given to him on first enrolment, in accordance with his qualifications determined by examination.

On his own request, he may, after enrolling, be assigned to active duty in the navy for such periods of instruction and training as may enable him to qualify for and be confirmed in grade.

For confirmation in grade a member must serve the minimum amount of active service required (three months in one period, or in periods of not less than three weeks each year), and must qualify by examination under regulations prescribed by the secretary of the navy.

No one can be appointed or commissioned an officer in any rank in any class of the United States Naval Reserve Force, or promoted to a higher rank therein, unless he has been examined and recommended for such appointment, commission or promotion by a board of three naval officers, or until he shall have been found physically qualified by a board of medical officers to perform the duties required in time of war, except that former officers and midshipmen of the navy who shall have left the service under honorable conditions and who shall have enrolled in the United States Naval Reserve Force may be appointed in the grade and rank last held by them without examination other than the physical examinations herein prescribed.

A member receives retainer pay of $12 per annum while enrolled in the provisional grade, provided he

makes such reports concerning his movements and occupation as may be required by the secretary of the navy. After confirmation in grade, his annual retainer pay is two months' base pay of the corresponding rank in the navy. Retainer pay is in addition to any pay to which a member may be entitled by reason of active service. Members of the Volunteer Naval Reserve do not receive any retainer pay.

A member who reenrolls for a term of four years, within four months of expiration of last complete enrolment, and who has performed the minimum amount of active service required during the preceding term of enrolment, for each reenrolment receives an increase of 25 per cent. of his base retainer pay. A member who completes twenty years of service, and who has performed the minimum amount of active service during each term of enrolment, on his own application will be retired with rank held, with a cash gratuity equal to the total amount of his retainer pay during his last term of enrolment.

Employment may be accepted in any branch of the public service, except as an officer or enlisted man in any branch of the military service of the United States or any state thereof.

A member is subject to the laws, regulations and orders for the government of the regular navy only during such time as he may by law be required to serve in the navy in accordance with his obligation, and when on active service at his own request, and when employed in authorized travel to and from such active service in the navy.

A distinctive badge or button will be issued to be worn only by members of the United States Naval Reserve Force. A penalty is assigned for unauthorized persons to wear or use this emblem.

A man actively employed receives the same pay and allowances, gratuities and other emoluments as an officer of the naval service on active duty of corresponding rank and of the same length of service (see pay table quoted above). When not actively employed, he is not entitled to pay, bounty, gratuity or pension, except as expressly provided by the provisions of the act.

When first reporting for active service for training during each period of enrolment, each officer is credited with a clothing allowance of $50, excepting in the Volunteer Naval Reserve. In time of war or national emergency he is credited with $150, less the amount previously credited, if any, during the current enrolment. The various grades not above lieutenant commander in rank, corresponding to those in the navy, are allowed. Officers in the United States Naval Reserve Force rank with, but after, officers of corresponding rank in the navy, and are commissioned by the president.

Medical officers enrolled in the United States Naval Reserve Force shall be appointed in time of peace not to exceed 500 in number. To provide for promotion, those who reenroll within four months after the termination of each enrolment, and who have performed the minimum amount of active service required (at sea) in each enrolment, may receive promotion to the rank of lieutenant on third enrolment, and to the rank of lieutenant commander on the fifth, on performing the minimum amount of active service required (at sea) in the new enrolment, provided they are found on examination qualified physically and professionally.

While the greater number of naval medical reserve officers will probably be needed at sea, some might be detailed to duty on shore—for a time at least—in connection with recruiting and the various medical activities at one of the large navy yards or stations. A naval medical correspondence course has been established at the Naval Medical School, Washington, D. C., to prepare these reserve officers for their duties. For duty at sea they may be assigned as junior medical officers of battleships or on board scouts or cruisers, or aboard any of the various types of auxiliaries which are employed in connection with fleet or district activities.

The life in the fleet calls for the best young manhood of the medical profession. The duty is stimulating, and one lives among men who have high traditions to preserve, although there is often isolation from a professional standpoint, and the best qualities of professional courage and ingenuity are sometimes needed. Not infrequently there is opportunity for rare adventure. The medical officer living among messmates whose life is devoted to the work at hand grows to realize that he is a constituent part of a mighty machine consecrated to the defense of the nation.

Bureau of Medicine and Surgery, Navy Department.

Therapeutics

HEXAMETHYLENAMIN IN THE PYELITIS OF INFANTS*

Probably few drugs have come into such vogue as has hexamethylenamin for the treatment of infections of the urinary tract. Properly administered, it undoubtedly yields satisfactory results in these conditions. There appears to be danger, however, that this widespread use of the drug encourages its administration without complete regard for the indications and contraindications. According to Useful Drugs:[1]

> It is of great value as a prophylactic in operations on the urinary organs. It is valuable in cystitis, pyelitis, etc. It is employed as a prophylactic in the bacilluria of typhoid fever. Some advocate its routine use to prevent the occurrence of this complication. It has been recommended to prevent the onset of nephritis in scarlet fever. As it has produced albuminuria and hematuria in some cases, it should be used with caution in cases in which inflammation of the kidney is present or anticipated.

It is evident, then, that there is something contradictory in the recommendation of the use of this drug to prevent the onset of nephritis and the statement that it has produced an albuminuria and hematuria in some cases. Confirmatory evidence is offered by Dr. I. A. Abt,[2] who says in a discussion on pyelitis in infancy:

> Of the various drugs that have been recommended, hexamethylenetetramin (urotropin) has probably been most generally used. I would, however, recommend a word of caution concerning its use. It should be under continuous observation and its use should not be continued for an extended period. The urine should be frequently examined for blood. I have more than once seen severe and fatal nephritis which in my opinion was due to the overuse of urotropin. If urotropin is given to infants under 1 year of age it should be administered in 1-grain doses followed by water. This may be repeated four or five times daily.

* Owing to lack of space, the article on "Disturbances of the Kidneys" is omitted from this issue of The Journal. It will appear next week.

1. Useful Drugs, Chicago, American Medical Association, 1916, page 77.
2. Abt, I. A.: Pyelitis, Medical Clinics of Chicago, 1917, **2**, 904.

STATE BOARD STATISTICS FOR 1916

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1102 to 1111 are three tables, A, B and C, giving in detail the results of the various state medical lieense examinations held during 1916. Full reports were obtained from all state lieensing boards and were carefully verified.

Tables A and B, when read from left to right, show (*a*) the number of graduates appearing for examination in each state, (*b*) whether they passed or failed, (*c*) the total number examined during the year, (*d*) the number who passed, (*e*) the number who failed, (*f*) the perccntage of failures, and (*g*) the number of states in whieh graduates of each school appeared for examination. Read from abovc downward, they give the results by states, showing (*h*) the number registered and rejccted from each collegc, (*i*) the total number examined, (*j*) the total number registered, (*k*) the total number rejeeted, and (*l*) the percentage of rejections. The fact that the majority of graduates takc the lieense examination in thc state in which the eollege is located is shown by the dark diagonal zone made by the grouping of figures passing from the upper left to the lower right corner of each table. This shows also that *thc statcs in which low-grade medical schools are permitted to exist are thcmsclvcs the recipients of thc greatcr portion of thc ill-trained output of such schools.* Thcse tables arc worthy of careful study, sinee important deductions are possible. The marginal numbers will enable one to follow readily the line for any college.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, several factors should be kept in mind. The number examined is important, since, if all other conditions are equal, the larger the number of graduates examined, the more aecurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been cxamined is important. The larger this number the more aeeurate will be the conclusions. Again, the character of the board making the examination and the methods employed arc important factors to be considercd, since some boards hold very careful examinations and include practical laboratory and clinical tests, or they may mark the papers more severely; while others, especially partisan boards, may be very lenient. In this connection it should be stated that, although conditions are undcrgoing a steady improvement, it is still true that *the character of thc liccnse examination as usually conductcd is such that graduates of collegcs conducted largcly by quiz-class methods may easily bc succcssful in passing it.* It is particularly important, in forming conelusions based on these statistics, to note for each collegc the states in which its graduates are not admitted to examination—information set forth with these statistics in Table D.

Graduates of All Years Examined in 1916

Table A shows the results for all candidates who took examinations in 1916, regardless of the years in whieh they graduated. This shows that altogether 4,850 candidates were examined last year, as compared with 5,313 in 1915, 5,570 in 1914, 6,435 in 1913, and 6,879 in 1912. There has been a steady decrease each year sinee 1906, when 8,035 physicians were examined. The decrcase each year has been due largely to (*a*) the wider extension of reeiprocity and (*b*) the general diminution in the number of medical collcges, students and graduates. Of those examincd this year, only 15 per cent. failed, as comparcd with 15.6 per eent. in 1915, 21.6 per eent. in 1914, 18.6 per cent. in 1913, and 20.5 per eent. in 1912. This indicates improved medical teaching, sinee there is no reason to believe that methods of cxamination have been relaxed.

There were 89 medieal colleges in the United States granting degrees in 1916 which had graduatcs examined, as compared with 93 in 1915, 96 in 1914, 99 in 1913 and 110 in 1912. This is a deerease of 64 since 1905, when 153 medical colleges in the United States had graduates examined. The figures regarding graduates of several medical sehools which have ceascd to exist, either through mcrger or otherwise, have been ineluded in the line for miscellaneous collcges.

Forcign graduates were examined in twenty-one states, the total number being 78, and of this number 35, or 44.9 per eent., failed. The largest number of foreigners examined in any state was 15 in New York, where 11, or 73.3 per cent., failed. Graduates of Canadian schools were examined in twenty-two states, more appearing, naturally, in the border-line states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each, and to show the sueeesses of their graduates at the examinations. Altogether 48 candidates from Canadian colleges were examined, of whom 9, or 18.7 per cent., failed. Of all Canadian colleges, the University of Toronto had the largest number examined. The highest percentages of failures were for Laval University, 60, Queen's University, 33.3, and Western University, 25.

No Undergraduates Examined During 1916

This is the first year, sinee the tabulation of these statistics was begun, in which no undergraduates were examined. The number examined eaeh year has been constantly diminishing since 1906, when 703 undergraduates were examined and 342 were lieensed. Colorado is now the only state whieh will examine nongraduates, but only four have beeu licensed in that statc in ten years. The door has been elosed, therefore, against the admission to practice of those whose medical training is known to be incomplete.

Recent Graduates Examined During 1916

Table B gives the results for graduates of 1912 to 1916 inclusive examined during 1916. This tablc is important, since it deals with recent graduates, and is, therefore, the fairest basis for comparison between colleges. Of all candidates examined in 1916, 4,283, or 88.3 per cent., were recent graduatcs, and of this number 12.7 per cent. failed, as compared with 15 per cent. for all candidatcs.

Old Practitioners Examined During 1916

Table C is so arranged as to show in comparison the results for graduates of all years (first column), for reeent graduates (second column), for graduates of 1911 and previous years (third column), and for graduates of 1916 (fourth column). Of the graduates of 1911 and previous years—"old practitioners"—567 were examined, and of this number 182, or 32.1 per eent., failed, as eompared with 12.7 per eent. of failures for recent graduates. This high pereentage of failures is due largely to the long time thcse candidates have been out of college and to the faet that they are required to take the same examination as recent graduates. The less favorable eonditions in mcdical colleges at thc time many of these physicians graduated also, doubtless, have some bearing on this result. Justiee to sueh physieians, who have been lieensed, but who, for good reasons, desire to change their locations, is a strong argument for interstate reciprocity in medical licensure for the use of praetical examinations by which they may show their skill in diagnosis and treatment, or for special percentage allowances for years of aetive praetiee. The total number of these candidates is diminishing each year as increased reeiprocity relations are established. As a rule, the states whieh do not have reciprocal relations with other states (as Florida, Montana, Massachusetts, Oregon and Washington, see Table I) examined the largest numbers of old practitioners.

Graduates of 1916 Examined During 1916

Table C also gives the results for the graduates of 1916 who were examined during the year by the state boards, and

CONTINUED ON PAGE 1114

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	ALABAMA																																													
1	University of Alabama, School of Medicine	16	1																	1	0	1	0													1	1										1
	ARKANSAS																																													
2	University of Arkansas, Medical Department					0	1	16	1																																			0	1	2
	CALIFORNIA																																												
3	College of Medical Evangelists									9	0																			1	0														3
4	College of Physicians and Surgeons, Los Angeles					2	0			23	0													1	9																				4
5	College of Physicians and Surgs. of San Francisco					1	0			6	1																																		5
6	Hahnemann Medical College of the Pacific.—H.									10	1																																		6
7	Leland Stanford Junior Univ., School of Medicine									22	0																																		7
8	Oakland College of Medicine and Surgery									2	0																																		8
9	University of California Medical School					2	0			31	0																																		9
	COLORADO																																												
10	University of Colorado, School of Medicine									1	0	12	0											1	0																				10
	CONNECTICUT																																												
11	Yale University, School of Medicine									1	0			5	1																													1	0	11
	DISTRICT OF COLUMBIA																																												
12	Georgetown University, School of Medicine			0	1							1	0	1	1			5	0											1	0											2	2	1	0	12
13	George Washington University Medical School					0	2			1	0			1	0			16	1																					1	0	2	0	1	0	13
14	Howard University, School of Medicine	0	1							1	0							1	3							2	1					2	0			1	0	1	0	1	1					14
	GEORGIA																																												
15	Atlanta Medical College	7	3																	19	2	93	1							1	0															15
16	Georgia College of Eclectic Med. and Surg.—E.							5	3																																				16
17	University of Georgia, Medical Department	1	0																	1	0	11	0																							17
	ILLINOIS																																												
18	Chicago College of Medicine and Surgery	0	2			1	0					1	0											1	0	138	20	3	0	6	0			1	0					0	1	3	2			18
19	Chicago Hospital College of Medicine																			1	0					3	6																			19
20	Hahnemann Medical College and Hospital.—H.							1	0	2	0															16	3			1	0	1	0													20
21	Jenner Medical College																									7	4																			21
22	Loyola University, School of Medicine	0	1			1	0	1	0	1	0			0	1					2	0	1	1			89	26			0	1			2	1	1	0			1	1	1	1			22
23	Northwestern University Medical School					2	0					1	0													40	2			6	0	1	0									2	0	23
24	Rush Medical College			1	0	3	0			5	0	2	0							0	1					79	2	1	0	9	0	1	0									2	0	24
25	University of Illinois, College of Medicine			1	0	2	0			1	0	0	1											2	0	98	1			5	0	1	0									2	0	25
	INDIANA																																												
26	Indiana University, School of Medicine																									1	0	33	2																	26
	IOWA																																												
27	State University of Iowa, College of Medicine																			1	0					3	0			23	0													27
28	State Univ. of Iowa, Coll. of Homeo. Med.—H.					1	0																																					28
	KANSAS																																												
29	University of Kansas, School of Medicine																															11	0											29
	KENTUCKY																																												
30	University of Louisville, Medical Department	1	0			0	1	1	0							1	0			0	1	1	0	1	0	2	2							39	2										30
	LOUISIANA																																												
31	Tulane University of Louisiana, School of Med.	9	0			1	0							1	0					5	0									1	0	2	0			51	0					1	0	31
	MAINE																																												
32	Bowdoin Medical School													1	0																							10	1					1	0	32
	MARYLAND																																												
33	Johns Hopkins University, Medical Department			1	0	1	0			3	0			0	1	1	0			1	0	1	0			2	0			2	0			1	0	1	0			37	2	4	0	1	0	33
34	Univ. of Maryland, Sch. of Med. & Coll. of P. & S.													1	1			2	1	1	0	2	0															1	0	41	14	7	1			34
	MASSACHUSETTS																																												
35	Boston University, School of Medicine.—H.									1	0															1	0											2	0			13	1			35
36	College of Physicians and Surgeons, Boston													0	2			0	1																							8	9			36
37	Medical School of Harvard University									3	0	1	0	8	2					1	0	2	0					2	0	4	0	1	0					2	0	1	0	32	0			37
38	Tufts College Medical School																	1	0					1	0					1	0							2	0			50	6			38
	MICHIGAN																																												
39	Detroit College of Medicine and Surgery																							1	0	1	1															48	2			39
40	University of Michigan Medical School					1	0							0	1			1	0							1	0	1	0	1	0											1	0	55	0	40
41	University of Michigan, Homeo. Med. School.—H.									2	0																																	8	0	41
	MINNESOTA																																												
42	University of Minnesota Medical School					1	0																																						42
	MISSOURI																																												
43	Kansas City College of Medicine and Surgery.—E.							12	0																																			43
44	National University of Arts and Sciences											0	1											1	0	1	2					1	0											44
45	Southwest School of Medicine and Hospital.—H.							7	0																							6	0											45
46	St. Louis University, School of Medicine	0	1			1	0			2	0															16	0	2	0			2	0											46
47	Washington University Medical School					1	0													1	0																							47
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Alaska P	2 Alaska F	3 Arizona P	3 Arizona F	4 Arkansas P	4 Arkansas F	5 California P	5 California F	6 Colorado P	6 Colorado F	7 Connecticut P	7 Connecticut F	8 Delaware P	8 Delaware F	9 Dist. Columbia P	9 Dist. Columbia F	10 Florida P	10 Florida F	11 Georgia P	11 Georgia F	12 Idaho P	12 Idaho F	13 Illinois P	13 Illinois F	14 Indiana P	14 Indiana F	15 Iowa P	15 Iowa F	16 Kansas P	16 Kansas F	17 Kentucky P	17 Kentucky F	18 Louisiana P	18 Louisiana F	19 Maine P	19 Maine F	20 Maryland P	20 Maryland F	21 Massachusetts P	21 Massachusetts F	22 Michigan P	22 Michigan F	Marginal Number
	NEBRASKA																																														
48	John A. Creighton Medical College					1	0			0	1	1	1											1	0					2	0	1	0													48
49	Lincoln Medical College.—E.											2	3																																	49
50	University of Nebraska, College of Medicine																																													50
	NEW HAMPSHIRE																																													
51	Dartmouth Medical School																			2	0																	1	0			2	0			51
	NEW YORK																																													
52	Albany Medical College																																					1	0			2	1			52
53	Columbia University			4	0			1	0					5	2					1	0	1	0	1	0							1	0									2	1			53
54	Cornell University Medical College																																													54
55	Fordham University, School of Medicine													1	0																															55
56	Long Island College Hospital													1	1																													2	0			56
57	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.													1	0	2	1					1	0			1	0											1	0			1	1			57
58	New York Med. Coll. and Hosp. for Women.—H.																																												58
59	Syracuse University, College of Medicine			1	0																																							59
60	University and Bellevue Hospital Medical College																			2	1																							1	0			60
61	University of Buffalo Department of Medicine																																										2	0			61
	NORTH CAROLINA																																														
62	North Carolina Medical College											0	1																																	62
	OHIO																																													
63	Eclectic Medical College.—E.									2	0															1	0							2	0	0	1									63
64	Ohio State University, College of Medicine																									1	0																			64
65	Ohio State University, Coll. of Homeo. Med.—H.																																												65
66	University of Cincinnati, College of Medicine																							1	0									1	0									1	0	66
67	Western Reserve University, School of Medicine																																												67
	OKLAHOMA																																														
68	University of Oklahoma, School of Medicine	1	0																																											68
	OREGON																																													
69	University of Oregon, Department of Medicine									1	0													1	0																					69
	PENNSYLVANIA																																													
70	Hahnemann Medical College and Hospital.—H.															2	0																					1	0							70
71	Jefferson Medical College	1	1							3	0	1	0	2	2			1	0	2	0			2	0					1	0											2	0	2	0	71
72	Medico-Chirurgical College of Philadelphia													2	0	4	0	0	1					1	0																	1	0	0	1	1	0	72
73	Temple University, Department of Medicine													1	0			1	1																							0	1					73
74	University of Pennsylvania, School of Medicine									2	0	2	0			3	0			2	0					2	1			2	0			2	0							2	0			74
75	University of Pittsburgh, School of Medicine																																													75
76	Woman's Medical College of Pennsylvania			1	0																									1	0									1	0	3	0			76
	SOUTH CAROLINA																																													
77	Medical College of the State of South Carolina																			1	0																									77
	TENNESSEE																																														
78	Lincoln Memorial University, Medical Department							2	0																											1	0							78
79	Meharry Medical College	3	6					2	4									0	4	6	4	7	4			4	8							7	2	2	1							79
80	University of Tennessee, College of Medicine	5	3					10	1																									1	0	2	3							80
81	Univ. of West Tennessee, Coll. of Med. and Surg.																					1	0									0	1											81
82	Vanderbilt University, Medical Department	6	3					2	0	1	0	1	0							4	1	5	0			1	0	1	1	2	0			6	0	5	0							2	1	82
	TEXAS																																														
83	Baylor University, College of Medicine																																					2	0							83
84	Fort Worth School of Medicine																																													84
85	University of Texas, Department of Medicine																			2	0											1	0									1	0			85
	VERMONT																																														
86	University of Vermont, College of Medicine													2	1									1	0			1	0													5	1			86
	VIRGINIA																																														
87	Medical College of Virginia																									1	0													4	1			1	0	87
88	University of Virginia, Department of Medicine					1	0			1	0			1	0					1	0																									88
	WISCONSIN																																														
89	Marquette University, School of Medicine																							1	0	1	0	1	0																	89
	CANADA																																														
90	Dalhousie University, Faculty of Medicine																																											1	0			90
91	Laval University, Faculty of Medicine									0	1																											1	0			0	1			91
92	McGill University, Faculty of Medicine					1	0			3	0			1	0									1	0																	2	0			92
93	Montreal School of Medicine and Surgery																																									1	0			93
94	Queen's University, Faculty of Medicine																																									1	0			94
95	University of Toronto, Faculty of Medicine									1	0			1	0											2	0	2	0									1	0	1	0			2	0	95
96	Western University, Faculty of Medicine																													1	0													1	0	96
97	Foreign Colleges			1	0	5	2			3	2			1	0	0	1	3	0	3	0					1	5	1	0	1	0									2	0	3	4	1	0	97
98	Miscellaneous Medical Colleges	5	14	1	0	4	3	6	2	3	2	0	1	4	4			1	2	9	9	1	1	8	0	2	7	1	1	5	1	0	0	3	5	1	4	2	1	5	9	11	8	0	1	98
	Totals by States	91		12		42		78		154		33		61		15		47		86		140		29		608		53		84		33		76		78		27		126		206		140		
	Totals—Examined—Passed	55		11		33		67		146		25		41		13		33		68		133		29		517		49		82		32		66		68		25		96		166		135		
	Totals—Examined—Failed	36		1		9		11		8		8		20		2		14		18		7		0		91		4		2		1		10		10		2		30		40		5		
	Percentage of Failures	39.6		8.3		21.4		14.1		5.2		24.2		32.8		13.3		29.8		20.9		5.0		0.0		15.0		7.5		2.4		3.0		13.2		12.8		7.4		23.8		19.4		3.6		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

| Marginal Number | 23 Minnesota P | F | 24 Mississippi P | F | 25 Missouri P | F | 26 Montana P | F | 27 Nebraska P | F | 28 Nevada P | F | 29 New Hampshire P | F | 30 New Jersey P | F | 31 New Mexico P | F | 32 New York P | F | 33 North Carolina P | F | 34 North Dakota P | F | 35 Ohio P | F | 36 Oklahoma P | F | 37 Oregon P | F | 38 Pennsylvania P | F | 39 Rhode Island P | F | 40 South Carolina P | F | 41 South Dakota P | F | 42 Tennessee P | F | 43 Texas P | F | 44 Utah P | F | 45 Vermont P | F | 46 Virginia P | F | 47 Washington P | F | 48 West Virginia P | F | 49 Wisconsin P | F | 50 Wyoming P | F | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
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	ALABAMA																																													
1	University of Alabama, School of Medicine	16	1																																												1
	ARKANSAS																																													
2	University of Arkansas, Medical Department							16	1																																					2
	CALIFORNIA																																													
3	College of Medical Evangelists									9	0																			1	0															3
4	College of Physicians and Surgeons, Los Angeles					2	0			23	0																																			4
5	College of Physicians and Surgs. of San Francisco					1	0			5	1																																			5
6	Hahnemann Medical College of the Pacific.—H.									10	1																																			6
7	Leland Stanford Junior Univ., School of Medicine									22	0																																			7
8	Oakland College of Medicine and Surgery									2	0																																			8
9	University of California Medical School					2	0			30	0																																			9
	COLORADO																																													
10	University of Colorado, School of Medicine									1	0	11	0																																	10
	CONNECTICUT																																													
11	Yale University, School of Medicine													5	1																													1	0	11
	DISTRICT OF COLUMBIA																																													
12	Georgetown University, School of Medicine											1	0	1	0			4	0											1	0													2	1	12
13	George Washington University Medical School									1	0			1	0			14	1							2	1					2	0			1	0			1	0			13
14	Howard University, School of Medicine	0	1							1	0							1	2																									14
	GEORGIA																																													
15	Atlanta Medical College	7	3																	17	2	97	0							1	0															15
16	Georgia College of Eclectic Med. and Surg.—E.							5	3																																					16
17	University of Georgia, Medical Department	1	0																	1	0	11	0																							17
	ILLINOIS																																													
18	Chicago College of Medicine and Surgery	9	1			1	0					1	0											1	0	138	20	3	0	5	0			1	0					0	1	3	1			18
19	Chicago Hospital College of Medicine																	1	0							3	6																			19
20	Hahnemann Medical College and Hospital.—H.									2	0															16	3			1	0	1	0													20
21	Jenner Medical College																									7	4																			21
22	Loyola University, School of Medicine	9	1			1	0	1	0	1	0			0	1					2	0	1	1			89	26							2	2	1	0			1	1	1	1			22
23	Northwestern University Medical School					1	0					1	0											1	0	39	2			3	0	1	0									2	0	23
24	Rush Medical College					2	0			5	0	2	0													77	1	1	0	7	0	1	0									2	0	24
25	University of Illinois, College of Medicine					1	0			1	0													2	0	96	1			5	0	1	0									2	0	25
	INDIANA																																													
26	Indiana University, School of Medicine																									1	0	33	2																	26
	IOWA																																													
27	State University of Iowa, College of Medicine																									1	0			27	0															27
28	State Univ. of Iowa, Coll. of Homeo. Med.—H.																																												28
	KANSAS																																													
29	University of Kansas, School of Medicine																																	11	0											29
	KENTUCKY																																													
30	University of Louisville, Medical Department	1	0			0	1									1	0									2	1									38	2									30
	LOUISIANA																																													
31	Tulane University of Louisiana, School of Med.	7	0																	5	0									1	0	2	0			50	0									31
	MAINE																																													
32	Bowdoin Medical School													1	0																									10	1			1	0			32
	MARYLAND																																													
33	Johns Hopkins University, Medical Department									1	0					1	0					1	0			2	0			1	0			1	0	1	0			37	2	4	0	1	0	33
34	Univ. of Maryland, Sch. of Med. & Coll. of P. & S.													1	1			2	1	1	0	2	0																	1	0	41	14	7	1			34
	MASSACHUSETTS																																													
35	Boston University, School of Medicine.—H.									1	0																													1	0			13	1			35
36	College of Physicians and Surgeons, Boston													0	1			0	1																								7	8			36
37	Medical School of Harvard University									3	0	1	0	7	2					1	0	2	0					2	0	3	0	1	0					2	0	1	0	32	0			37
38	Tufts College Medical School																													1	0							2	0			50	6			38
	MICHIGAN																																													
39	Detroit College of Medicine and Surgery																							1	0																			48	2	39
40	University of Michigan Medical School					1	0																															1	0					55	0	40
41	University of Michigan, Homeo. Med. School.—H.									2	0																																	8	0	41
	MINNESOTA																																													
42	University of Minnesota Medical School					1	0																																							42
	MISSOURI																																													
43	Kansas City College of Medicine and Surgery.—E.							12	0																																					43
44	National University of Arts and Sciences											0	1											1	0	1	2							1	0											44
45	Southwest School of Medicine and Hospital.—H.							7	0																									6	0											45
46	St. Louis University, School of Medicine	0	1							1	0															16	0	2	0					2	0											46
47	Washington University Medical School					1	0																																							47
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																							

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

| Marginal Number | 23 Minnesota | | 24 Mississippi | | 25 Missouri | | 26 Montana | | 27 Nebraska | | 28 Nevada | | 29 New Hampshire | | 30 New Jersey | | 31 New Mexico | | 32 New York | | 33 North Carolina | | 34 North Dakota | | 35 Ohio | | 36 Oklahoma | | 37 Oregon | | 38 Pennsylvania | | 39 Rhode Island | | 40 South Carolina | | 41 South Dakota | | 42 Tennessee | | 43 Texas | | 44 Utah | | 45 Vermont | | 46 Virginia | | 47 Washington | | 48 West Virginia | | 49 Wisconsin | | 50 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Alaska		3 Arizona		4 Arkansas		5 California		6 Colorado		7 Connecticut		8 Delaware		9 Dist. Columbia		10 Florida		11 Georgia		12 Idaho		13 Illinois		14 Indiana		15 Iowa		16 Kansas		17 Kentucky		18 Louisiana		19 Maine		20 Maryland		21 Massachusetts		22 Michigan	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	NEBRASKA																																											
48	John A. Creighton Medical College					1	0			0	1	1	0															2	0	1	0												
49	Lincoln Medical College.—E.											0	1																														
50	University of Nebraska, College of Medicine																																											
	NEW HAMPSHIRE																																											
51	Dartmouth Medical School																																								1	0		
	NEW YORK																																											
52	Albany Medical College																																								2	1		
53	Columbia University			1	0			1	0					3	2							1	0							1	0									2	0		
54	Cornell University Medical College																																											
55	Fordham University, School of Medicine													1	0																													
56	Long Island College Hospital													1	1																									1	0		
57	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.													1	0	2	1					1	0			1	0											1	0	1	1		
58	New York Med. Coll. and Hosp. for Women.—H.																																											
59	Syracuse University, College of Medicine																																											
60	University and Bellevue Hospital Medical College																			1	0																			1	0		
61	University of Buffalo Department of Medicine																																									2	0
	NORTH CAROLINA																																										
62	North Carolina Medical College																																											
	OHIO																																										
63	Eclectic Medical College.—E.									2	0															1	0							2	0								
64	Ohio State University, College of Medicine																									1	0																
65	Ohio State University, Coll. of Homeo. Med.—H.																																										
66	University of Cincinnati, College of Medicine																																	1	0							1	0
67	Western Reserve University, School of Medicine																																										
	OKLAHOMA																																										
68	University of Oklahoma, School of Medicine	1	0																																								
	OREGON																																										
69	University of Oregon, Department of Medicine									1	0																																
	PENNSYLVANIA																																										
70	Hahnemann Medical College and Hospital.—H.															2	0																			1	0						
71	Jefferson Medical College	1	1							3	0	1	0	2	2					1	0	2	0			2	0					1	0							2	0	2	0
72	Medico-Chirurgical College of Philadelphia													2	0	4	0	0	1																					1	0	0	1	1	0
73	Temple University, Department of Medicine													1	0			1	1																					0	1				
74	University of Pennsylvania, School of Medicine									2	0	2	0			3	0			1	0									1	0			2	0					1	0		
75	University of Pittsburgh, School of Medicine																																											
76	Woman's Medical College of Pennsylvania																													1	0									1	0	2	0		
	SOUTH CAROLINA																																											
77	Medical College of the State of South Carolina																			1	0																								
	TENNESSEE																																											
78	Lincoln Memorial University, Medical Department							2	0																											1	0						
79	Meharry Medical College	3	5					2	4									0	4	6	4	7	3			3	7							6	2	2	1						
80	University of Tennessee, College of Medicine	5	3					10	1																													2	3						
81	Univ. of West Tennessee, Coll. of Med. and Surg.																					1	0									0	1										
82	Vanderbilt University, Medical Department	6	3					2	0	1	0	1	0							4	0	5	0			1	0	1	1	2	0			5	0	5	0					2	1
	TEXAS																																											
83	Baylor University, College of Medicine																																											
84	Fort Worth School of Medicine																																			1	0						
85	University of Texas, Department of Medicine																			2	0											1	0							1	0		
	VERMONT																																											
86	University of Vermont, College of Medicine													2	0									1	0			1	0											4	1		
	VIRGINIA																																											
87	Medical College of Virginia																																							4	1			1	0
88	University of Virginia, Department of Medicine					1	0																																				
	WISCONSIN																																											
89	Marquette University, School of Medicine																							1	0	1	0	1	0														
	CANADA																																												
90	Dalhousie University, Faculty of Medicine																																											
91	Laval University, Faculty of Medicine																																									1	0		
92	McGill University, Faculty of Medicine																																					1	0						
93	Montreal School of Medicine and Surgery									3	0			1	0																									1	0			
94	Queen's University, Faculty of Medicine																																							1	0				
95	University of Toronto, Faculty of Medicine																																							1	0				
96	Western University, Faculty of Medicine																																					1	0					2	0
97	Foreign Colleges					0	1									0	1	1	0	2	0					0	1	1	0									2	0	0	2		
98	Miscellaneous Medical Colleges	5	12			0	1	0	1	3	1	0	1	3	4			0	1	1	2	1	0											2	1					4	6	7	6		
	Totals by States	85		1		19		68		140		25		48		15		37		55		134		10		573		49		65		33		68		68		20		120		181		136	
	Totals—Examined—Passed	53		1		16		58		136		22		33		13		25		47		130		10		498		46		65		32		61		64		19		94		150		133	
	Totals—Examined—Failed	32		0		3		10		4		3		15		2		12		8		4		0		75		3		0		1		7		4		1		26		31		3	
	Percentage of Failures	37.6		0.0		15.8		14.7		2.9		12.0		31.2		13.3		32.4		14.5		3.0		0.0		13.1		6.1		0.0		3.0		10.3		5.9		5.0		21.7		17.1		2.2	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

H. = Homeopathic; E. = Eclectic; P. = Passed; F. = Failed.

23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							
Minnesota		Mississippi		Missouri		Montana		Nebraska		Nevada		New Hampshire		New Jersey		New Mexico		New York		North Carolina		North Dakota		Ohio		Oklahoma		Oregon		Pennsylvania		Rhode Island		South Carolina		South Dakota		Tennessee		Texas		Utah		Vermont		Virginia		Washington		West Virginia		Wisconsin		Wyoming		Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
..	..	..	..	1	0	1	0	40	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	51	49	2	3.9	11	48
..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	1	33.3	2	49
..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	0	0.0	2	50
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0.0	1	51
..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	0	..	..	50	12	..	..	..	..	1	0	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	73	59	14	19.2	6	52
1	0	..	..	..	..	..	..	..	..	..	..	..	..	4	0	..	..	52	10	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	83	71	12	14.5	12	53
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	25	0	0.0	1	54
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	33	14	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52	38	14	26.9	4	55
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	85	3	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	93	89	4	4.3	5	56
..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	1	..	..	44	28	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	92	60	32	34.8	9	57
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	8	7	46.7	1	58
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	25	25	0	0.0	2	59
..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	0	..	..	50	4	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	63	59	4	6.3	5	60
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44	39	5	11.4	2	61
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	2	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	0	1	..	..	0	1	..	..	20	15	5	25.0	4	62
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	18	2	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	29	26	3	10.3	7	63
..	..	..	..	1	0	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	61	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	67	66	1	1.5	5	64
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	7	0	0.0	1	65
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	24	24	0	0.0	4	66
..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	2	0	..	..	58	58	0	0.0	5	67
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	1	..	..	..	..	..	..	0	2	..	..	..	..	1	0	2	0	..	..	..	..	..	..	..	..	..	..	19	16	3	15.8	5	68
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	10	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	0	..	..	..	..	19	17	2	10.5	4	69
..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	14	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	21	21	0	0.0	6	70
..	..	1	0	1	0	1	0	..	..	..	..	..	..	11	0	..	..	17	4	16	0	..	..	3	0	..	..	1	0	68	4	4	0	2	0	1	0	1	0	..	..	..	..	..	..	..	..	1	0	5	0	5	0	1	0	..	..	167	156	11	6.6	27	71
..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	0	..	..	2	3	1	0	..	..	..	..	..	..	..	..	46	10	1	1	1	0	..	..	1	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	89	73	16	18.0	15	72
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23	18	5	21.8	4	73
1	0	2	0	..	..	..	..	..	..	..	..	..	..	2	0	..	..	4	1	10	0	..	..	1	0	..	..	..	..	25	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0	1	0	..	..	62	61	1	1.6	18	74
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	1	0	..	..	11	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	14	0	0.0	4	75
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	3	4	..	..	..	..	2	0	..	..	..	..	7	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	18	4	18.2	7	76
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	15	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	19	0	0.0	3	77
..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	14	1	6.7	5	78
..	..	0	7	5	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	3	..	..	..	..	2	1	..	..	..	..	0	1	1	2	..	..	28	11	8	3	..	..	..	..	0	1	..	..	1	0	..	..	..	..	139	78	61	43.9	18	79
..	..	22	7	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	1	..	..	..	..	..	..	..	..	16	0	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	81	66	15	18.5	8	80
..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	2	..	..	..	..	0	1	..	..	..	..	..	..	1	0	..	..	5	8	1	1	..	..	..	..	0	1	..	..	..	..	..	..	..	..	27	10	17	63.0	9	81
..	..	4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	54	0	6	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	109	104	5	4.6	18	82
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	19	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27	22	5	18.5	3	83
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	6	1	14.3	2	84
..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	30	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	37	0	0.0	7	85
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	7	2	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	13	0	..	..	..	..	..	..	..	..	..	..	34	31	3	8.8	8	86
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	2	2	18	3	..	..	1	0	..	..	..	..	0	1	..	..	4	1	..	..	..	..	..	..	..	..	70	3	..	..	10	0	..	..	..	..	122	111	11	9.0	10	87
..	..	2	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	3	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	0	..	..	..	..	..	..	..	..	20	20	0	0.0	7	88
..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	2	0	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45	0	..	..	53	52	1	1.9	8	89
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0.0	1	90
1	0	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	1	33.3	3	91
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	2	0	..	..	..	..	10	9	1	10.0	7	92
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	2	2	0	0.0	2	93
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	1	50.0	2	94
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	1	0	8	7	1	12.5	5	95
..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	4	3	1	25.0	4	96
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	4	..	..	..	..	0	1	..	..	0	1	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	7	12	63.2	12	97
..	..	1	2	1	1	0	2	..	..	..	..	..	..	1	0	1	1	5	3	1	2	1	1	..	..	2	1	1	1	5	6	1	0	2	2	..	..	3	0	0	1	..	..	..	..	..	..	2	0	6	0	1	0	..	..	119	60	59	49.6	31	98
51		68		157		23		51		3		9		71		3		626		110		15		182		50		30		250		26		63		12		141		94		14		16		100		32		57		71		8		4283					
51		43		145		15		51		3		9		69		2		499		95		12		178		45		21		221		21		50		11		122		82		14		16		94		32		55		68		8		....	3738				
0		25		12		8		0		0		0		2		1		127		15		3		4		5		9		29		5		13		1		19		12		0		0		6		0		2		3		0		....	....	....			
0.0		36.8		7.6		34.8		0.0		0.0		0.0		2.8		33.3		20.3		13.6		20.0		2.2		10.0		30.0		11.6		19.2		20.6		8.3		13.5		12.8		0.0		0.0		6.5		0.0		3.5		4.2		0.0		....	....	....	12.7		
23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1912-1916					Graduates of 1911 and Previous					Graduates of 1916				
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States
	ALABAMA																				
1	University of Alabama, School of Medicine.....	26	21	5	19.2	6	18	16	2	11.1	2	8	5	3	37.5	6	15	14	1	6.7	1
	ARKANSAS																				
2	University of Arkansas, Medical Department.....	20	17	3	15.0	4	17	16	1	5.9	1	3	1	2	66.7	2	16	15	1	6.3	1
	CALIFORNIA																				
3	College of Medical Evangelists.....	13	13	0	0.0	4	13	13	0	0.0	4	...	...	...	....	..	9	9	0	0.0	1
4	College of Physicians and Surgeons, Los Angeles.	27	27	0	0.0	4	26	26	0	0.0	3	1	1	0	0.0	1	20	20	0	0.0	2
5	College of Physicians and Surgs. of San Francisco	10	8	2	20.0	3	9	7	2	22.2	3	1	1	0	0.0	1	5	4	1	20.0	3
6	Hahnemann Medical College of the Pacific.—H. ...	13	11	2	15.4	3	13	11	2	15.4	3	...	...	...	....	..	12	11	1	8.3	3
7	Leland Stanford Junior Univ., School of Medicine	25	25	0	0.0	4	25	25	0	0.0	4	...	...	...	....	..	20	20	0	0.0	1
8	Oakland College of Medicine and Surgery.....	2	2	0	0.0	1	2	2	0	0.0	1	...	...	...	....	..	2	2	0	0.0	1
9	University of California Medical School.....	35	35	0	0.0	3	33	33	0	0.0	3	2	2	0	0.0	2	30	30	0	0.0	2
	COLORADO																				
10	University of Colorado, School of Medicine.....	18	18	0	0.0	6	15	15	0	0.0	5	3	3	0	0.0	3	12	12	0	0.0	2
	CONNECTICUT																				
11	Yale University, School of Medicine.....	12	11	1	8.3	6	11	10	1	9.1	5	1	1	0	0.0	1	6	6	0	0.0	3
	DISTRICT OF COLUMBIA																				
12	Georgetown University, School of Medicine.....	25	21	4	16.0	13	20	19	1	5.0	11	5	2	3	60.0	5	2	2	0	0.0	2
13	George Washington University Medical School.....	33	29	4	12.1	14	24	22	2	8.3	10	9	7	2	22.2	7	18	16	2	11.1	5
14	Howard University, School of Medicine.....	29	19	10	34.5	15	24	17	7	29.2	14	5	2	3	60.0	5	5	4	1	20.0	5
	GEORGIA																				
15	Atlanta Medical College.....	157	142	15	9.6	12	149	135	14	9.4	11	8	7	1	12.5	6	129	123	6	4.7	7
16	Georgia College of Eclectic Med. and Surg.—E. ...	9	6	3	33.3	2	9	6	3	33.3	2	.. .	...	...	....	..	8	5	3	37.5	1
17	University of Georgia, Medical Department.....	19	18	1	5.3	7	19	18	1	5.3	7	...	...	...	....	..	15	15	0	0.0	5
	ILLINOIS																				
18	Chicago College of Medicine and Surgery.....	225	190	35	15.5	27	220	188	32	14.5	27	5	2	3	60.0	5	160	141	19	11.9	16
19	Chicago Hospital College of Medicine.....	10	4	6	60.0	2	10	4	6	60.0	2	...	...	...	....	..	3	2	1	33.3	1
20	Hahnemann Medical College and Hospital.—H. ...	29	26	3	10.3	9	25	22	3	12.0	6	4	4	0	0.0	4	18	17	1	5.6	4
21	Jenner Medical College.....	12	8	4	33.3	2	12	8	4	33.3	2	...	...	...	....	..	6	4	2	33.3	1
22	Loyola University, School of Medicine.....	163	125	38	23.3	24	157	121	36	22.9	22	6	4	2	33.3	5	107	84	23	21.5	14
23	Northwestern University Medical School.....	67	62	5	7.5	15	57	54	3	5.3	13	10	8	2	20.0	7	43	41	2	4.7	7
24	Rush Medical College.....	145	137	8	5.5	24	123	121	2	1.6	18	22	16	6	27.3	13	86	84	2	2.3	13
25	University of Illinois, College of Medicine.....	143	139	4	2.8	21	130	128	2	1.5	18	13	11	2	15.4	6	111	110	1	0.9	9
	INDIANA																				
26	Indiana University, School of Medicine.....	37	35	2	5.4	3	36	34	2	5.6	2	1	1	0	0.0	1	35	33	2	5.7	2
	IOWA																				
27	State Universtiy of Iowa, College of Medicine.....	35	34	1	2.9	4	28	28	0	0.0	2	7	6	1	14.3	4	28	28	0	0.0	2
28	State Univ. of Iowa, Coll. of Homeo. Med.—H. ...	1	1	0	0.0	1	....	....	....	....	..	1	1	0	0.0	1	....	....	...	....	..
	KANSAS																				
29	University of Kansas, School of Medicine.....	11	11	0	0.0	1	11	11	0	0.0	1	...	...	...	....	..	11	11	0	0.0	1
	KENTUCKY																				
30	University of Louisville, Medical Department.....	79	67	12	15.2	23	67	59	8	11.9	16	12	8	4	33.3	12	53	50	3	5.7	10
	LOUISIANA																				
31	Tulane University of Louisiana, School of Med. ..	97	92	5	5.2	17	86	82	4	4.7	12	11	10	1	9.1	10	78	76	2	2.6	10
	MAINE																				
32	Bowdoin Medical School.....	13	12	1	7.7	3	13	12	1	7.7	3	...	...	...	....	..	10	9	1	10.0	
	MARYLAND																				
33	Johns Hopkins University, Medical Department...	103	96	7	6.8	29	87	83	4	4.6	25	16	13	3	18.7	9	47	45	2	4.3	10
34	Univ. of Maryland, Sch. of Med. & Coll. of P. & S.	125	104	21	16.8	17	123	102	21	17.1	17	2	2	0	0.0	2	83	67	16	19.3	13
	MASSACHUSETTS																				
35	Boston University, School of Medicine.—H.	25	23	2	8.0	8	23	21	2	8.7	7	2	2	0	0.0	2	12	12	0	0.0	
36	College of Physicians and Surgeons, Boston.....	21	8	13	61.9	4	17	7	10	58.8	3	4	1	3	75.0	3	13	6	7	53.8	
37	Medical School of Harvard University.....	99	92	7	7.1	26	92	88	4	4.3	25	7	4	3	42.9	5	47	45	2	4.3	1
38	Tufts College Medical School.....	86	74	12	13.9	11	80	70	10	12.5	9	6	4	2	33.3	4	56	53	3	5.4	
	MICHIGAN																				
39	Detroit College of Medicine and Surgery.....	57	53	4	7.0	5	52	50	2	3.8	3	5	3	2	40.0	3	50	48	2	4.0	
40	University of Michigan Medical School.....	76	72	4	5.3	17	65	63	2	3.1	10	11	9	2	18.2	11	62	61	1	1.6	
41	University of Michigan, Homeo. Med. School.—H..	11	11	0	0.0	3	11	11	0	0.0	3	.. .	...	...	....	..	7	7	0	0.0	
	MINNESOTA																				
42	University of Minnesota Medical School.....	42	42	0	0.0	7	38	38	0	0.0	6	4	4	0	0.0	3	34	34	0	0.0	
	MISSOURI																				
43	Kansas City College of Medicine and Surgery.—E..	12	12	0	0.0	1	12	12	0	0.0	1	...	...	...	....	..	12	12	0	0.0	
44	National University of Arts and Sciences.....	67	59	8	11.9	7	67	59	8	11.9	7	...	...	...	....	..	61	55	6	9.8	
45	Southwest School of Medicine and Hospital.—H...	13	13	0	0.0	2	13	13	0	0.0	2	...	...	...	....	..	13	13	0	0.0	
46	St. Louis University, School of Medicine.....	64	63	1	1.6	11	61	60	1	1.6	9	3	3	0	0.0	3	50	50	0	0.0	
47	Washington University Medical School.....	19	19	0	0.0	6	18	18	0	0.0	5	1	1	0	0.0	1	16	16	0	0.0	

H. = Homeopathic; E. = Eclectic.

NAME OF COLLEGE	Graduates of All Years					Graduates of 1912-1916					Graduates of 1911 and Previous					Graduates of 1916					Marginal Number
	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
NEBRASKA																					
John A. Creighton Medical College	53	50	3	5.7	12	51	49	2	3.9	11	2	1	1	50.0	2	41	41	0	0.0	4	48
Lincoln Medical College.—E.	8	5	3	37.5	2	3	[illegible]	1	33.3	[illegible]	5	3	2	40.0	2	5	3	2	40.0	2	49
University of Nebraska, College of Medicine	3	3	0	0.0	2	3	3	0	0.0	2	...	...	...	....	..	2	2	0	0.0	1	50
NEW HAMPSHIRE																					
Dartmouth Medical School	6	6	0	0.0	4	1	1	0	0.0	1	5	5	0	0.0	4	....	....	...	....	..	51
NEW YORK																					
Albany Medical College	77	61	16	20.8	7	73	59	14	19.2	6	4	2	2	50.0	2	38	36	2	5.3	2	52
Columbia University	95	82	13	13.7	17	83	71	12	14.5	12	12	11	1	8.3	8	36	34	2	5.6	5	53
Cornell University Medical College	27	27	0	0.0	2	25	25	0	0.0	1	2	2	0	0.0	1	19	19	0	0.0	1	54
Fordham University, School of Medicine	52	38	14	26.9	4	52	38	14	26.9	4	...	...	...	....	..	24	17	7	29.2	1	55
Long Island College Hospital	95	91	4	4.2	5	93	89	4	4.3	5	2	2	0	0.0	2	76	74	2	2.6	2	56
N. Y. Homeo. Med. Coll. and Flower Hosp.—H. ..	94	62	32	34.0	11	92	60	32	34.8	9	2	2	0	0.0	2	34	23	11	32.4	4	57
New York Med. Coll. and Hosp. for Women.—H. .	15	8	7	46.7	1	15	8	7	46.7	1	...	...	...	....	..	11	6	5	45.5	1	58
Syracuse University, College of Medicine	27	27	0	0.0	4	25	25	0	0.0	2	2	2	0	0.0	2	18	18	0	0.0	1	59
University and Bellevue Hospital Medical College.	68	63	5	7.3	7	63	59	4	6.3	5	5	1	1	20.0	3	35	32	3	8.6	3	60
University of Buffalo Department of Medicine	45	39	6	13.3	2	44	39	5	11.4	2	1	0	1	100.0	1	36	34	2	5.6	2	61
NORTH CAROLINA																					
North Carolina Medical College	22	15	7	31.8	5	20	15	5	25.0	4	2	0	2	100.0	2	8	8	0	0.0	1	62
OHIO																					
Eclectic Medical College.—E.	33	28	5	15.2	9	29	26	3	10.3	7	4	2	2	50.0	3	26	24	2	7.7	6	63
Ohio State University, College of Medicine	67	66	1	1.5	5	67	66	1	1.5	5	...	...	...	....	..	65	65	0	0.0	4	64
Ohio State University, Coll. of Homeo. Med.—H.	7	7	0	0.0	1	7	7	0	0.0	1	...	...	...	....	..	7	7	0	0.0	1	65
University of Cincinnati, College of Medicine	28	28	0	0.0	7	24	24	0	0.0	4	4	4	0	0.0	3	24	24	0	0.0	4	66
Western Reserve University, School of Medicine	59	59	0	0.0	6	58	58	0	0.0	5	1	1	0	0.0	1	53	53	0	0.0	2	67
OKLAHOMA																					
University of Oklahoma, School of Medicine	20	16	4	20.0	6	19	16	3	15.8	5	1	0	1	100.0	1	13	12	1	7.7	2	68
OREGON																					
University of Oregon, Department of Medicine	23	21	2	8.7	5	19	17	2	10.5	4	4	4	0	0.0	3	12	10	2	16.7	3	69
PENNSYLVANIA																					
Hahnemann Medical College and Hospital.—H.	21	21	0	0.0	6	21	21	0	0.0	6	...	...	...	....	..	4	4	0	0.0	3	70
Jefferson Medical College	174	161	13	7.5	27	167	156	11	6.6	27	7	5	2	28.6	5	45	45	0	0.0	17	71
Medico-Chirurgical College of Philadelphia	90	74	16	17.8	16	89	73	16	18.0	15	1	1	0	0.0	1	14	12	2	14.3	7	72
Temple University, Department of Medicine	24	19	5	20.8	5	23	18	5	21.8	4	1	1	0	0.0	1	....	....	...	....	..	73
University of Pennsylvania, School of Medicine	72	69	3	4.2	20	62	61	1	1.6	18	10	8	2	20.0	7	19	19	0	0.0	9	74
University of Pittsburgh, School of Medicine	15	15	0	0.0	5	14	14	0	0.0	4	1	1	0	0.0	1	....	....	...	....	..	75
Woman's Medical College of Pennsylvania	27	22	5	18.5	9	22	18	4	18.2	7	5	4	1	20.0	5	3	3	0	0.0	2	76
SOUTH CAROLINA																					
Medical College of the State of South Carolina	24	19	5	20.8	3	19	19	0	0.0	3	5	0	5	100.0	2	18	18	0	0.0	3	77
TENNESSEE																					
Lincoln Memorial University, Medical Department.	15	14	1	6.7	5	15	14	1	6.7	5	...	...	...	....	..	14	13	1	7.2	5	78
Meharry Medical College	148	81	67	45.3	20	139	78	61	43.9	18	9	3	6	66.7	7	87	61	26	29.9	13	79
University of Tennessee, College of Medicine	83	67	16	19.3	10	81	66	15	18.5	8	2	1	1	50.0	2	63	53	10	15.9	7	80
Univ. of West Tennessee, Coll. of Med. and Surg.	28	10	18	64.3	9	27	10	17	63.0	9	1	0	1	100.0	1	6	3	3	50.0	2	81
Vanderbilt University, Medical Department	111	105	6	5.4	18	109	104	5	4.6	18	2	1	1	50.0	2	83	83	0	0.0	10	82
TEXAS																					
Baylor University, College of Medicine	29	24	5	17.2	4	27	22	5	18.5	3	2	2	0	0.0	2	26	21	5	19.2	2	83
Fort Worth School of Medicine	7	6	1	14.3	2	7	6	1	14.3	2	...	...	...	....	..	6	5	1	16.7	2	84
University of Texas, Department of Medicine	37	37	0	0.0	7	37	37	0	0.0	7	...	...	...	....	..	30	30	0	0.0	3	85
VERMONT																					
University of Vermont, College of Medicine	39	34	5	12.8	9	34	31	3	8.8	8	5	3	2	40.0	4	9	9	0	0.0	3	86
VIRGINIA																					
Medical College of Virginia	124	113	11	8.9	11	122	111	11	9.0	10	2	2	0	0.0	2	91	86	5	5.5	6	87
University of Virginia, Department of Medicine	25	25	0	0.0	11	20	20	0	0.0	7	5	5	0	0.0	5	16	16	0	0.0	4	88
WISCONSIN																					
Marquette University, School of Medicine	53	52	1	1.9	8	53	52	1	1.9	8	...	...	...	....	..	46	46	0	0.0	2	89
CANADA																					
Dalhousie University, Faculty of Medicine	1	1	0	0.0	1	1	1	0	0.0	1	...	...	...	....	..	....	....	...	....	..	90
Laval University, Faculty of Medicine	5	2	3	60.0	5	3	2	1	33.3	3	2	0	2	100.0	2	1	1	0	0.0	1	91
McGill University, Faculty of Medicine	16	13	3	18.7	10	10	9	1	10.0	7	6	4	2	33.3	5	1	1	0	0.0	1	92
Montreal School of Medicine and Surgery	2	2	0	0.0	2	2	2	0	0.0	2	...	...	...	....	..	....	....	...	....	..	93
Queen's University, Faculty of Medicine	3	2	1	33.3	3	2	1	1	50.0	2	1	1	0	0.0	1	....	....	...	....	..	94
University of Toronto, Faculty of Medicine	17	16	1	5.9	12	8	7	1	12.5	5	9	9	0	0.0	7	1	1	0	0.0	1	95
Western University, Faculty of Medicine	4	3	1	25.0	4	4	3	1	25.0	4	...	...	...	....	..	....	....	...	....	..	96
Foreign Colleges	78	43	35	44.9	21	19	7	12	63.2	12	59	36	23	39.0	18	....	....	...	....	..	97
Miscellaneous Medical Colleges	294	164	130	44.2	44	119	60	59	49.6	31	175	104	71	40.6	42	2	2	0	0.0	1	98
Totals	4850	4123	727	15.0	..	4283	3738	545	12.7	..	567	385	182	32 1	..	2804	2596	208	7.4		

TABLE D.—NONRECOGNITION OF MEDICAL COLLEGES

This Table, Based on Official Reports, Shows the Numerous Pitfalls to be Avoided by Prospective Medical Students

The meaning of the letters (**a, b, c, d, x**) is given in the footnotes.

| Marginal Number | COLLEGE | Classification by Council on Medical Education† | 1 Alabama | 2 Alaska | 3 Arizona | 4 Arkansas | 5 California | 6 Colorado | 7 Connecticut | 8 Delaware | 9 Dist. of Columbia | 10 Florida | 11 Georgia | 12 Idaho | 13 Illinois | 14 Indiana | 15 Iowa | 16 Kansas | 17 Kentucky | 18 Louisiana | 19 Maine | 20 Maryland | 21 Massachusetts | 22 Michigan | 23 Minnesota | 24 Mississippi | 25 Missouri | 26 Montana | 27 Nebraska | 28 Nevada | 29 New Hampshire | 30 New Jersey | 31 New Mexico | 32 New York | 33 North Carolina | 34 North Dakota | 35 Ohio | 36 Oklahoma | 37 Oregon | 38 Pennsylvania | 39 Rhode Island | 40 South Carolina | 41 South Dakota | 42 Tennessee | 43 Texas | 44 Utah | 45 Vermont | 46 Virginia | 47 Washington | 48 West Virginia | 49 Wisconsin | 50 Wyoming | 51 Porto Rico | Reported Non-Recognition by State Licensing Boards: No. of State Boards apparently giving full recognition | No. of State Boards reporting college diplomas not fully recognized | Percentage of State Boards granting full recognition | Marginal Number |
|---|---|---

| | | |

CONCLUDED FROM PAGE 1101

shows that 2,804, or 57.8 per cent., of all candidates examined during the year graduated in 1916, including three who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 3,518 students last year; therefore, 79.7 per cent. of all graduates in 1916 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which doubtless accounts for some of the remaining 20.3 per cent. Of the 1916 graduates examined, 208, or 7.4 per cent., failed.

TABLE E.—COLLEGES GROUPED BY STATES
Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates: Of All Years		Of 1912 to 1916		Of 1911 & Prev.		Of 1916		State Rank According to the Number Examined	Rank According to Successes at Examinations
	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed	No. Examined	Per Cent. Failed		
Alabama	26	19.2	18	11.1	8	37.5	15	6.7	23	25
Arkansas	20	15.0	17	5.9	3	66.7	16	6.3	27	21
California	125	3.2	121	3.3	4	0.0	98	2.0	12	5
Colorado	18	0.0	15	0.0	3	0.0	12	0.0	28	1
Connecticut	12	8.3	11	9.1	1	0.0	6	0.0	30	13
Dist. of Columbia	87	20.7	68	14.7	19	42.1	25	12.0	14	27
Georgia	185	10.3	177	10.2	8	12.5	152	5.9	8	17
Illinois	794	13.0	734	10.6	60	25.0	534	9.6	1	20
Indiana	37	5.7	36	5.6	1	0.0	35	5.7	21	9
Iowa	36	2.8	28	0.0	8	12.5	28	0.0	22	3
Kansas	11	0.0	11	0.0	.....	.....	11	0.0	31	1
Kentucky	79	15.2	67	11.9	12	33.3	53	5.7	15	22
Louisiana	97	5.2	86	4.7	11	9.1	78	2.6	13	7
Maine	13	7.7	13	7.7	.....	.....	10	10.0	29	11
Maryland	228	12.3	210	11.9	18	16.7	130	13.8	6	18
Massachusetts	231	15.4	212	12.3	19	42.1	128	9.4	5	23
Michigan	144	5.6	128	3.1	16	25.0	119	2.5	11	8
Minnesota	42	0.0	38	0.0	4	0.0	34	0.0	19	1
Missouri	175	5.1	171	5.3	4	0.0	152	3.9	9	6
Nebraska	64	9.4	57	5.3	7	42.9	48	4.2	17	15
New Hampshire	6	0.0	1	0.0	5	0.0	.....	.....	32	1
New York	595	16.3	565	16.3	30	16.7	327	10.4	2	24
North Carolina	22	31.8	20	25.0	2	100.0	8	0.0	26	30
Ohio	194	3.1	185	2.2	9	22.2	175	1.1	7	4
Oklahoma	20	20.0	19	15.8	1	100.0	13	7.7	27	26
Oregon	23	8.7	19	10.5	4	0.0	12	16.7	25	14
Pennsylvania	423	9.9	398	9.3	25	20.0	85	2.4	3	16
South Carolina	24	20.8	19	0.0	5	100.0	18	0.0	24	28
Tennessee	385	28.1	371	26.7	14	64.3	253	15.8	4	29
Texas	73	8.2	71	8.5	2	0.0	62	9.7	16	12
Vermont	39	12.8	34	8.8	5	40.0	9	0.0	20	19
Virginia	149	7.4	142	7.7	7	0.0	107	4.7	10	10
Wisconsin	53	1.9	53	1.9	.....	.....	46	0.0	18	2
Totals Ex. in 1916	4430	12.5	4115	11.4	315	26.7	2799	7.4	....	....

This table gives data relating to the group of colleges in each state. For example, it shows that, of all the medical schools in Tennessee, 385 graduates of various years were examined by state boards during 1916, and of this number, 28.1 per cent. failed. Of the 371 who graduated in recent years (1912 to 1916 inclusive), 26.7 per cent. failed; of the 14 who graduated previous to 1912, 64.3 per cent. failed, and of the 253 graduates of 1916, 15.8 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of graduates examined. The Illinois group of colleges leads, having 794 graduates examined by state boards during 1916, followed by New York with 595, Pennsylvania with 423, Tennessee with 385, Massachusetts with 231 and Maryland with 228.

The last column gives the rank of each state group of colleges according to the success of the graduates at the examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks twentieth in the success of its graduates at the examinations. While Pennsylvania ranks third as to the number examined, it ranks sixteenth in the success of its graduates at the examinations, and while Tennessee ranks fourth as to the number examined, it ranks as the twenty-ninth in the success of its graduates at the examinations.

Nonrecognition of Medical Colleges

Table D shows for each college, from official reports, the states in which its diplomas are not given unqualified recognition. Nonrecognition is expressed by different terms in different states. Some boards list colleges as "in good standing" or "not in good standing," some give them as "reputable" or "not reputable"; in New York full recognition is given only to colleges which are "registered," and in Michigan colleges are divided into groups, only those of Group I having full recognition. There are twenty-one states which do not register graduates of a medical college unless such graduates had completed at least two years of collegiate work prior to entering on the study of medicine. This table also shows the latest rating given to each college by the Council on Medical Education.

TABLE 1.—RECOGNITION OF MEDICAL COLLEGES (BASED ON TABLE D)

	Number of Colleges
Recognized by all state boards	60
Not recognized by 1 to 3 state boards	9
Not recognized by 9 to 27 state boards	14
Not recognized by 30 to 40 state boards	10
Total	93

From the point of view of the prospective student who may be selecting a medical college, the facts in Table D are of extreme importance. There are 60 medical colleges now having complete recognition in all states. There are 9 others for which the one or two instances of nonrecognition are due to certain technicalities. If the student gets his medical training in one of the remaining 24 colleges, he will find on graduation that his diploma is not recognized in from 9 to 40 states!

Without the information published in Table D, these state board statistics would be not merely incomplete—*they would be actually misleading.* For example, 67 graduates of the National University of Arts and Sciences Medical Department, of St. Louis, were examined during 1916, 54 in Missouri and 13 elsewhere and only 8, or 11.9 per cent., failed. The low failure percentage makes this college appear to rank among the better teaching institutions in the country. How different the picture, however, when the facts set forth in Table D show that graduates of this college are admitted to the licensing examination in only ten states. In other words its diplomas are reported not recognized in 39 states!

During the four years this table has been published, the totals of fully recognized colleges were, respectively, 31, 33, 42 and 58. Thirty-nine state licensing boards, to some extent at least, are utilizing their legal power to refuse recognition to medical colleges which do not exact for admission certain educational qualifications, or which otherwise do not meet the requirements in the respective states. In the other ten states, however, and in the District of Columbia, this table indicates that either the practice acts do not give the boards authority to enforce a requirement of reasonable standards, or else the boards are not exercising that authority. It is evident that if the graduates of low-standard medical colleges are not eligible for license in the majority of states, they will flock to the other eleven which still grant them recognition. *These eleven states, therefore, are literally the dumping ground for the output of low-grade medical colleges, and will remain so until the licensing boards obtain the needed legal powers, or until the boards having the authority take action in the matter.*

Source of Candidates Registered by Examination

Of the 4,123 physicians registered by examination in 1916, 3,106, or 75.3 per cent., graduated from Class A medical colleges; 654, or 15.9 per cent., were from Class B medical colleges; and only 156, or 3.8 per cent., were from Class C medical colleges. Five per cent. of all candidates came from medical colleges which have ceased to exist and from foreign medical colleges. A comparison of these figures with the

TABLE 2.—SOURCE OF CANDIDATES REGISTERED BY EXAMINATION

	1910		1916	
	Number	Per Cent.	Number	Per Cent.
Class A medical colleges	3,870	67.7	3,106	75.3
Class B medical colleges	977	17.1	654	15.9
Class C medical colleges	292	5.1	156	3.8
Miscellaneous medical colleges	311	5.5	164	4.0
Foreign medical colleges	70	1.2	43	1.0
Undergraduates	192	3.4	.....	....
Totals	5,712	100	4,123	100

results for 1910, as shown in Table 2, will be interesting. The differences would be greater if the classification in 1910 had been as strict as that in 1916. It is interesting to note that in 1910, 3.4 per cent. of all candidates were undergraduates. Of the 1916 graduates, not a single undergraduate was registered.

TABLE 3.—FAILURE PERCENTAGES ACCORDING TO SOURCE OF APPLICANTS

Medical Colleges	1910				1916			
	Examined	Passed	Failed	Per Cent. Failed	Examined	Passed	Failed	Per Cent Failed
Class A	4,318	3,870	448	10.4	3,396	3,106	290	8.5
Class B	1,268	977	291	22.9	861	654	207	24.0
Class C	479	292	187	39.0	221	156	65	29.4*
Miscellaneous	478	311	167	34.9	294	164	130	44.2
Foreign	108	70	38	35.2	78	43	35	44.9
Undergraduates	353	192	161	45.6	.....	.....	.....	.....

* Class C colleges at present, as a rule, are not recognized in from 33 to 39 states. This percentage, therefore, is the result of examinations by partisan boards and in states where the boards do not have, or are not using, the authority to refuse recognition.

Table 3 will also be interesting, in that the failure percentages of candidates coming from the various groups of colleges support the classifications. It will be noted that graduates of Class A medical schools had a much lower percentage of failures than those from colleges in Classes B and C. In this connection it should be stated that the percentage of failures for Class C medical colleges would doubtless be higher except for the fact that graduates of several of these colleges were examined largely, if not entirely, by partisan or sectarian boards, and not by single boards which examine graduates of all schools.

Study of Totals and Percentages

A study of totals and percentages as compared with previous years is of interest. The total examined in 1916—4,859—is the lowest number of candidates examined for license in any year since the compiling of these statistics began. (See Table 4.) The number examined was 463 less than in 1915, 720 less than in 1914, and 3,185 less than in 1906, when 8 035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables I, J and K. By all methods—examination, reciprocity, under exemption, etc.—5,461 physicians were licensed during 1916, or 411 less than in 1915, 336 less than in 1914, and 2,404 less than in 1906, when 7,865 physicians were licensed.

TABLE F.—COLLEGES HAVING FIFTY OR MORE EXAMINED

Table Shows Total Number Examined, Total Number Passed, Total Number Failed, Percentage of Failures and Number of States in Which Each College Had Representatives

COLLEGE	Graduates of All Years					Graduates of 1912–1916					Graduates of 1911 and Previous					Graduates of 1916					Marginal Number, Table A
	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	
Chicago College of Medicine and Surgery	225	190	35	15.5	27	220	188	32	14.5	27	5	2	3	60.0	5	160	141	19	11.9	16	18
Jefferson Medical College	174	161	13	7.5	27	167	156	11	6.6	27	7	5	2	28.6	5	45	45	0	0.0	17	71
Loyola University, School of Medicine	163	125	38	23.3	24	157	121	36	22.9	22	6	4	2	33.3	5	107	84	23	21.5	14	22
Atlanta Medical College	157	142	15	9.6	12	149	135	14	9.4	11	8	7	1	12.5	6	129	123	6	4.7	7	15
Meharry Medical College	148	81	67	45.3	20	139	78	61	43.9	18	9	3	6	66.7	7	87	61	26	29.9	13	79
Rush Medical College	145	137	8	5.5	24	123	121	2	1.6	18	22	16	6	27.3	13	86	84	2	2.3	13	24
University of Illinois, College of Medicine	143	139	4	2.8	21	130	128	2	1.5	18	13	11	2	15.4	6	111	110	1	0.9	9	25
University of Maryland, School of Medicine	125	104	21	16.8	17	123	102	21	17.1	17	2	2	0	0.0	2	83	67	16	19.3	12	34
Medical College of Virginia	124	113	11	8.9	11	122	111	11	9.0	10	2	2	0	0.0	2	91	86	5	5.5	6	87
Vanderbilt University, Medical Department	111	105	6	5.4	18	109	104	5	4.6	18	2	1	1	50.0	2	83	83	0	0.0	10	82
Johns Hopkins University, Medical Department	103	96	7	6.8	29	87	83	4	4.6	25	16	13	3	18.7	9	47	45	2	4.3	10	33
Medical School of Harvard University	99	92	7	7.1	26	92	88	4	4.3	25	7	4	3	42.9	5	47	45	2	4.3	15	37
Tulane University of Louisiana, School of Med.	97	92	5	5.2	17	86	82	4	4.7	12	11	10	1	9.1	10	78	76	2	2.6	10	31
Long Island College Hospital	95	91	4	4.2	5	93	89	4	4.3	5	2	2	0	0.0	2	76	74	2	2.6	2	56
Columbia University	95	82	13	13.7	17	83	71	12	14.5	12	12	11	1	8.3	8	36	34	2	5.6	5	53
N. Y. Homeo. Med. Coll. and Flower Hospital	94	62	32	34.0	11	92	60	32	34.8	9	2	2	0	0.0	2	34	23	11	32.4	4	57
Medico-Chirurgical College of Philadelphia	90	74	16	17.8	16	89	73	16	18.0	15	1	1	0	0.0	1	14	12	2	14.3	7	72
Tufts College Medical School	86	74	12	13.9	11	80	70	10	12.5	9	6	4	2	33.3	4	56	53	3	5.4	5	38
University of Tennessee, College of Medicine	83	67	16	19.3	10	81	66	15	18.5	8	2	1	1	50.0	2	63	53	10	15.9	7	80
University of Louisville, Medical Department	79	67	12	15.2	23	67	59	8	11.9	16	12	8	4	33.3	12	53	50	3	5.7	10	30
Albany Medical College	77	61	16	20.8	7	73	59	14	19.2	6	4	2	2	50.0	2	38	36	2	5.3	2	52
University of Michigan Medical School	76	72	4	5.3	17	65	63	2	3.1	10	11	9	2	18.2	11	62	61	1	1.6	8	40
University of Pennsylvania, School of Medicine	72	69	3	4.2	20	62	61	1	1.6	18	10	8	2	20.0	7	19	19	0	0.0	9	71
University and Bellevue Hosp. Med. Coll.	68	63	5	7.3	7	63	59	4	6.3	5	5	4	1	20.0	8	35	32	3	8.6	3	60
Northwestern University Medical School	67	62	5	7.5	15	57	54	3	5.3	13	10	8	2	20.0	7	43	41	2	4.7	7	23
National University of Arts and Sciences	67	59	8	11.9	7	67	59	8	11.9	7	.....	.....	.....	.....	.....	61	55	6	9.8	5	44
Ohio State University College of Medicine	67	66	1	1.5	5	67	66	1	1.5	5	.....	.....	.....	.....	.....	65	65	0	0.0	4	61
St. Louis University, School of Medicine	64	63	1	1.6	11	61	60	1	1.6	9	3	3	0	0.0	3	50	50	0	0.0	6	46
Western Reserve University, School of Medicine	59	59	0	0.0	6	58	58	0	0.0	5	1	1	0	0.0	1	53	53	0	0.0	2	67
Detroit College of Medicine and Surgery	57	53	4	7.0	5	52	50	2	3.8	3	5	3	2	40.0	3	50	48	2	4.0	1	39
John A. Creighton Medical College	53	50	3	5.7	12	51	49	2	3.9	11	2	1	1	50.0	2	41	41	0	0.0	4	48
Marquette University	53	52	1	1.9	8	53	52	1	1.9	8	.....	.....	.....	.....	.....	46	46	0	0.0	2	89
Fordham University, School of Medicine	52	38	14	26.9	4	52	38	14	26.9	4	.....	.....	.....	.....	.....	24	17	7	29.2	1	55
Totals	3268	2861	407	12.4	....	3070	2713	357	11.6	....	198	148	50	25.3	....	2073	1913	160	7.7		

This table is especially interesting, since it gives data relating to the 33 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. For the fourth consecutive year the Chicago College of Medicine and Surgery has had the largest number, the position having been held by the College of Physicians and Surgeons of Chicago in 1906, 1907 and 1912. In 1908 Jefferson Medical College had the highest number examined. In 1909, 1910 and 1911 the University of Louisville Medical Department had the largest number examined. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentages of failures. The highest failure percentages are for Meharry Medical College, 45.3; New York Homeopathic Medical College, 34; Fordham University School of Medicine, 26.9; Loyola University School of Medicine, 23.3, and Albany Medical College, 20.8.

Of the 11 colleges having 100 or more examined, 7 have failure percentages of less than 10, while four stand out prominently with large failure percentages—15.5, 16.8, 23.3 and 45.3, and high percentages hold even in respect to graduates of 1916.

Of the 22 colleges having between 50 and 100 graduates examined, thirteen had failure percentages of less than 10; six had failure percentages between 10 and 20, and three had failure percentages above 20.

The average percentage of failures for these larger colleges for graduates of 1911 and previous years was 25.3; for graduates of 1912 to 1916 inclusive (recent graduates), 11.6; for graduates of 1916, 7.7, and for graduates of all years, 12.4. Of the 4,430 graduates of the 89 colleges in the United States which had graduates examined by state boards in 1916, these larger (37.1 per cent. of all) schools furnished 3,268, or 74 per cent., of the graduates examined.

Other deductions from the larger tables presented in Tables E to H are worthy of special study.

STUDY OF COLLEGES BY STATE GROUPS

Table E gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate what kind of training these colleges are furnishing, so far as may be judged from the results of state board examinations. Of the thirty-three states having medical colleges which grant degrees, twelve furnished 100 or more candidates examined, six states furnished more than 200 each, and four furnished

TABLE G.—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B.

COLLEGES	Total Examined	Results in Home State			Results in Other States		
		Passed	Failed	Per Cent. Failed	Passed	Failed	Per Cent. Failed
ALABAMA +94.1	**18**	**16**	**1**	**5.9**	**0**	**1**	**100.0**
University of Alabama, School of Med.	18	16	1	5.9	0	1	100.0
ARKANSAS —	**17**	**16**	**1**	**5.9**	....	....	.....
University of Arkansas, Medical Dept.	17	16	1	5.9	....	....	.....
CALIFORNIA +9.2	**121**	**101**	**2**	**1.9**	**16**	**2**	**11.1**
College of Medical Evangelists	13	9	0	0.0	4	0	0.0
College of Phys. and Surgs., Los Angeles	26	23	0	0.0	3	0	0.0
Coll. of Phys. and Surgs., San Francisco	9	5	1	16.7	2	1	33.3
Hahnemann Med. Coll. of the Pacific	13	10	1	9.1	1	1	50.0
Leland Stanford Junior University	25	22	0	0.0	3	0	0.0
Oakland College of Med. and Surg.	2	2	0	0.0	....	....	.....
University of California Medical School	33	30	0	0.0	3	0	0.0
COLORADO —	**15**	**11**	**0**	**0.0**	**4**	**0**	**0.0**
University of Colorado	15	11	0	0.0	4	0	0.0
CONNECTICUT —16.7	**11**	**5**	**1**	**16.7**	**5**	**0**	**0.0**
Yale University	11	5	1	16.7	5	0	0.0
DISTRICT OF COLUMBIA +1.6	**68**	**19**	**3**	**13.6**	**39**	**7**	**15.2**
Georgetown University	20	4	0	0.0	15	1	6.3
George Washington University	24	14	1	6.7	8	1	11.1
Howard University	24	1	2	66.7	16	5	23.8
GEORGIA +26.1	**177**	**108**	**0**	**0.0**	**51**	**18**	**26.1**
Atlanta Medical College	149	97	0	0.0	38	14	26.9
Georgia Coll. of Eclectic Med. and Surg.	9	*	...	.....	6	3	33.3
University of Georgia	19	11	0	0.0	7	1	12.5
ILLINOIS +0.2	**734**	**465**	**63**	**11.9**	**181**	**25**	**12.1**
Chicago College of Medicine and Surgery	220	138	20	12.7	50	12	19.4
Chicago Hospital College of Medicine	10	3	6	66.7	1	0	0.0
Hahnemann Medical College and Hospital	25	16	3	15.8	6	0	0.0
Jenner Medical College	12	7	4	36.3	1	0	0.0
Loyola University	157	89	26	22.6	32	10	23.8
Northwestern University	57	39	2	4.9	15	1	6.3
Rush Medical College	123	77	1	1.3	44	1	2.2
University of Illinois	130	96	1	1.0	32	1	3.0
INDIANA —5.7	**36**	**33**	**2**	**5.7**	**1**	**0**	**0.0**
Indiana University	36	33	2	5.7	1	0	0.0
IOWA —	**28**	**27**	**0**	**0.0**	**1**	**0**	**0.0**
State Univ. of Iowa, Coll. of Med.	28	27	0	0.0	1	0	0.0
State Univ. of Iowa, Coll. of Homeo. Med.	....	....	....	.....	....	....	.....
KANSAS —	**11**	**11**	**0**	**0.0**	....	....	.....
University of Kansas	11	11	0	0.0	....	....	.....
KENTUCKY +17.2	**67**	**38**	**2**	**5.0**	**21**	**6**	**22.2**
University of Louisville	67	38	2	5.0	21	6	22.2
LOUISIANA +11.1	**86**	**50**	**0**	**0.0**	**32**	**4**	**11.1**
Tulane University of Louisiana	86	50	0	0.0	32	4	11.1
MAINE —9.1	**13**	**10**	**1**	**9.1**	**2**	**0**	**0.0**
Bowdoin Medical School	13	10	1	9.1	2	0	0.0
MARYLAND —9.2	**210**	**73**	**16**	**17.0**	**107**	**9**	**7.8**
Johns Hopkins University	87	37	2	5.1	46	2	4.2
University of Maryland	123	41	14	25.5	61	7	10.3
MASSACHUSETTS —1.2	**212**	**102**	**15**	**12.8**	**84**	**11**	**11.6**
Boston University	23	13	1	7.2	8	1	11.1
College of Phys. and Surgs., Boston	17	7	8	53.3	0	2	100.0
Medical School of Harvard University	92	32	0	0.0	56	4	6.7
Tufts College Medical School	80	50	6	10.7	20	4	16.7
MICHIGAN +11.5	**128**	**111**	**2**	**1.8**	**13**	**2**	**13.3**
Detroit College of Medicine and Surgery	52	48	2	4.0	2	0	0.0
University of Michigan, Medical School	65	55	0	0.0	8	2	20.0
University of Michigan, Homeo. Med. Sch.	11	8	0	0.0	3	0	0.0
MINNESOTA —	**38**	**33**	**0**	**0.0**	**5**	**0**	**0.0**
University of Minnesota	38	33	0	0.0	5	0	0.0
MISSOURI +4.2	**171**	**104**	**4**	**3.7**	**58**	**5**	**7.9**
Kansas City College of Med. and Surg.	12	*	...	.....	12	0	0.0
National University of Arts and Sciences	67	54	4	6.9	5	4	44.4
Southwest School of Medicine and Hosp.	13	*	...	.....	13	0	0.0
St. Louis University	61	36	0	0.0	24	1	4.0
Washington University	18	14	0	0.0	4	0	0.0
NEBRASKA +23.1	**57**	**44**	**0**	**0.0**	**10**	**3**	**23.1**
John A. Creighton Medical College	51	40	0	0.0	9	2	18.2
Lincoln Medical College	3	2	0	0.0	0	1	100.0
University of Nebraska	3	2	0	0.0	1	0	0.0
NEW HAMPSHIRE —	**1**	....	...	.....	**1**	**0**	**0.0**
Dartmouth Medical School	1	....	...	.....	1	0	0.0
NEW YORK —4.7	**565**	**408**	**83**	**16.9**	**65**	**9**	**12.2**
Albany Medical College	73	50	12	19.4	9	2	18.2
Columbia University	83	52	10	16.1	19	2	9.5
Cornell University Medical College	25	25	0	0.0	....	....	.....
Fordham University	52	33	14	29.8	5	0	0.0
Long Island College Hospital	93	85	3	3.4	4	1	20.0
N. Y. Homeo. Med. Coll. and Flower Hosp.	92	44	28	38.9	16	4	20.0
N. Y. Med. Coll. and Hosp. for Women	15	8	7	46.7	....	....	.....
Syracuse University	25	24	0	0.0	1	0	0.0
University and Bellevue Hosp. Med. Coll.	63	50	4	7.4	9	0	0.0
University of Buffalo	44	37	5	11.9	2	0	0.0
NORTH CAROLINA +62.5	**20**	**14**	**2**	**12.5**	**1**	**3**	**75.0**
North Carolina Medical College	20	14	2	12.5	1	3	75.0
OHIO +6.8	**185**	**158**	**2**	**1.2**	**23**	**2**	**8.0**
Eclectic Medical College	29	18	2	10.0	8	1	11.1
Ohio State University, College of Med.	67	61	0	0.0	5	1	16.7
Ohio State Univ., Coll. of Homeo. Med.	7	7	0	0.0	....	....	.....
University of Cincinnati, College of Med.	24	21	0	0.0	3	0	0.0
Western Reserve University	58	51	0	0.0	7	0	0.0
OKLAHOMA +25.6	**19**	**12**	**1**	**7.7**	**4**	**2**	**33.3**
University of Oklahoma	19	12	1	7.7	4	2	33.3
OREGON —16.7	**19**	**10**	**2**	**16.7**	**7**	**0**	**0.0**
University of Oregon	19	10	2	16.7	7	0	0.0
PENNSYLVANIA —2.0	**398**	**187**	**17**	**8.3**	**174**	**20**	**10.3**
Hahnemann Medical College and Hosp.	21	14	0	0.0	7	0	0.0
Jefferson Medical College	167	68	4	5.7	88	7	7.4
Medico-Chirurgical Coll. of Philadelphia	89	46	10	17.9	27	6	18.2
Temple University	23	16	3	15.8	2	2	50.0
University of Pennsylvania	62	25	0	0.0	36	1	2.7
University of Pittsburgh	14	11	0	0.0	3	0	0.0
Woman's Medical College of Pennsylvania	22	7	0	0.0	11	4	26.7
SOUTH CAROLINA —	**19**	**15**	**0**	**0.0**	**4**	**0**	**0.0**
Medical College of South Carolina	19	15	0	0.0	4	0	0.0
TENNESSEE +19.1	**371**	**113**	**19**	**14.4**	**159**	**80**	**33.5**
Lincoln Memorial University	15	10	0	0.0	4	1	20.0
Meharry Medical College	139	28	11	28.3	50	50	50.0
University of Tennessee	81	16	0	0.0	50	15	23.1
University of West Tennessee	27	5	8	61.5	5	9	64.3
Vanderbilt University	109	54	0	0.0	50	5	9.1
TEXAS —10.2	**71**	**53**	**6**	**10.2**	**12**	**0**	**0.0**
Baylor University	27	19	5	20.8	3	0	0.0
Fort Worth School of Medicine	7	4	1	20.0	2	0	0.0
University of Texas	37	30	0	0.0	7	0	0.0
VERMONT +14.3	**34**	**13**	**0**	**0.0**	**18**	**3**	**14.3**
University of Vermont	34	13	0	0.0	18	3	14.3
VIRGINIA +10.2	**142**	**81**	**3**	**3.6**	**50**	**8**	**13.8**
Medical College of Virginia	122	70	3	4.1	41	8	16.3
University of Virginia	20	11	0	0.0	9	0	0.0
WISCONSIN +12.5	**53**	**45**	**0**	**0.0**	**7**	**1**	**12.5**
Marquette University	53	45	0	0.0	7	1	12.5
Totals +7.0	**4115**	**2491**	**248**	**9.1**	**1155**	**221**	**16.1**

* These three colleges (in Georgia and Missouri) are reported as not recognized by the licensing boards in the home states.

In this table the graduates of each college who were examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. For example, under Kentucky, this table shows that, of the 67 graduates of the University of Louisville Medical Department who were examined by state boards during 1916, 40 were examined in Kentucky, of which number 38 passed and 2, or 5.0 per cent., failed, while 27 were examined in other states, of which number 21 passed and 6, or 22.2 per cent., failed.

This table shows that in most instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college by having all its graduates examined in the home state, or by a partisan board, may show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures, preceded by the + and — signs, shows the differences between the percentages of examination in the home state and the examination elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1916 were in the examination of the graduates of the colleges of Alabama, 94.1 per cent.; North Carolina, 62.5; Georgia, 26.1; Oklahoma, 25.6, and Nebraska, 23.1, in all of which the chances of the graduates were better in the home state. The marked variations where the graduates' chances were better elsewhere were in Connecticut and Oregon, each 16.7, and in Texas, 10.2 per cent.

The danger of forming hasty conclusions from these percentages taken alone, however, is very well shown by the figures for Alabama where 18 graduates of the University of Alabama School of Medicine were examined, and where the failure of the one examined in "other states" may have been accidental. More reliable are the percentages in Tennessee, Illinois, Pennsylvania, Kentucky and Missouri where larger numbers were examined both at home and in "other states." The totals show that, on the average, the chances of success were 6.0 per cent. better if the graduate took the examination in the state where his college was located.

over 300 each. Illinois furnished 794 graduates, the largest number, followed by New York with 595, Pennsylvania with 423 and Tennessee with 385. Of the thirty-three groups of colleges, nineteen had failure percentages of less than 10 per cent., nine had failure percentages between 10 and 20, and five had 20 per cent. or more of failures. Of all states, the highest failure percentage was obtained by the North Carolina group, 31.8, followed by the Tennessee group, with 28.1 per cent. Other deductions are given in the legend to the table.

Study of Larger Colleges

Table F is also based on the three large tables, and gives the results of state board examinations as they affect the thirty-three largest medical colleges. Although these colleges represent 37.1 per cent. of the medical colleges in the United States having graduates examined, they furnish 74.0 per cent. of all candidates for license coming from medical schools of the United States. This table shows, however, that the graduating of large classes by a medical college does not prove excellence of teaching, since four of the colleges having 100 or more examined have high failure percentages, and this holds true even for the graduates of 1916. In fact, the larger the college from the point of view of the number of students and graduates, the more serious is inferior teaching ability, as indicated by a high failure percentage. In fairness to

TABLE 4.—TOTAL RESULTS
Comparison with Previous Years

Year	Table A				B		C		A		I	Total Registered
	Total Examined	Examined—Passed	Examined—Failed	Percentage Failed	Recent Grads. Examined	Percentage Failed	Older Prac. Examined	Percentage Failed	Nongrads. Examined	Percentage Failed	Registered without Written Examination	
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6250	16.4	793	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	69.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	958	30.0	438	54.1	1373	7230
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6435	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1265	6501
1914	5570	4370	1200	21.6	4549	17.6	728	30.0	293	61.4	1427	5797
1915	5313	4486	827	15.6	4627	13.2	621	29.3	65	49.2	1386	5872
1916	4850	4123	727	15.0	4283	12.7	567	32.1	.....	.....	1338	5461

medical students, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

Results in Home States and Elsewhere

Table G is of much interest, because it shows for each college the results of examinations in the state in which the college is located, as compared with the results of examinations in other states, where there is less probability of local influence. Of all recent graduates examined in 1916, coming from the eighty-nine medical colleges of the United States which had graduates examined, 2,739, or 61.8 per cent., took their license examinations in the states in which were located the colleges from which they graduated. Of this number, 9.1 per cent. failed on the average, whereas, of the 1,376 graduates examined in other states, 16.1 per cent. failed. This would indicate that, on the average, the student had 7 per cent. better chances of passing the license examination by taking it in the state in which the college is located. No graduates of the medical colleges in Georgia, Louisiana, Nebraska, Vermont and Wisconsin failed in the examinations given in those states, although of the graduates of those colleges who were examined in other states, respectively, 26.1, 11.1, 23.1, 14.3 and 12.5 per cent. failed. A glaring fact to the contrary, however, is that twenty-five graduates of two low grade medical colleges not recognized in Missouri were examined in adjoining states, and not one of them failed! The student's chances for success at home and elsewhere were equal, or nearly so, in the groups of colleges of the District of Columbia, Illinois, Massachusetts and Pennsylvania. The student's chances were unusually better in the home state in Alabama, Georgia, Kentucky, Louisiana, Michigan, Nebraska, North Carolina, Oklahoma, Tennessee, Vermont, Virginia and Wisconsin, while of the colleges in Connecticut, Oregon and Texas the graduate's chances were far better in "other states."

Total Results for Five Years

Table H shows the number registered and the number rejected in each state for each of the past five years. A

TABLE H.—PHYSICIANS EXAMINED BY STATE BOARDS, 1912 TO 1916, INCLUSIVE

STATE	1912		1913		1914		1915		1916		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	84	72	90	57	115	60	79	45	55	36	693	423	270	39.0
Alaska	...	...	...	...	4	0	6	0	11	1	22	21	1	4.5
Arizona	32	10	26	9	26	16	10	7	33	9	178	127	51	28.7
Arkansas	124	27	91	28	97	16	75	7	67	11	543	454	89	16.4
California	256	60	163	36	113	45	137	39	146	8	1003	815	188	18.7
Colorado	41	1	53	5	31	1	19	5	25	8	189	169	20	10.6
Connecticut	70	18	77	51	46	8	46	17	41	20	394	280	114	28.9
Delaware	22	1	12	1	18	0	13	0	13	2	82	78	4	4.9
Dist. of Columbia	49	7	55	5	47	12	51	13	33	14	286	235	51	17.8
Florida	114	31	116	49	106	37	83	25	68	18	647	487	160	24.7
Georgia	178	17	171	24	179	21	176	17	133	7	923	837	86	9.3
Idaho	35	12	21	2	19	2	23	1	29	0	144	127	17	11.8
Illinois	505	134	567	98	484	110	439	64	517	91	3009	2512	497	16.5
Indiana	95	4	101	1	48	2	49	3	49	4	356	342	14	3.9
Iowa	131	7	107	4	77	1	85	4	82	2	500	482	18	3.6
Kansas	50	12	89	7	37	4	29	4	32	1	265	237	28	10.6
Kentucky	88	8	78	12	59	7	83	7	66	10	418	374	44	10.5
Louisiana	128	36	69	20	76	24	69	21	68	10	521	410	111	21.3
Maine	74	17	46	9	54	11	63	6	25	2	307	262	45	14.7
Maryland	160	46	108	40	105	27	111	29	96	30	752	580	172	22.9
Massachusetts	227	54	215	74	226	97	238	65	166	40	1402	1072	330	23.5
Michigan	159	3	99	3	138	2	120	6	135	5	670	651	19	2.8
Minnesota	55	5	71	4	47	3	59	6	56	1	307	288	19	6.2
Mississippi	56	48	61	19	51	17	84	15	48	29	428	300	128	29.9
Missouri	213	32	200	25	195	33	200	22	161	13	1094	969	125	11.4
Montana	50	9	57	16	58	25	48	16	38	14	331	251	80	24.2
Nebraska	88	10	87	2	66	6	70	6	52	0	387	363	24	6.2
Nevada	8	1	10	3	7	3	12	1	10	1	56	47	9	16.1
New Hampshire	36	7	17	3	36	6	6	1	10	0	122	105	17	13.9
New Jersey	59	14	69	7	41	13	71	8	72	10	364	312	52	14.3
New Mexico	6	2	6	1	8	2	5	0	5	1	36	30	6	16.7
New York	433	153	511	205	501	169	618	165	523	159	3437	2586	851	24.8
North Carolina	87	37	77	34	81	37	106	30	96	18	603	447	156	25.9
North Dakota	15	7	16	13	15	1	10	5	15	5	102	71	31	30.4
Ohio	199	12	189	3	146	18	149	3	182	5	906	865	41	4.7
Oklahoma	94	27	58	5	48	12	50	13	52	8	367	302	65	17.7
Oregon	96	65	112	36	76	42	56	30	38	17	568	378	190	33.4
Pennsylvania	356	170	345	59	101	22	208	24	233	33	1551	1243	308	19.9
Rhode Island	39	12	28	4	27	5	26	6	27	7	181	147	34	18.8
South Carolina	90	35	99	47	68	37	53	36	53	24	542	363	179	33.0
South Dakota	16	1	30	1	25	4	25	0	18	2	122	114	8	6.6
Tennessee	313	76	306	94	149	205	101	4	128	20	1396	997	399	28.6
Texas	151	13	168	11	152	11	136	11	90	13	756	697	59	7.8
Utah	20	2	24	3	13	3	21	1	15	0	102	93	9	8.8
Vermont	45	2	24	2	28	0	36	0	17	0	154	150	4	2.6
Virginia	105	30	87	19	98	10	100	8	99	8	564	489	75	13.3
Washington	69	27	63	22	92	5	75	14	48	4	419	347	72	17.2
West Virginia	66	20	58	17	51	4	70	7	58	2	353	303	50	14.2
Wisconsin	68	19	98	8	81	4	74	10	72	4	438	393	45	10.3
Wyoming	11	0	10	1	4	0	13	0	17	0	56	55	1	1.8
Totals	6879		6434		5570		5313		4850		29046			
Registered	5466		5235		4370		4486		4123		23680			
Rejected	1413		1199		1200		827		727		5366			
Per Cent. Rejected	20.5		18.6		21.6		15.6		15.0		18.5			

This table gives the number of candidates registered and rejected on examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Four states registered over 1,000 candidates by examination in the five years, these being New York, Illinois, Pennsylvania and Massachusetts. Over 2,000 were registered in only two states, New York with 2,586, and Illinois with 2,512. Altogether 23,680 physicians were registered by examination in five years, an average of 4,736 each year.

The seven highest percentages of rejections for the five years were in Alabama, 39.0; Oregon, 33.4; South Carolina, 33.0; Mississippi, 29.9; Connecticut, 28.9; Arizona, 28.7, and Tennessee, 28.6 per cent. Until 1916 Massachusetts, Oregon and Tennessee included nongraduates among those examined during the last five years, and for that reason would be expected to have higher percentages rejected. On the other hand, in several states the boards refused to recognize certain colleges and eliminated many candidates prior to the examination by a careful scrutiny of credentials and as a result the percentages of failures at the examinations are lower than otherwise would be the case. For example, Ohio rejected only 4.7 per cent. of those who took their examinations, but graduates of twenty medical colleges are not eligible for admission to the examinations.

Omitting Alaska, the lowest failure percentages were in Wyoming, 1.8; Vermont, 2.6; Michigan, 2.8; Iowa, 3.6; Indiana, 3.9, and Ohio, 4.7.

comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 19, 1916, p. 598, Table 14) shows—what would be expected—that the states having the largest number of medical graduates examined the largest number of physicians. New York leads, having examined 3,437 candidates in five years, followed by Illinois with 3,009. The five states having the next highest numbers examined are Pennsylvania with 1,551, Massachusetts with 1,402, Tennessee with 1,396, Missouri with 1,094, and California with 1,003.

TOTAL REGISTRATION IN 1916

The tables thus far described have referred only to the results of examinations and to those registered on that basis.

TABLE I.—REGISTRATION BY STATE BOARDS DURING THE YEAR 1916

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1912-1916	Graduates, 1911 and Previous	Nongraduates			
Alabama	53	2	....	....	....	55
Alaska	1	10	....	....	....	11
Arizona	16	17	....	....	....	33
Arkansas	58	9	....	28	....	95
California	136	10	....	156	....	302
Colorado	22	3	....	61	....	86
Connecticut	33	8	....	6	11	58
Delaware	13	....	....	6	....	19
District of Columbia	25	8	....	11	....	44
Florida	47	21	....	....	....	68
Georgia	130	3	....	19	....	152
Idaho	10	19	....	4	....	33
Illinois	498	19	....	39	....	556
Indiana	46	3	....	27	1	77
Iowa	65	17	....	21	....	103
Kansas	32	....	....	63	....	95
Kentucky	61	5	....	6	3	75
Louisiana	64	4	....	9	....	77
Maine	19	6	....	6	....	31
Maryland	94	2	....	24	....	120
Massachusetts	150	16	....	....	....	166
Michigan	133	2	....	89	....	224
Minnesota	51	5	....	45	....	101
Mississippi	43	5	....	10	....	58
Missouri	145	16	....	51	....	212
Montana	15	23	....	....	1	39
Nebraska	51	1	....	18	....	70
Nevada	3	7	....	19	....	29
New Hampshire	9	1	....	15	....	25
New Jersey	69	3	....	91	....	163
New Mexico	2	3	....	9	49	63
New York	499	24	....	21	1	545
North Carolina	95	1	....	17	....	113
North Dakota	12	3	....	20	....	35
Ohio	178	4	....	69	....	251
Oklahoma	45	7	....	55	....	107
Oregon	21	17	....	....	....	38
Pennsylvania	221	12	....	19	....	252
Rhode Island	21	6	....	....	....	27
South Carolina	50	3	....	....	....	53
South Dakota	11	7	....	....	....	18
Tennessee	122	6	....	14	....	142
Texas	82	8	....	75	1	166
Utah	14	1	....	8	....	23
Vermont	16	1	....	6	....	23
Virginia	94	5	....	32	....	131
Washington	32	16	....	....	....	48
West Virginia	55	3	....	32	....	90
Wisconsin	68	4	....	55	....	127
Wyoming	8	9	....	15	....	32
Totals	3738	385	....	1271	67	5461

This table shows the total number registered during 1916 in each state by the various methods. The first three columns show those registered by examination: the first column showing the recent graduates registered, the second column the old practitioners (graduates of 1911 and previous years), and the third column the nongraduates, of which none were licensed in 1916. The fourth column shows the number licensed through reciprocity, the fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico).

It is interesting to note that as a rule states which registered large numbers through reciprocity, Michigan, Colorado and New Jersey for example, examined very few old practitioners. The large registration through reciprocity in California is due to the liberal provision in the recent medical practice act providing for the recognition of licenses granted in other states. There were no reciprocal registrations in eleven states, including Alaska.

The last column shows the total number of physicians registered by all methods in each state during the year. Only three states registered over 300 each, these being Illinois, 556; New York, 545, and California, 302. Seventeen states registered less than 50 each. The largest registration was 556 in Illinois and the smallest was 11 in Alaska. The total was 5,461, a decrease of 411 below the total registered in 1915.

Table I, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether 5,461 physicians were registered by all methods during 1916, as compared with 5,876 in 1915, 5,797 in 1914, 6,501 in 1913, 6,723 in 1912, 6,824 in 1911 and 7,865 in 1906. There has been a constant decrease in the totals licensed by all methods until 1915, when there was an increase of 79. In 1916 the total registered was 411 less than in 1915. By reciprocity or under exemption clauses, 1,338 were licensed in 1916, as compared with 1,386 in 1915, 1,427 in 1914 and 1,265 in 1913. For the first years since the collection of these statistics was begun, no undergraduates were registered.

Over 100 were registered by all methods in nineteen states, over 200 in seven, and over 300 in three, the largest numbers registered being 556 in Illinois, 545 in New York and 302 in California. Of those licensed in California, 156, or 51.6 per cent., were registered by the endorsement of licenses granted by the boards of other states.

Table J gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is commonly referred to as "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not always apply, however, since some state boards—California, Colorado, New Hampshire and New Jersey, as examples—accept the physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. Had not reciprocal relations been established by the thirty-nine states shown in Table J, 1,271 physicians, many of whom have been in practice for ten or more years, would have been compelled to undergo the ordeal of a second trying examination.

Table K shows in what states were granted the original licenses of those who were registered elsewhere under the reciprocity provision during the last five years. It should be noted that of the 6,304 physicians licensed through reciprocity during the last five years, the largest number coming from any one state was 937, who obtained their original licenses in Illinois. Although Illinois and New York have about an equal number of medical college graduates each year,[1] only 374 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is doubtless because Illinois has reciprocal relations with twenty other states, while New York has established such relations with only seven.

RECIPROCITY AND EDUCATIONAL STANDARDS

As usually administered, reciprocal relations tend to lower rather than to elevate educational standards, and this is particularly true in some states. A study of these statistics will show that, in several instances, such relations exist between states differing widely in their standards of education and in the methods and severity of their examinations. In a few states there is an inclination to accept graduates from medical colleges at home and abroad without first securing definite information regarding the character of those colleges. There are some boards, however, which wisely reserve and exercise the right to reject any candidate who does not possess satisfactory credentials, even though he is licensed in a state with which it has reciprocal relations. Some boards also prudently require that the applicant, before he is eligible to registration through reciprocity, must have been engaged in the actual and reputable practice of his profession for at least a year in the state in which the original license was granted. Without this provision a candidate would be tempted to obtain his original license in the state giving the easiest examination. Without the one-year clause, therefore, standards of examination are liable to be lowered, especially by such boards as retain the fees obtained from those examined.

Again, some states refuse to register by reciprocity any candidates who have failed to pass their own examination; but this rule is not generally observed. In the establishing of reciprocal relations, therefore, the state board should

1. See Table 14, THE JOURNAL A. M. A., Aug. 19, 1916, p. 598.

TABLE J.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1916

STATE BOARDS OF	Total Reg. by Recip., Ea. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Navy	Alaska, Hawaii, etc.	Foreign
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Arkansas	28	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	4	..	..	..	1	..	7	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
California	156	..	5	1	..	4	1	..	..	1	2	2	28	5	6	3	2	..	..	4	4	6	2	..	12	1	3	3	1	2	..	9	1	..	12	..	3	..	..	..	..	6	1	..	..	2	..	..	..	..	..	..	..	..
Colorado	61	1	..	..	1	..	..	1	..	..	1	..	10	1	5	2	..	2	..	..	1	1	2	1	8	..	2	..	..	..	..	4	1	..	1	1	1	7	..	..	1	3	..	1	1	..	..	12	1	2	1	..	1	..
Connecticut	6	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Delaware	6	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dist. of Columbia	11	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	3	..	..	..	..	2	..	..	..	..	..	..	..	5	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	2	..	..	..	..
Idaho	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	1	..	..	..	..	..	..
Illinois	39	..	..	1	..	..	..	..	..	..	..	..	..	4	..	1	6	1	..	1	..	4	..	..	10	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..
Indiana	27	..	..	..	..	..	..	..	..	..	..	..	14	..	..	..	3	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..	..
Iowa	21	..	..	..	..	..	..	..	..	..	1	..	..	..	..	3	1	..	..	..	..	..	3	..	7	..	2	..	..	..	..	..	1	..	4	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..
Kansas	63	..	..	15	..	..	..	..	..	..	1	..	5	..	1	..	6	..	..	..	..	..	..	..	21	..	2	..	..	1	..	..	..	..	1	4	..	1	..	1	..	..	2	..	..	..	1	..	..	3	..	..	..
Kentucky	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Louisiana	9	..	..	2	1	..	..	..	..	3	..	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..
Maine	6	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maryland	24	..	..	..	..	..	..	1	4	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..
Michigan	89	1	..	2	..	1	..	1	..	..	..	1	27	1	2	..	2	1	1	5	..	..	..	..	6	..	2	2	1	..	..	2	..	..	..	7	1	..	8	..	..	2	..	3	..	..	1	1	..	3	1	..	..	..
Minnesota	45	..	..	..	..	..	..	..	1	..	..	..	19	1	7	..	..	..	..	1	..	1	..	..	..	..	2	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	1	2	..	3	6	..	..	..
Mississippi	10	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	8	..	..	..
Missouri	51	..	..	..	..	1	..	..	..	..	1	..	13	3	3	11	1	..	..	1	..	2	..	..	..	..	3	..	..	..	..	..	..	..	..	2	1	..	1	..	..	..	3	2	..	..	..	..	..	1	..	..	..
Nebraska	18	..	..	..	..	..	..	..	..	..	..	..	5	..	6	1	..	..	..	..	..	..	..	1	2	..	..	1	..	..	..	..	..	..	2	1	..	1	..	..	..	7	..	..	..	..	..	1	..	..	..	..	..
Nevada	19	..	..	..	..	..	..	..	..	..	..	..	4	2	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	12	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	3	..	..	..	..	..	3	..	..	..	..	..	1	..	..	..	..
New Jersey	91	1	..	..	..	..	1	3	..	..	..	..	..	..	..	..	1	..	6	1	3	..	..	..	..	..	..	..	3	..	..	52	1	..	..	..	..	11	..	..	..	1	1	..	3	3	..	..	..	..	..	..	..
New Mexico	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..
New York	21	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	8	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..
North Carolina	17	..	..	..	..	..	..	..	1	..	3	..	..	1	..	..	1	1	..	1	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..	4	..	..	..	..	..	..
North Dakota	20	..	..	..	..	..	..	..	..	..	1	..	7	3	..	..	..	1	..	..	..	..	7	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ohio	69	..	..	..	..	..	..	..	1	..	..	..	9	3	1	..	1	..	3	9	..	11	1	..	4	..	2	..	..	1	..	9	..	..	..	8	..	..	..	..	2	..	1	..	..	4	1	..	..	..	..	..
Oklahoma	55	..	..	14	..	..	..	..	..	2	..	..	..	..	..	2	5	..	..	..	..	1	..	4	3	..	2	..	..	1	2	..	..	..	..	..	..	..	..	..	..	7	6	..	1	1	..	1	3	..	..	..
Pennsylvania	19	..	..	5	..	..	..	2	2	..	..	..	..	..	..	1	..	..	..	2	..	..	..	..	2	..	..	..	1	1	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rhode Island	14	..	..	14	..	1	..	..	1	..	1	..	..	1	..	3	2	1	..	2	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	2	..	..	..	3	..	..	..	..
South Carolina	75	..	..	14	..	1	..	..	1	..	4	..	..	1	..	3	2	1	..	2	..	1	..	4	6	..	1	..	..	..	..	..	..	..	..	1	..	2	9	..	2	..	..	..	13	..	..	2	..	..	1	..	..	5
South Dakota	8	..	..	..	..	1	..	..	2	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Texas	32	1	..	..	..	..	..	..	3	..	2	..	1	..	..	..	2	1	..	3	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Utah	32	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	5	..	..	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	1	..	1	..	..	..	..	..	5	..	..	..	1	..
Vermont	55	..	..	2	..	..	..	..	..	1	1	..	25	1	..	2	2	1	..	1	..	2	4	..	4	..	1	..	..	..	..	2	..	1	2	..	..	4	..	1	..	3	..	..	10	..	..	..	..	..	..	..
Virginia	15	..	..	..	..	..	..	..	..	..	..	..	7	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..
Washington	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..	..	..	1	..	..	..	..
West Virginia	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wisconsin	55	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wyoming	15	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	1271	4	5	56	2	8	1	8	20	2	30	5	178	27	32	33	40	16	13	45	22	34	19	18	93	1	28	7	11	17	2	84	17	4	51	26	2	74	1	7	3	65	15	16	15	36	12	25	32	1	1	1	6
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

This table shows the number of physicians registered by each state through reciprocity during 1916. Reading from left to right, it shows the total number of physicians registered through reciprocity in the state named and the numbers of such candidates coming from the states named at the top of the various columns. Reading from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named in the corresponding lines, and at the bottom, the total number of candidates leaving the state to go elsewhere. For example, reading from left to right, the table shows that Mississippi registered ten candidates through reciprocity in 1916 and that, of these candidates, 3 came from Tennessee, 2 each from Missouri and Texas, and 1 each from Georgia, Kansas and Wisconsin. Reading from above downward, the table shows that from Mississippi 7 candidates went to Arkansas, 4 each to Oklahoma and Texas, and 1 each to Colorado, Nebraska and West Virginia, the total leaving the state to go elsewhere being 18. The line at the bottom shows in what states physicians who were registered through reciprocity obtained their original licenses. From Illinois 178 candidates obtained their original licenses, followed by Missouri with 93, New York with 84, Pennsylvania with 74, and Tennessee with 65.

TABLE K.—RECIPROCAL REGISTRATION IN FIVE YEARS (SHOWING WHAT STATES ISSUED ORIGINAL LICENSES)

STATE	Physicians Going from States Named During					Totals
	1912	1913	1914	1915	1916	
Alabama	1	2	1	1	4	9
Arizona	....	3	13	6	5	27
Arkansas	15	37	• 20	37	56	165
California	....	....	2	3	2	7
Colorado	9	12	25	15	8	69
Connecticut	1	2	1	3	1	8
Delaware	15	8	2	6	8	39
District of Columbia	18	17	22	18	20	95
Florida	1	1	2	4	2	10
Georgia	13	26	17	22	30	108
Idaho	5	....	5	1	5	16
Illinois	193	171	197	198	178	937
Indiana	40	33	44	43	27	187
Iowa	58	36	52	46	32	224
Kansas	27	32	42	39	33	173
Kentucky	36	43	35	48	40	202
Louisiana	10	13	10	16	16	65
Maine	23	9	11	12	13	68
Maryland	48	42	44	38	45	217
Massachusetts	2	2	7	19	22	52
Michigan	59	66	58	42	34	259
Minnesota	29	29	23	34	19	134
Mississippi	5	15	10	10	18	58
Missouri	67	61	98	104	93	423
Montana	1	....	3	1	1	6
Nebraska	29	34	37	50	28	178
Nevada	3	4	8	9	7	31
New Hampshire	1	7	3	4	11	26
New Jersey	18	10	19	22	17	86
New Mexico	4	8	9	5	2	28
New York	46	70	101	73	84	374
North Carolina	12	14	7	13	17	63
North Dakota	12	6	5	6	4	33
Ohio	39	50	71	47	51	258
Oklahoma	28	74	22	28	26	178
Oregon	....	3	3	2	2	10
Pennsylvania	57	86	86	79	74	382
Rhode Island	....	....	1	2	1	4
South Carolina	5	3	2	12	7	29
South Dakota	1	10	4	7	3	25
Tennessee	51	39	42	34	65	231
Texas	24	19	23	12	15	93
Utah	3	12	8	6	16	45
Vermont	30	11	21	25	15	102
Virginia	25	26	40	30	36	157
Washington	3	2	15	10	12	42
West Virginia	29	41	33	36	25	164
Wisconsin	35	28	41	29	32	165
Wyoming	4	4	3	5	1	17
Alaska, Hawaii, etc.	1	1	2	....	1	5
U. S. Army	2	1	2	1	....	6
U. S. Navy	....	....	....	....	1	1
U. S. P. H. Service	....	....	....	....	....	....
Canada	....	....	1	....	1	2
Foreign and Misc.	3	....	2	1	5	11
Totals	1141	1223	1355	1314	1271	6304

This table shows that 6,304 candidates were registered through reciprocity during the last five years. Registration by reciprocity gradually increased from 1905 to 1914, since which time there has been a gradual decrease as the total of physicians licensed by other methods has decreased. A study of the totals for the different states shows that of the 6,304 registered during the five years 937, or 14.9 per cent., obtained their original licenses in Illinois. This is more than twice the number coming from any other state. The states furnishing the next highest numbers are Missouri, 423; Pennsylvania, 382, and New York, 374. New York might lead Illinois but reciprocal relations have been established with only seven other states.

Nine states (Alabama, Arizona, Connecticut, Florida, Massachusetts, Montana, Oregon, Rhode Island, and Washington) do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado, New Hampshire and New Jersey, will accept a physician's credentials if satisfactory, whether the state issuing the original license returns the favor or not.

TABLE L.—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now thirty-six states which have adopted requirements of preliminary edueation in addition to a standard four-year high school edueation. These states, the number of college years required and the time the higher requirement beeomes effective are as follows:

State Examining Board of	Number of Years Required	Affeets Students Matrieulating	Affeets All Graduates
Requiring Two Years:			
Alabama	2	1915-16	1919
Arizona	2	1918-19	1922
Colorado	2	1910-11	1914
Indiana	2	1911-12	1915
Iowa	2	1911-12	1915
Kansas	2	1918-19	1922
Louisiana	2	1918-19	1922
Maryland	2	1918-19	1922
Minnesota	2	1908-09	1912
Montana	2	1918-19	1922
New Hampshire	2	1915-16	1919
New Jersey	2	1917-18	1921
New Mexieo	2	1918-19	1922
North Dakota	2	1908-09	1912
Oklahoma	2	1917-18	1921
Rhode Island	2	1918-19	1922
South Carolina	2	1918-19	1922
South Dakota	2	1911-12	1915
Virginia	2	1917-18	1921
Washington	2	1918-19	1922
Wisconsin	2	1915-16	1919
Requiring One Year:			
Arkansas	1	1915-16	1919
California	1	1915-16	1919
Connecticut	1	1910-11	1914
Illinois	1	1915-16	1919
Indiana*	1	1910-11	1914
Kansas*	1	1910-11	1914
Kentucky	1	1914-15	1918
Louisiana*	1	1915-16	1919
Maryland*	1	1914-15	1918
Michigan	1	1914-15	1918
Mississippi	1	1915-16	1919
New Hampshire*	1	1914-15	1918
New Jersey*	1	1916-17	1920
New York	1	1917-18	1921
North Carolina	1	1914-15	1918
Oklahoma*	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island*	1	1914-15	1918
Tennessee	1	1915-16	1919
Texas	1	1914-15	1918
Utah	1	1913-14	1917
Vermont	1	1913-14	1917
Virginia*	1	1914-15	1918
Washington*	1	1914-15	1918
West Virginia	1	1917-18	1921

* The 2-year requirement became or beeomes effeetive at a later date.

TABLE M.—ADVANCES IN STATE LICENSE REQUIREMENTS IN TEN YEARS

Requirement or provision	States having provision for			States still having no provision for
	1904	1917	Increase	
Preliminary Edueation—				
Any requirement	20	46	26	3[1]
A standard four-year high school edueation or higher	10	44	34	5[2]
One year or more of college work	0	36	36	13
Two years of college work as a minimum	0	21	21	28
That all applieants be graduates of a medical college	36	49	13	0
That all applieants undergo an examination for lieense	45	48	3	1[3]
Requirement of praetical tests in the lieense examinations	1	16	15	33
Hospital intern year required	0	6	6	43
Full authority by board to refuse reeognition to low-grade colleges	14	42	28	7[4]
Boards refusing to reeognize low-grade colleges*	5	39	34	10[5]
Reciproeal relations with other states	27	40	13	9[6]
Single boards of medical examiners	36	42	6	7[7]

* In three states, Arkansas, Conneetieut and Florida, eaeh of whieh has three separate boards, only the regular (nonseetarian) boards have refused reeognition to low standard medieal eolleges.

1. Distriet of Columbia, Massaehusetts and Wyoming.
2. Idaho, Oregon and the states named in Footnote 1.
3. New Mexieo.
4. Distriet of Columbia, Idaho, Massaehusetts, Nebraska, Oregon, Utah and Wyoming.
5. California, Nevada, Tennessee and the states named in Footnote 4.
6. Alabama, Arizona, Conneetieut, Florida, Massaehusetts, Montana, Oregon, Rhode Island and Washington. To this list should be added the outlying territories of Alaska, Canal Zone, Philippine Islands and Porto Rieo, whieh have no provision for reeiprocity.
7. Multiple boards still remain in Arkansas, Conneetieut, Delaware, Distriet of Columbia, Florida, Louisiana and Maryland.

reserve and exercise the discretionary power *to refuse to register any candidate who could not originally have registered in that state,* and should require that the applicant shall have been in actual practice of medicine for at least a year before he is eligible to registration under the reciprocity provision.

Improved Standards of Licensure

Table L shows the states which have adopted one or two years of college work as a minimum standard of preliminary

TABLE N.—ESSENTIAL FEATURES OF STATE LAWS AND CONDITIONS SURROUNDING MEDICAL LICENSURE

STATE	Graduation Required	Preliminary Education: Law Provides For	Preliminary Education: Years in High School Required	Preliminary Education: Years in a College of Arts[3]	Medical Education: Required Years of Medical Study	Medical Education: Minimum Hours per Week	Medical Education: Minimum Weeks per Year	Medical Education: Intern Year Required	Reciprocity: Has Reciprocity with Other States	Reciprocity: One or More Years of Practice Required	Reciprocity: Reciprocal Fee	Single Examining Board	Examination Fee
Alabama	....	Yes	4	2	4	....	....	....	No	.....	....	....	$10
Alaska	....	Yes	4	....	4	....	....	....	Yes	.....	$25	....	25
Arizona	....	Yes	4	2	4	....	....	....	No	.....	....	....	25
Arkansas	....	Yes	4	1	4	....	....	....	Yes	[4]	50	No	15
California	....	Yes	4	1	4	....	32	....	Yes	Yes	50	....	25
Canal Zone	....	....	....	....	....	....	....	....	No	.....	....	....	5
Colorado	No	Yes	4	2	4	....	....	....	Yes	.....	25	....	25
Conneetieut	....	Yes	4	1	4	36	26	....	No	.....	15	No	15
Delaware	....	Yes	4	....	4	....	....	....	Yes	Yes	50	No	10
Dist. of Col.	....	....	....	....	4	....	....	....	Yes	Yes	10	No	10
Florida	....	Yes	4	....	4	....	....	....	No	.....	....	No	15
Georgia	....	Yes	4	....	4	40	32	....	Yes	No	50	....	20
Hawaii	....	....	....	....	4	....	....	....	No	.....	....	....	10
Idaho	....	Yes	....	....	....	....	....	....	Yes	Yes	25[2]	....	25
Illinois	....	Yes	4	1	4	....	32	Yes	Yes	Yes	10[2]	....	10
Indiana	....	Yes	4	2	4	30	30	....	Yes	Yes	50	....	25
Iowa	....	Yes	4	2	4	....	26	....	Yes	Yes	50	....	10
Kansas	....	Yes	4	2	4	....	....	....	Yes	.....	15[2]	....	15
Kentucky	....	Yes	4	1	4	....	32	....	Yes	Yes	10	....	10
Louisiana	....	Yes	4	2	4	....	....	....	Yes	Yes	50	No	25
Maine	....	Yes	4	....	4	....	....	....	Yes	No	15	....	15
Maryland	....	Yes	4	2	4	....	....	....	Yes	Yes	25	No	15
Massaehusetts	....	....	....	....	....	....	....	....	No	.....	....	....	20
Michigan	....	Yes	4	1	4	36	34½	Yes	Yes	No	50	....	25
Minnesota	....	Yes	4	2	4	....	26	....	Yes	No	50	....	10
Mississippi	....	Yes	4	1	4	....	....	....	Yes	Yes	50	....	10
Missouri	....	Yes	4	....	4	....	....	....	Yes	Yes	25	....	15
Montana	....	Yes	4	2	4	....	....	....	No	.....	....	....	25
Nebraska	....	Yes	4	....	4	....	....	....	Yes	Yes	25	....	25
Nevada	....	Yes	4	....	4	....	....	....	Yes	Yes	25	....	25
New Hampshire	....	Yes	4	2	4	....	....	....	Yes	Yes	20	....	20
New Jersey	....	Yes	4	2	4	....	....	Yes	Yes	No	50	....	25
New Mexieo	[1]	Yes	4	2	4	30	30	....	Yes	Yes	25	....	25
New York	....	Yes	4	1	4	....	....	....	Yes	Yes	25	....	25
North Carolina	....	Yes	4	1	4	....	....	....	Yes	Yes	50	....	15
North Dakota	....	Yes	4	2	4	30	30	Yes	Yes	Yes	25	....	25
Ohio	....	Yes	4	....	4	....	30	....	Yes	Yes	50	....	25
Oklahoma	....	Yes	4	2	4	....	....	....	Yes	Yes	25	....	15
Oregon	....	Yes	4	....	4	....	....	....	No	.....	....	....	10
Pennsylvania	....	Yes	4	1	4	35	32	Yes	Yes	Yes	50	....	25
Philippine Is.	....	Yes	....	....	....	....	....	....	No	.....	....	....	25
Porto Rieo	....	....	....	....	....	....	....	....	No	.....	....	....	20
Rhode Island	....	Yes	4	2	4	....	....	Yes	No	.....	....	....	20
South Carolina	....	Yes	4	2	4	....	26	....	Yes	Yes	10	....	10
South Dakota	....	Yes	4	2	4	....	26	....	Yes	Yes	20	....	20
Tennessee	....	Yes	4	1	4	....	....	....	Yes	Yes	10	....	10
Texas	....	Yes	4	1	4	....	....	....	Yes	Yes	50	....	25
Utah	....	Yes	4	1	4	....	....	....	Yes	Yes	75	....	25
Vermont	....	Yes	4	1	4	....	....	....	Yes	No	50	....	20
Virginia	....	Yes	4	2	4	....	....	....	Yes	Yes[5]	50	....	25
Washington	....	Yes	4	2	4	....	32	....	No	.....	....	....	25
West Virginia	....	Yes	4	1	....	....	....	....	Yes	Yes	25	....	10
Wisconsin	....	Yes	4	2	4	....	....	....	Yes	Yes	50	....	25
Wyoming	....	....	....	....	....	....	....	....	Yes	No	25	....	25

1. Will accept a diploma without examination if from a reeognized college.
2. Reciproeal fee same as eharged by the state from whieh applieant comes.
3. Or its equivalent in the medical college.
4. In some instanees.
5. Or two years hospital experience.

education for those who seek the license to practice medicine in those states. The first column shows the number of years of premedical college work required by each state; the second column shows the session in which students matriculating in medical colleges are affected by the increased requirement, and the third column gives the year in and after which all graduates are affected by the increased requirement. This table shows the remarkable progress which has been made

in state board requirements since 1908, prior to which no state was requiring more than a four-year high school education as the minimum standard of preliminary education. As will be noted, there are now thirty-six states which have adopted the higher standard, twenty-one of which require as a minimum *two years* of premedical college work. It is understood that in every instance the one or two years of collegiate work must have included courses in physics, chemistry and biology.

In Table M the advance in standards of licensure is shown for all states since 1904. The most marked increase is in regard to the requirement of collegiate work in thirty-six states as referred to in Table L. The next greatest increase (thirty-four) is in the number of states—now thirty-nine—which are refusing to recognize low-grade medical colleges. Although, as shown in the third column, marked improvements have been made in state requirements for licensure, nevertheless, as indicated by the last column, there is abundant room for further improvement. The greatest needs are for a wider adoption of the standard of two years of premedical college work, the requirement of the hospital intern year, and a more general and larger use of practical tests in the examinations.

Table N shows the essential features of the various state license laws. It will be noted that only one state—Colorado—now admits nongraduates to the license examination, although only four nongraduates have been licensed in that state in ten years. There are seven states in which there are two or three separate boards having in charge the licensing of physicians and surgeons. In five of these states, namely, Arkansas, Connecticut, Florida, Louisiana and Maryland, the boards are entirely independent of each other with varying degrees of inefficiency naturally resulting from such a division of authority. In two states, Delaware and the District of Columbia, there is a central board or authority under which the separate boards act.

In Conclusion

In the gathering and publication of these statistics the endeavor has been to give a fair presentation of facts, a knowledge of which is always beneficial. This annual presentation of the results of state license examinations has had a powerful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards for their ready cooperation and the complete reports which have been furnished. For the verification of all figures the reports and data furnished by medical colleges have been of much value. We have no doubt that the information here published will be of service not only to the medical colleges and to the state boards, but also to the public, since the end-result is better qualified physicians.

SCHOLARSHIPS IN MEDICAL SCHOOLS

As a further evidence that ample provision is being made for all worthy students, regardless of their financial status, during the last several years 336 scholarships have been established in 43 medical schools as shown in the following table:

Scholarships in Medical Schools

University of Alabama School of Medicine	66
Leland Stanford Junior University School of Medicine	3
University of California Medical School	3
University of Colorado School of Medicine *	1
Yale University School of Medicine	2
Georgetown University School of Medicine	3
Atlanta Medical College	12
Hahnemann Medical College and Hospital of Chicago *	6
Northwestern University Medical School	9
Rush Medical College, Chicago	6
University of Illinois College of Medicine *	6
Indiana University School of Medicine	10
Bowdoin Medical School	1
Johns Hopkins University Medical Department	6
University of Maryland School of Medicine	6
Boston University School of Medicine *	20
Medical School of Harvard University, Boston *	27
Detroit College of Medicine and Surgery	6
University of Minnesota Medical School *	1
University of Missouri School of Medicine	1
Washington University Medical School	1
Dartmouth Medical School	2
Columbia University College of Physicians and Surgeons	64
New York Medical College and Hospital for Women	2
Syracuse University College of Medicine	1
University and Bellevue Hospital Medical College	1
University of Buffalo Department of Medicine	1
University of North Carolina School of Medicine	1
University of Cincinnati College of Medicine	12
Western Reserve University School of Medicine	1
University of Oregon Department of Medicine	3
Hahnemann Medical College and Hospital of Philadelphia	3
Jefferson Medical College	1
University of Pennsylvania School of Medicine *†	3
University of Pittsburgh School of Medicine	2
Woman's Medical College of Pennsylvania	8
Medical College of the State of South Carolina	8
University of Tennessee College of Medicine	1
Vanderbilt University Medical Department	4
University of Texas Department of Medicine *	1
University of Vermont College of Medicine	9
Medical College of Virginia	10
University of Virginia Department of Medicine	2
Total in 43 medical schools	336

* Have loan funds also.

† Has fifty or more scholarships for graduates of Philadelphia high schools.

Loan Funds

The colleges above which are marked by an asterisk (*) also have loan funds for deserving but needy students. Such funds are available also at other medical schools, as follows:

Yale University School of Medicine, New Haven, Conn.
George Washington University Medical School, Washington, D. C.
Howard University School of Medicine, Washington, D. C.
University of Georgia Medical Department, Augusta, Ga.
Tulane University of Louisiana School of Medicine, New Orleans.
University of Nebraska College of Medicine, Omaha.
University of North Dakota School of Medicine, University, N. D.
University of Wisconsin Medical School, Madison, Wis.

The schools marked with an asterisk have also established loan funds for the assistance of worthy students who are without ample money to pay for their tuition and keep. Even under the higher entrance standard there are abundant opportunities for the poor boy, since the opportunities for working one's way through liberal arts colleges have never been more abundant than at the present time. Even though it is difficult for students to work their way through the medical school on account of the severity of the curriculum, nevertheless, in some of our best university medical schools, many students are paying all or part of their expenses as they go along.

MEDICAL STUDENTS IN GREAT BRITAIN

We have received from the General Medical Council the following tabular statement showing the number of students in actual attendance on courses of instruction in preparation for medical degrees or diplomas:

Topical Distribution	First Year Qualifying in 1921			Second Year Qualifying in 1920			Third Year Qualifying in 1919			Fourth Year Qualifying in 1918			Fifth Year Qualifying in 1917		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
January, 1917															
London (only)	217	174	391	183	133	316	71	54	125	229	44	273	425	51	476
England	602	325	927	374	210	584	175	99	274	341	68	409	539	78	617
Scotland	366	239	605	235	184	419	180	131	311	314	74	388	359	71	430
Ireland	481	110	591	378	78	456	217	31	248	196	22	218	190	15	205
Total	1449	674	2123	987	472	1459	572	261	833	851	64	1015	1088	164	1252
May, 1916															
London (only)	251	122	373	145	68	213	43	44	87	479	39	518	269	38	307
England	558	226	784	280	109	389	140	65	205	619	71	690	375	55	430
Scotland	404	311	715	267	154	421	213	80	293	258	55	313	366	74	440
Ireland	460	99	559	236	32	268	166	18	184	201	19	220	181	11	192
Total	1422	636	2058	783	295	1078	519	163	682	1078	145	1223	922	140	1062

The total number of students in attendance in May, 1916, was 6,103. The total number of students in attendance in January, 1917, was 6,682.—*Lancet*, London, March 3, 1917.

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SATURDAY, APRIL 14, 1917

THE BACTERIOLOGY OF POLIOMYELITIS

An interesting contention has arisen regarding the organism of poliomyelitis. In 1913, Flexner and Noguchi reported the finding of a micro-organism which they described under the term "globoid bodies" and which they stated seemed to bear an etiologic relationship to the disease.[1] Previous to their studies, numerous investigators had attempted to find a specific organism, but without success. More recently, in connection with the epidemic of 1916, Mathers, Nuzum and Herzog, and Rosenow, Towne and Wheeler[2] described an organism or organisms of a coccal nature and submitted evidence to show an etiologic relationship to poliomyelitis. What seemed like pure culture of such coccus was obtained by these workers from the brain and cord of something like twenty cases of acute poliomyelitis. The publication of this work apparently prompted Amoss[3] of the Rockefeller Institute to extend that on the globoid bodies. These bodies are obtained in cultures with great difficulty; as Amoss says, "Only those who have employed the original methods of cultivation have been rewarded with successful results." He qualifies this even further, saying:

> This is significant in respect to the etiology of poliomyelitis, for, while a variety of ordinary bacteria easily cultivatable has been obtained by various workers, the globoid bodies represent a peculiar species and thus far alone have sufficed to produce typical poliomyelitis in monkeys by intracerebral inoculation.

He points out, moreover, that the globoid bodies have been made to fulfil Koch's law. Amoss then discusses his recent studies of two additional cultures of these bodies obtained from the nervous tissues of monkeys in which experimental poliomyelitis was produced. He finds that the globoid bodies are refractory to artificial cultivation, but, after long cultivation outside the body, they acquire saprophytic properties, and then grow readily in a variety of mediums. Antibodies to the injections of cultures of the globoid bodies were only slightly produced in rabbits, and only occasionally produced in the monkey, when the cultures were injected into the central nervous system. The response was small and led to slight reactions of agglutination and complement deviation with the cultures. The serum of human beings gave no complement deviation with the antigen derived from the globoid bodies when the serum was taken in the acute or early stages of poliomyelitis. These bodies apparently present many analogies in cultural, immunologic and pathogenic properties to the *Spirochaeta pallida*. It should be pointed out here that the coccus which has been mentioned, when grown in the mediums in which the globoid bodies are grown, assumes globoid forms; like the infectious material in poliomyelitic virus it is filterable and resists the action of glycerin.

Amoss' work is supplemented by that of Bull,[4] another worker in the Rockefeller Institute. Bull insists that the organism reported by Mathers, Rosenow, Towne and Wheeler, and by Nuzum and Herzog[2] is a streptococcus. He points out that the findings of these authors conflict in several points with those of previous investigators in this country and abroad, all of which tend to exclude bacteria as the inciting agents of epidemic poliomyelitis. Bull says, "The stricter the conditions of bacteriologic asepsis, the less frequently were the cultures obtained."

The only other exception, Bull says, to the work of former investigators, besides the work of the authors just mentioned, is the "globoid bodies" which were found under strictly anaerobic conditions by Flexner and Noguchi.[5] He insists that the descriptions and pictures of lesions occurring in rabbits and monkeys succumbing to injections with the cocci isolated from cases of poliomyelitis in the published reports of Mathers, Nuzum and Herzog, and Rosenow, Towne and Wheeler, which they identify with the typical lesions present in poliomyelitis in the central nervous tissue of man and the monkey, are not convincing. The descriptions given by these authors, he believes, are more convincing than the pictures. Their organism produces lesions which he thinks are of another order from those occurring in human poliomyelitis or in monkeys inoculated with the filterable virus. He therefore studied cultures of streptococci from the tonsils in cases of poliomyelitis and from tonsils in non-poliomyelitic cases. Studies were made on animals, and the author states that he was not able to show any etiologic relationship between streptococci and epi-

1. Flexner, S., and Noguchi, H.: Jour. Exper. Med., 1913, **18**, 461.
2. Mathers, George: Some Bacteriologic Observations on Epidemic Poliomyelitis, The Journal A. M. A., Sept. 30, 1916, p. 1019; Jour. Infect. Dis., 1917, 20, 113. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, p. 1202; Science, 1916, **64**, 614; Observations on Immunity of Monkeys to Experimental Poliomyelitis, The Journal A. M. A., Jan. 27, 1917, p. 280. Nuzum, J. W., and Herzog, Maximilian: Experimental Studies in the Etiology of Acute Epidemic Poliomyclitis, The Journal A. M. A., Oct. 21, 1916, p. 1205. Nuzum, J. W.: Bacteriologic Findings in Cerebrospinal Fluid in Poliomyelitis, ibid., Nov. 11, 1916, p. 1437; The Production of an Antipoliomyelitic Serum, ibid., Jan. 6, 1917, p. 24.
3. Amoss, H. L.: The Cultivation and Immunologic Reactions of the Globoid Bodies in Poliomyelitis, Jour. Exper. Med., 1917, **25**, 545.
4. Bull, C. G.: The Pathologic Effects of Streptococci from Cases of Poliomyelitis and Other Sources, Jour. Exper. Med., 1917, **25**, 557.
5. Flexner, S., and Noguchi, H.: Jour. Exper. Med., 1913, **18**, 461.

demic poliomyelitis. The streptococci, on the other hand, all produced lesions in the rabbit which are not referable to poliomyelitis, but to streptococcus infection. It is difficult to analyze the article by Bull in detail since he considers the work of the investigators of the coccus without differentiating between the results of the various workers. He thus inferentially makes each responsible for the conclusions of all — perhaps a rather unfair method of presentation in view of the differences in the results and conclusions of the investigators mentioned. It may be pointed out, moreover, that Bull did not work with cocci isolated from the brain and cord of patients with poliomyelitis. The cocci which he did find in the spinal cord in monkeys dead of experimental poliomyelitis he regards as secondary invaders.

In contrast to the foregoing are articles published simultaneously by Blanton and by Rosenow and Towne.[6] Blanton's paper concerns a pathologic rather than a bacteriologic investigation. Observations as to the presence of organisms were made on sections of the cord. Organisms were found in the meningeal exudate covering the cerebrum and cerebellum in one case. These organisms were cocci. Some were quite small and appeared in chains, whereas others were seen singly or in pairs. Numerous sections of the cord were studied, and while the authors found it extremely difficult to convince themselves that they had found organisms, in several cases small bodies which varied considerably in size, and generally occurred in pairs, were identified.

Rosenow and Towne[6] have made further studies of the organism which they isolated. They studied the bacteriology of the central nervous systems of ten monkeys which succumbed to experimental poliomyelitis. As is well known, Rosenow's work on the pleomorphism of bacteria has shown that an organism which appears with certain characteristics under some conditions may possess entirely different characteristics when the conditions of growth are modified. The coccus which they isolated from the central nervous system of the monkey remains an ordinary sized diplococcus under aerobic conditions. Sometimes a capsule is demonstrable. Under conditions of low oxygen tension, the same organism may appear in minute form in twenty-four or forty-eight hour cultures in ascitic fluid plus tissue and oil, the medium in which the globoid bodies are grown. After this many factors appear to play a part in determining the type of the growth. With a suitable specimen of ascitic fluid and fresh sterile tissue, and with a scant initial growth, the organisms become small slowly by transverse fission. In such tubes there may be a pure growth of globoid organisms after from five to fifteen days. Rosenow and Towne conclude from these studies, therefore, that:

> The small globoid micro-organism which Flexner, Noguchi and their co-workers have considered to be the cause of experimental poliomyelitis has always, in our experience, been the result of the breaking down of large diplococci, which have been isolated from the central nervous tissues of each monkey infected with experimental poliomyelitis. These organisms have not been isolated from other tissues except lymph glands of poliomyelitic monkeys, nor from any tissue of normal monkeys. The mechanism by which the large forms become small has been demonstrated.

It appears, then, on the one hand, that the workers of the Rockefeller Institute are unwilling to grant that the coccus recently isolated from poliomyelitis by the workers mentioned bears relationship to poliomyelitis in man; they insist that it is merely a streptococcus and produces lesions which may be produced by streptococci in general. On the other hand, Rosenow and Towne claim that these streptococci under proper cultural conditions so modify their characteristics as to simulate the globoid bodies described by Flexner, Noguchi and Amoss, which the latter insist is the true causative organism of poliomyelitis. Obviously, the subject demands further investigation and confirmation. Certainly, if the work of Rosenow and Towne is confirmed, the differences in the assertions of the various experimenters will be quite satisfactorily explained. The fact remains that a very interesting coccus has been found in the brain and spinal cord in patients that have died from poliomyelitis — no one can deny that — but its relation to the disease is not yet determined. It may be a secondary invader or it may have a larger and more direct significance. In any event its discovery appears to be a distinct contribution to the bacteriology of the disease or diseases which have been called poliomyelitis.

6. Blanton, W. B.: An Anatomical Study of Fifteen Cases of Acute Poliomyelitis, Jour. Med. Research, 1917, **36**, 1. Rosenow, E. C., and Towne, E. B.: Bacteriological Observations in Experimental Poliomyelitis of Monkeys, ibid., 1917, **36**, 175.

THE CIVILIAN DOCTOR IN ACTIVE SERVICE

As noted in THE JOURNAL last week, if the president increases our army to its full strength as provided by the Defense Act of 1916, at least 1,000 additional physicians will be needed for the medical corps of the army. If an army of 500,000 additional men is to be raised, some 3,500 additional medical officers will be required, and if, as has been suggested, an army of 2,000,000 men is to be trained within the next two years, some 12,000 to 14,000 additional officers must be likewise trained with them. While this is only 10 per cent. of all the physicians in the country, it is a much larger percentage of those who are fully qualified by age, physical condition, etc., to become medical officers.

As this demand will take from the field of active practice a large number of physicians who heretofore have not given the matter any considerable study, it may be well to call attention briefly to the special character of some of the duties of the medical officer.

We would again emphasize that the duties of the medical officer are vastly different from those of the civilian physician. While there is no doubt that the physician who qualifies for the position of medical officer will soon be able to fulfil those duties and to meet the requirements of the work, there are, nevertheless, many special duties related to the handling of large bodies of men and the discipline of army life with which he will have to familiarize himself and which will require study and training. It must not be forgotten, incidentally, that it is not particularly the surgeon of great technical skill who is wanted, but the man of sane and conservative judgment — the surgeon, the physician and the sanitarian of judgment.

Of course, the first duty of the medical officer during mobilization is the physical examination of the recruit. This is perhaps by far the most important duty that the medical officer is called on to perform. On the physical condition of the recruit depends the mobility of the army, and the medical officer is held personally responsible for the enlistment of unfit men. Physical defects which appear of little importance at the time of examination become factors of vital importance when the soldier is placed under the stress and hardship connected with the duty in the field.

The next step is the initiation of sanitary measures to protect the new recruit. He should be protected immediately against smallpox and typhoid fever. He must be given instructions as to personal cleanliness and his surroundings must be made sanitary. In the vicinity of mobilization camps typhoid fever, malaria and the venereal diseases are prevalent. The administration of antityphoid serum cannot be begun too early, and the first dose should be given as soon as possible after the men arrive in the mobilization camps. Careful record must be kept of the inoculations and, in fact, of all the procedures which have been mentioned. The physician also sees daily at "sick call" those soldiers who feel the need of advice concerning minor ailments. At this time the physician must be especially on the watch for the initial symptoms and sporadic cases of the epidemic diseases. At this time, also, he can observe whether the food that the soldier is receiving is being readily assimilated and whether the soldier is personally clean.

The work of the physician in army life does not end with the care of the soldier. The troops bear a definite relationship to the civilian inhabitants of the community in which they may be quartered. It is the duty of the physician to be sure that neither body affects the other in a too severely unfavorable manner.

The physician is required also to undertake the care of the sick and wounded among the troops on the march, in camp, on the battlefield and after their removal from the battlefield. Arrangements for the transportation of the sick and wounded may devolve on the medical officer. He also is responsible for the ordering and securing of a supply of sanitary material, such as drugs, bandages and litters, which are necessary for the health of the troops and for the care of the sick and injured.

The foregoing is an attempt to paint in broad strokes an outline of the essential problems confronting the civilian physician who is called to active service with the army. About a year ago, at the time of impending hostilities with Mexico, a series of articles on this subject was published in THE JOURNAL.[1] Those articles included also a list of references to various books and manuals, such as the Army Regulations, the Manual for the Medical Department, Field Service Regulations, and Harvard Military Hygiene, with which the civilian physician who anticipates a call may familiarize himself in order to appreciate more readily his responsibilities and to grasp more quickly the finer details of the service. A second reading at this time is recommended.

THE NEED AND AVAILABILITY OF FATS

The war has taught many new lessons pertaining to the different branches of science and their application to the everyday arts; it has corrected many a mistaken notion of the past, and it has forced popular recognition of more than one conclusion which science has long inculcated but which the so-called practical man has sometimes failed to recognize. In the matter of diet we know today that a woman laboring in fields usually cultivated by men needs a ration liberal in proportion to her unusual expenditure of energy. It is now recognized that the food needs of active growing children pursuing their usual lively career are unexpectedly large. And continental experience has put an unexpected prominence on the presence of even a moderate allowance of fat in an otherwise acceptable dietary.

The shortage of fats in the countries of central Europe has been known for some time. Fats have never formed a particularly prominent part of the German diet, nor has their production been stimulated by the German agricultural scheme. As early as the autumn of 1915, in addition to the two meatless days per week, two fat-free days were introduced in the regimen of the German population. In the past, German writers on nutrition, following Voit, have rated the desirable quantity of fat in the daily ration at from 56 gm. (nearly 2 ounces) to 100 gm. (for men at hard work). It has been taught by them that with increase in the body's demand for available food fuel it is preferable not to increase too largely the carbohydrate intake, which is usually put at about 500 gm., but rather to add to the quota of fat in about the proportion indicated by the figures just quoted. An increment in fat can be obtained with far less increase in

1. What the Civilian Doctor Called to Active Service with the Army Should Know, THE JOURNAL A. M. A., Feb. 5, 1916, p. 425; Feb. 12, 1916, p. 508; Feb. 19, 1916, p. 571. Reprints will be sent on receipt of a stamped addressed envelope.

bulk than a comparable augmentation of carbohydrate-containing foods will permit. A gram of fat yields more than twice as much energy as the same unit weight of the other available nutrients.

Americans and Europeans have long been accustomed to a daily fat intake of at least 60 gm. (2 ounces) or more. In some of the nations of the Far East, decidedly less fat appears to enter into the day's ration. Taylor,[1] of the University of Pennsylvania, who has had exceptional opportunities for first-hand studies of the food situation in Europe in the present crisis, states that "the fat intake in Germany today is not over 20 grams of fat, animal and vegetable, per capita per day. This is certainly more than enough to cover the needs in fat-soluble vitamines. It is twice the Japanese intake of fat. But the fact remains that the people are hungry." Taylor states further that, in Germany prior to the war, butter was the fat of the rich, lard and margarin the fat of the poor. The per capita consumption was estimated at about 3½ ounces a day, of which nearly half was obtained by importation directly or indirectly.

In the United States, butter and cream are highly prized fat components of the daily diet among those who can afford them.

Bread and butter is a national "food staple." During recent months the price of butter, as well as of eggs, which contain a liberal content of valuable yolk fat, has increased to a level at which these sources of fat threaten to be no longer available in any abundance to the less well-to-do classes. Inevitably recourse must be had to cheaper sources of fats. Vegetable fats have for some time been competitors for recognition in the dietary. In addition to the original salad oil from the fruit of the olive tree, other oils are certain to attract consideration. An expert of the Department of Agriculture[2] has recently reported that even in the Mediterranean countries the total annual production of olive oil is only about half the amount of all the vegetable food oils used. Cottonseed, coconut and peanut oils already are utilized extensively in the United States, corn oil is beginning to appear in the retail stores, and the sunflower oil of Russia, soy bean, poppyseed, sesame, and numerous other oils of Europe are now making their appearance among American edible oils, or sooner or later probably will do so.

Some of the animal fats are peculiarly important for nutrition in that they carry a small amount of some accessory food substance or vitamin which is of peculiar value in growth and ordinary well being.[3] Such features presumably ought to be taken into consideration in placing a physiologic valuation on different fats. Aside from this, however, the question is sometimes raised as to whether different fats exhibit any noteworthy inequalities in respect to digestibility and consequent availability for nutritive needs. Recent investigations in the Office of Home Economics of the Department of Agriculture[4] showed that fairly large quantities of lard, beef fat, mutton fat, butter, olive oil, cottonseed oil, peanut oil, coconut oil, sesame oil, and cacao butter, incorporated in a simple mixed diet, can be well digested, the coefficient of digestibility being proportional to the melting point of the fat. It is now further shown that chicken fat, goose fat, brisket fat, cream, egg-yolk fat and fish fat are all well assimilated, and that they are satisfactory sources of fat for the dietary, at least in quantities up to about 90 gm. (3 ounces) per day. It is thus evident that preparedness in respect to our supplies of fats is not likely to be interfered with because of any limitations set by deficient alimentary utilization of any of the most readily obtainable of these foods. The importance of forestalling a national shortage in these foodstuffs is therefore accentuated.

1. The facts quoted are taken from a series of exceptionally illuminating papers by Taylor, A. E.: The Control of Food Supplies in Blockaded Germany, Saturday Evening Post, Feb. 17 and 24, and March 3, 1917.

2. Bailey, H. S.: Some American Vegetable Food Oils, Their Sources and Methods of Production, U. S. Dept. Agric. Yearbook, 1916.

3. McCollum, E. V., and Davis, Marguerite: Jour. Biol. Chem., 1913, **15**, 167. Osborne, T. B., and Mendel, L. B.: Ibid., 1913, **16**, 423; 1914, **17**, 401.

4. Langworthy, C. F., and Holmes, A. D.: Studies on the Digestibility of Some Animal Fats, Bull. 507, U. S. Dept. Agric., March 24, 1917; Digestibility of Some Vegetable Fats, U. S. Dept. Agric., Bull. 505, Feb. 13, 1917.

STATISTICS OF STATE BOARD EXAMINATIONS

We publish this week, for the fourteenth consecutive year, tabulated statistics based on official reports of examinations conducted by state medical licensing boards. Other information having a direct bearing on state boards and methods of registration has been included to enable those interested better to interpret the results. Reports have been received from all state boards, so that the statistics are complete and dependable.

The casual reader may not appreciate the conditions which make the publication of the data important. Medical education and medical licensure in this country are controlled by the fifty individual states (including Alaska and the District of Columbia), each of which, in these matters, is organically independent of the others. In the fifty states are as many different practice acts, providing for sixty-two different examining and licensing boards, no two of which entirely agree. No legislative provision exists for a national control, for cooperation between the boards, or for uniformity of standards. The number of states in which the public is well protected against illiterate and incompetent physicians is still comparatively small, although improvements are rapidly being effected, as shown in Table M. Nevertheless, taking the country as a whole, much confusion and inefficiency still exist in the licensing of physicians. If, for valid reasons, a physician has had his license revoked in one state, it is still possible for him to go to another, often merely crossing a state line, where he may secure a

license. If he is caught again, he may as promptly transfer to a third state. To correct these conditions, an exchange of accurate information and a closer cooperation among state boards is essential. The collection of statistics such as are published this week is a step toward this end. The Council on Medical Education of the American Medical Association is glad to place at the service of all state boards its clearing house of information on these matters.

The collection and the publication of these statistics were begun by THE JOURNAL in 1903, but have been continued as one of the functions of the Council on Medical Education of the American Medical Association since 1905. Every report received from state licensing boards is carefully checked, duplications are avoided, errors corrected, and the statistics rendered accurate and reliable. Through the possession of complete alumni lists of medical colleges, the Council is in position to avoid charging a college with a failure which may have been erroneously accredited to it. This information regarding medical graduates has also led to the discovery of instances in which fraudulent credentials have been presented to state boards. Attention of the board concerned has been called to the facts, and in several instances the licenses so issued have been promptly revoked.

These statistics have had a much greater effect than that rendered by a mere numerical report of physicians examined. In many states, splendid systems of record keeping are found where formerly no records whatever were kept, or where the systems were imperfect. They have also furnished abundant argument for practical tests in state license examinations.

The publication of these statistics has had a marked influence on medical colleges. Where previously medical faculties were unaware of the weakness in their methods of teaching, these statistics show how frequently graduates fail at the state license examinations. For example, in the four years that Table D, showing the nonrecognition of medical colleges, has been published, conditions in the colleges have been improved so that the number fully recognized has increased from thirty-one to sixty. The colleges have made marked improvement in their equipment, and better teachers have been secured and better methods adopted.

These statistics have their greatest value when studied in connection with other data collected by the Council on Medical Education and published in THE JOURNAL and in the Council's reports. The state board statistics are based on reports received direct from state boards, and are made more accurate and reliable through data furnished by medical colleges. The statistics published this week, therefore, have been made possible only through the cordial cooperation of both the state boards and the medical colleges, and for this cooperation we again express our acknowledgments.

Current Comment

RESEARCH IN MEDICAL SCHOOLS

An important report[1] in this issue of THE JOURNAL shows that of the twenty-six foundations for medical research in this country, seventeen, or nearly two thirds, are in connection with medical schools. The report also intimates that the "great growth of the spirit of research in this country" accompanied "the phenomenal development which medicine has undergone in recent years." In fact, the growth of medical research has been in direct proportion to the increase in the number of full-time, salaried professors in medical schools. This increase has been influenced, to a certain extent at least, by the inclusion of the possession of full-time teachers and the conduct of research work as one of the ten requisites in the basis[2] on which the Council on Medical Education rated medical schools in its first published classification. Since full-time teachers were urged chiefly in the laboratory branches, the development of research has been most rapid in that division of the medical school. Only a few medical colleges were amply financed to provide full-time professors in clinical departments and, therefore, only a few have all departments, laboratory and clinical, carrying on active research. With larger numbers of full-time clinical professors, medical research in medical schools will attain to a higher degree of efficiency than is possible where that research is in isolated laboratory departments. There cannot fail to be better results where all departments of the medical school are interested and cooperating in research, since then any department has the advantage of all the resources of the medical school; any discovery may be tried out under adequate facilities and safeguards and its value established or disproved. In fact, a modern medical school, with its skilled faculty; with its laboratories thoroughly equipped for medical instruction and research, and with an abundance and variety of clinical material at its command, constitutes the ideal arrangement for medical research. On the other hand, the medical school cannot reach its highest efficiency in teaching unless it is permeated by the spirit of investigation that is engendered by research. The student cannot fail to be benefited. He appreciates better the importance of the fundamental medical branches; that the training in the medical school merely admits him to the field of medicine with its limitless possibilities for usefulness, and that his future success depends on investigation, on keen observation, on accuracy of judgment, and on the skill with which he applies his knowledge. Graduates of medical schools in which research is a prominent feature of the work will be better able than those of other schools to cope with the multiform problems which confront the modern practitioner of medicine.

1. "Medical Research in Its Relation to Medical Schools." A Report by Drs. Frederic S. Lee, Richard M. Pearce and W. B. Cannon, composing the Committee on Medical Research of the Association of American Medical Colleges, read at the Annual Meeting in Chicago, Feb. 6, 1917.

2. "Essentials of an Acceptable Medical College." Report of the Council on Medical Education to the House of Delegates of the American Medical Association, June 6, 1910, THE JOURNAL A. M. A., June 11, 1910, p. 1975, paragraph 12 and p. 1976, paragraph 8.

THE DUTY OF OFFICERS OF STATE AND COUNTY MEDICAL SOCIETIES

The Advisory Commission of the Council of National Defense and the General Medical Board are appealing for the assistance and cooperation of officers of state and county societies in the endeavor to secure the large number of physicians urgently needed. A subcommittee of the General Medical Board has been created to cooperate with state and county societies in this work. Undoubtedly when the officers of these societies realize how necessary their cooperation is, they will regard it as a duty and will lend a willing hand and hearty cooperation when called on. The officers of even remote county societies are extremely important links in the chain that makes effective the organized medical profession of this country.

THE MOBILIZATION OF THE MEDICAL PROFESSION

The development of modern medicine and surgery has established the importance, in any military activities on a large scale, of a competent and adequate staff of medical officers. Present day surgery, hygiene and sanitation have adequately demonstrated their immediate and practical value in the handling of large bodies of troops. The mobilization of the physical forces of the nation now going on concerns the medical profession directly and offers to it an opportunity greater than any it has heretofore had in our national history. Physicians are needed for this most important and valuable service. In a nation like ours, based essentially on peaceful occupations rather than on militarism, reliance must always necessarily be placed on volunteers, drawn from the ranks of civil life, rather than from a special class trained to military service. No duty which confronts the medical profession today is more important than that of supplying, from the ranks of the American medical profession, such medical skill and service, both in quality and quantity, as the present need may require. Discussion of various phases of medical preparedness has been going on for many months past. It is gratifying to know that whatever may be the needs of the future, our country is probably today better prepared to meet any medical emergencies which may arise than at any previous time in its history. Various activities in this direction have from time to time been recorded and commented on in THE JOURNAL. One of the most important problems is the instruction of civilian physicians in the details of military hygiene and sanitation. On this subject, the Clinical Club of Albany, over a year ago, devised a plan which is worthy of the careful consideration of groups of physicians desiring to prepare themselves for military service. The resolutions passed by the University of Michigan Medical School and the Alabama State Board of Health are efforts to solve the question of the increased demand for professional services which is bound to follow the diverting of large numbers of physicians from civilian to military work. The plan proposed by the Maryland State Committee on Medical Preparedness is an effort to minimize the practical difficulties which will confront the physician who is asked to give up, for the time being, his private practice for public service. These various plans are worthy of the careful consideration of physicians, both as individuals and as members of medical organizations. The present situation calls for cool judgment and deliberate action in order that the medical profession may perform well its full duty.

THE MORE RECENT GRADUATES DESIRED

According to news from Washington, the quota necessary to fill the present vacancies and requirements of the Army Medical Corps will be drawn from among those who graduated in 1912 to 1916. The total number that would be included in such a list would be approximately 19,000. The list of graduates in the five years mentioned, and also for 1917, is as follows:

MEDICAL COLLEGE GRADUATES

	From Colleges in Class A	B	C	Totals
1912.....	2,790	1,063	629	4,482
1913.....	2,539	1,050	392	3,981
1914.....	2,626	686	282	3,594
1915.....	2,629	688	219	3,536
1916.....	2,630	695	193	3,518
1917*.....	2,641	625	101	3,367
Totals....	15,855	4,807	1,816	22,478

* Seniors

As stated last week, there is an immediate need of additional physicians for the Medical Corps of the Army, and for the Medical Corps of the Navy. For these positions preference will be given to young physicians. The Army Medical Corps insists on a year's internship in a hospital after graduation; the Navy, however, is not now insisting on this, but is recognizing 1917 graduates. The young man who takes any of the positions now open is availing himself of a great opportunity for life work. The Army and Navy medical services offer a chance for a broad general training, an opportunity to do research in time of peace and, perhaps, of early promotion as never existed before.

MEDICAL COLLEGES AND MEDICAL PREPAREDNESS

In the present national crisis, the conservation of our sources of supply in medical men is quite parallel to the maintenance of productivity in other lines. A medical school is, in a sense, a factory, the output of which is absolutely essential to the maintenance of the armed forces in the field. Particular importance attaches, therefore, to the report of the medical school committee of the Medical Board of the Council of National Defense, printed elsewhere in this issue. No better example could be given of the necessity of a wise foresight in this matter than the experience of England. In the first enthusiasm at the outbreak of the great war, medical students and members of the faculties of medical schools were not only permitted but encouraged to enlist in the line or in various sanitary organizations. No one foresaw the disastrous consequences of this policy until the war had been in progress a year. With the disorganization of the medical schools, there were at that time no graduates to fill the junior grades of the rapidly growing army

nor men to take the vacancies as interns in the various civil hospitals. Both medical schools and civil hospitals were disorganized. It then became necessary to withdraw both medical students and teachers from the army and send them back to England to study with the handicap of a year's waste motion, a blow from which the British Sanitary Service has never completely recovered. The problem with us is quite clear. Medical schools and civil hospitals must be kept in operation. Means to hold premedical students, to speed up production, and to turn over all unnecessary men for the Medical Officers Reserve Corps must be devised. Several constructive suggestions are embodied in this report. Medical schools may adopt what has become known as the Italian plan — a wise policy devised by the Italians to profit by England's unfortunate experience. The clinical faculties with the medical students were sent to base hospitals at the front. Service for the army was performed by caring for the sick and wounded while instruction was continued at the same time. Without loss of energy men were graduated directly into the medical corps of the army as the war progressed. One or two schools in this country already have organizations of this type under way. The thing of fundamental importance is to remember that the medical schools must be kept operating. In every other way and by every other means, the national emergency demands that they cooperate in overcoming the present grave shortage of medical men. This can be accomplished by reducing the teaching staff to a minimum, working through vacations to increase the product, or by the Italian plan, which meets the needs both of the service and the future at the same time.

TIME FOR MAKING APPLICATION FOR SCIENTIFIC EXHIBIT EXTENDED

In the Association News in this issue will be found an announcement extending the time for applications for space in the Scientific Exhibit to May 1. This is done in order that all those having scientific material of value for such an exhibit may be given an opportunity to apply for space. The Scientific Exhibit this year will be in the Belvedere or roof garden of the Hotel Astor, probably the most beautiful quarters which it has ever had. Most of the available space has already been assigned. Very little is left, so that anyone desiring space should make application at once in accordance with the directions given under Association News.

Poverty in China.—Even the passing traveler in China is impressed with the all-enveloping and well-nigh universal poverty. In the police census of Changsha the total population by count was 270,604, including 583 foreigners. Of these, 52,744 were classed as extremely poor, requiring some help from the government practically all the time to prevent actual starvation. An additional 67,687 were classed as moderately poor, requiring government aid in such emergencies as flood, short crops and drouth to prevent starvation. These two classes combined represent 44 per cent. of the total population which regularly each year requires some aid to avoid starvation. And Changsha is among China's richest, most powerful and most cultured cities.—Dr. Alfred C. Reed, *Scientific Monthly*, January, 1917.

Medical Mobilization and the War

THE GENERAL MEDICAL BOARD OF THE ADVISORY COMMISSION, COUNCIL OF NATIONAL DEFENSE

In The Journal last week, p. 1060, appeared a review of the work already done in the way of medical preparedness through the medical member of the Advisory Commission of the Council of National Defense, Dr. Franklin H. Martin, and his co-workers and committees. The declaration of war made necessary still more active work on the part of the Advisory Commission. For this reason certain of the members of the commission were authorized to appoint a committee, or board, to cooperate with them. Dr. Martin appointed the following as a General Medical Board of the Council of National Defense to cooperate with him "in coordinating civilian military medical activities and to advise in regard to fundamental medical problems in regard to the armed forces of the country":

Dr. Franklin H. Martin, member of the Advisory Commission, Council of National Defense, chairman.

Dr. F. F. Simpson, chief of Medical Section, Council of National Defense, vice chairman.

Surg.-Gen. William C. Gorgas, U. S. Army.

Surg.-Gen. William C. Braisted, U. S. Navy.

Surg.-Gen. Rupert Blue, U. S. Public Health Service, President, American Medical Association.

Col. Jefferson R. Kean, director of Military Relief, American Red Cross.

Dr. William H. Welch, Professor of Pathology, Johns Hopkins University, Baltimore.

Dr. William J. Mayo, Rochester, Minn.

Dr. Victor C. Vaughan, Dean of University of Michigan Medical School, Ann Arbor, Mich.

Dr. Richard P. Strong, Professor of Tropical Medicine, Harvard University, Boston.

Dr. Edward Martin, Professor of Surgery, University of Pennsylvania, Philadelphia.

Dr. George H. Simmons, Editor Journal of the American Medical Association, Chicago.

Dr. John M. Flint, Professor of Surgery and Dean, Yale University, New Haven.

Dr. Stuart McGuire, Professor of Surgery, Medical College of Virginia, Richmond.

Dr. John Young Brown, Professor of Surgery, St. Louis University School of Medicine, St. Louis.

Dr. Charles H. Mayo, President-Elect, American Medical Association, Rochester, Minn.

Dr. Thomas Huntington, Professor of Surgery, University of California, San Francisco.

Dr. H. A. Royster, President of the Southern Surgical Association, Raleigh, N. C.

Dr. Charles H. Peck, Professor of Surgery, University of New York, New York.

Dr. Winford Smith, Superintendent, Johns Hopkins Hospital, Baltimore.

Dr. Frederic A. Besley, Professor of Surgery, Northwestern University, Chicago.

Dr. George W. Crile, Professor of Surgery, Western Reserve University, Cleveland.

Mr. Earl Phelps, Sanitary Engineer, Washington, D. C.

Dr. Edward C. Kirk, Dean, The Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, Philadelphia.

First Meeting of General Medical Board

The General Medical Board held its first meeting, April 9, in Washington. At this meeting there was a general review of what already had been accomplished and a discussion of what remains to be done. Some eight subcommittees were appointed to facilitate and make more effective the work now so pressing, and to meet the various problems, all more or less urgent, the solving of which requires special knowledge. Space prevents giving the composition of these committees this week. Two of the committees already have made preliminary reports—both of practical and immediate importance, both being unanimously adopted by the General Medical Board. One concerning medical schools is commented on editorially, the other relates to hospitals. Both are in part reproduced herewith:

The Medical Schools and Medical Preparedness

Following is the report of the Medical School Committee, of which Dr. J. M. Flint of Yale Medical College is chairman, to the General Medical Board:

Your committee after consultation with the surgeon-general begs leave to submit the following report: In your efforts to solve the urgent problem before this board and assist the surgeon-general in supplying an adequate number of medical officers for the army and navy, it is important that this country should not repeat England's blunder at the outbreak of the war in permitting the disorganization of the medical schools either by calling the faculties into active service or sanctioning the enlistment of medical students into any of the line organizations. Ordinary foresight demands that we face the possibility that the war on which we have entered may last for years. Medical schools to supply trained men for the future as well as the present emergency must be kept in active operation under any circumstances. While aiding to the uttermost in overcoming the present shortage of men, the necessity of keeping the source of supply open emphasizes the importance of conserving our raw material. Therefore, men now in college looking forward to medicine as a career should be made to understand that it is their patriotic duty to the nation at this time to continue their studies and enroll in the medical school of their choice. Furthermore, no medical student who has not completed three years of medical work should be permitted to give up his course as the country needs his trained and not his untrained service.

There are, however, ways in which the medical schools can help the present situation. The following suggestions are made for your consideration and action:

(1) Medical schools should be prepared to graduate senior medical students promptly in case of need. The faculties should urge all graduates who can be relieved of their obligations as interns in civil hospitals to enroll in the Medical Corps of the Army and Navy.

(2) Medical schools should be encouraged to consider as a form of service the Italian plan by which base hospital units can be organized through the Red Cross. These military hospitals carry with them the clinical faculty and students as medical personnel. This type of organization meets two ends—practical help can be rendered to the army or the navy in time of war and instruction may be continued at the base. This permits the graduation of men directly into the junior grades of the army after the most practical form of military instruction.

(3) Fourth year students may be allowed to substitute in special cases, service in a base hospital for the fourth year in the hospital at home when opportunities are offered for instruction in such military institutions.

(4) Medical schools that do not adopt the Italian plan should be prepared to reduce the faculties to the minimum required for routine work and enroll all men so liberated in the Medical Officers Reserve Corps.

Hospitals and Medical Preparedness

The hospital committee of the General Medical Board—Dr. Winford Smith, superintendent of Johns Hopkins Hospital, chairman—made a rather full report on the matter of hospital conservation. The committee called attention to the fact that the release of medical men from civil duties for service in the army and navy is of vital importance at the present time, and recommended that the General Medical Board communicate at once, by telegraph and by letter, with all general hospitals of one hundred beds or over, urging the present needs and suggesting that hospital authorities reorganize their staffs with a view to releasing as many men as possible, the hospitals to be asked to report to the General Medical Board:

"The second matter considered and recommended was that a selected list of hospitals be prepared, with reference to size, location near terminal facilities or strategic points, as for example the hospitals of the important points along the Atlantic and Pacific Coasts and the Northern and Southern Borders. Information should be obtained from these hospitals as to what facilities they would place at the disposal of the Government in case of need, the possibilities of expansion, amount of ground available for expansion, whether maintaining convalescent branches or not and the ease with which water, heating and sewage connection could be made in the event of expansion. This list would supply to the Surgeon General's office a list of approved hospitals, available for convalescent military hospitals or for such other purpose as might be necessary.

The third point considered was the ultimate need of hospitals or facilities for handling special lines of medical and surgical work, such as neurological, orthopedic, urological, shell shock hospitals, etc. It is felt that by listing the special lines for which provision should be made and the hospitals equipped for such service, valuable information will thus be made available and that the committee in performing this work may also serve as a buffer between the Surgeon General and his Staff and the large number of those who may have pet projects to propose.

Your Committee suggests that if it meet with your approval authority be given to proceed with the work as outlined. The Committee is ready to extend its functions as occasion demands."

1st. The members of the Staff needed to carry on the work in the civil hospital.

2d. The members of the present Staff who can be spared. This second group to be divided into:

A. Those now members of the Reserve Corps.

B. Those not members, but who are willing to become members of the Reserve Corps.

C. Those not members, who require persuasion.

As soon as this list becomes available, it is to be placed in the hands of the surgeon-general. It is believed that such a list will be of value: 1. As representing an organization which will safeguard the civil hospitals, which is of vital importance. 2. It will supply a list of available men, who are willing to enter the Reserve Corps. 3. It will supply a definite list of available men on whom pressure should be brought to bear. It is believed that the handling of the matter in this way will allay the fears with regard to the interests of civil hospitals, which now is a deterrent factor, and release a large number of men, who would otherwise not be available or who would be slow to respond. It would be of great assistance to the surgeon-general's office.

The committee recommended that those men who are selected to remain at home, as represented by approved lists, should be furnished with some emblem to signify that they are recognized as serving their country by performing the home duties.

Will Compulsory Service Be Necessary?

It is reported that if a sufficient number of young medical men do not voluntarily offer their services for the immediate needs of the regular Army and Navy Medical Corps, compulsory service may follow. This statement is not official; it is simply a fairly well authenticated rumor. It would indeed be a splendid exemplification of the high type of medical men available in this country if a sufficient number of the younger men would volunteer promptly, making even the mention of compulsory service unnecessary. The upper age limit is 32.

Obtain Men for the Hospital Corps of the Navy

The navy needs at once at least 2,000 men for its Hospital Corps. Every physician in the land should immediately interest at least one young man in this service. From the mass of applicants that will be thus brought forward the required number of competent men can be enrolled without delay. Here is a patriotic duty that every member of the profession, young and old, can perform that hardly requires him to step outside of his daily routine of life. Do your bit, and do it today.

Young men between 18 and 25 years of age will find in the Hospital Corps of the Navy every opportunity to serve their country, and they will receive fair pay and have varied duties and exceptional opportunities for study. In close association with the doctors of the navy they will have to do with first aid to the injured; the care of the sick; surgical procedures; and chemical, bacteriologic and pharmaceutic methods, both on ships at sea and at hospitals and stations ashore.

Service may be either by enlistment as a hospital apprentice for a period of four years or by enrollment as a hospital apprentice in the Naval Reserve Force for the period of the war.

Ask your postmaster where the nearest Navy Recruiting Office is located, and send your candidates there. Instruct every candidate to ask for the doctor and to tell him that he desires to join the navy as a hospital apprentice.

Let the response to this call show the patriotism of our profession.

The Albany Plan

In his address before the House of Delegates at the Detroit session (THE JOURNAL, June 17, 1916, p. 1938), Dr. Vander Veer described the work being carried on by the Clinical Club of Albany for the education of its members in military surgery and hygiene. This included a preliminary course of reading, lectures and discussions on the various subjects necessary for the training of the medical military officers, the preparation of pamphlets and typewritten

outlines comprising digests of the various subjects studied and the formulating and working out of definite problems such as might arise during conditions of actual warfare. This plan, begun in November, 1915, by a small group of Albany physicians, has since come to be known as the "Albany Idea," and has been developed and issued in pamphlet form so that it can be taken up and followed out by groups of physicians or local medical societies. The same method could, in the opinion of Surgeon-General Gorgas, be applied to the entire country. Pamphlets on organization and on the duties of medical officers based on the army regulations and the manual of the medical department have been prepared and distributed to the members by the Clinical Club. Each member has been given special topics for study on which he has been expected to prepare papers for presentation and discussion. In addition, various problems covering contingencies which might arise in time of war have been presented, parts of which have been assigned to individual members, orders issued and reports returned as in actual service. For example, problem one assumes that a portion of the Atlantic Fleet has been defeated and Boston taken by the enemy, who has also succeeded in effecting a landing on the New Jersey coast and has routed the force of the United States troops sent against them, resulting in the capture of New York City. The United States troops are assumed to be slowly retreating from Boston and New York, converging on Albany as a base. It is further assumed that the water supply of the city is in danger of being contaminated. The members assigned to different parts of the problem then undertake to determine the exact sources of the municipal water supply, the daily amount required, how it is stored and distributed, how wastage can be prevented, the possible sources of contamination and methods of prevention, the most vulnerable points for crippling the water supply and how they can be guarded, possible methods of fire control in case the usual supply was destroyed, an emergency water supply, simple methods of purifying an emergency supply, methods of distribution and other related points. A second problem assumes the presence in or near Albany of 100,000 refugees and endeavors to work out methods by which Albany's resources could be utilized in caring for these people so that their own health and that of the community could be guarded. A third problem assumes the occurrence of two battles nearby and the sending of 10,000 wounded to Albany with the consequent need of providing quarters, distributing and caring for the wounded and securing the supplies needed for their care. This problem involved practically a complete survey of the hospitals and buildings capable of being converted into temporary hospitals, the local supply of medical men, nurses, dressings, drugs, instruments, operating room supplies and hospital equipment. A fourth problem assumes the use of Albany as a base and the location of large concentration camps near the city with the prevalence of typhoid fever, requiring the investigation of the camps, their sewage and refuse disposal, general policing, water supply, etc., the examination and immunization of all persons in the camps, the careful inspection of the water, food and milk, the elimination of flies, etc. The pamphlet also contains an outline of the plan of organization of the army and especially of the medical department, the duties of medical officers and instructions regarding the examination of troops. Copies of this pamphlet can be obtained from Dr. Joseph A. Cox, 35 Clinton Avenue, Albany, N. Y., the chairman of the committee. It is hoped that its distribution will stimulate interest and provide a working plan for sanitary surveys elsewhere similar to those made in Albany.

The Medical Reserve Corps

It should be clearly understood by those interested, now that war exists, that medical officers of the Reserve Corps are subject to call and must respond if called. This is as it should be. It would be embarrassing to the surgeon-general's office, and to those responsible for the medical departments of the army and navy, to discover, when the emergency came, that they had been depending for support on what finally proved to be a "broken reed." If any members of the Reserve Corps are under misapprehension as to this point, they should consider their responsibility now, before it is too late, and act accordingly.

Surgical Squads in the European War.—Our Paris correspondent this week (page 1136) calls attention to what would appear to be a practical method of economizing the surgeon's time in active warfare.

Belgian Relief.—The commission for relief in Belgium announces that for the week ending April 4, $101,130 was received for the Belgian relief fund, making a total contribution from the United States since the beginning of the war of $10,636,647. The commission is arranging that Asst. Director Prentiss Gray and three American accountants shall remain in Brussels for a month or more to instruct the new Dutch commissioners in their work.

Ambulances Donated.—Mr. Jacob H. Schiff has donated five motor ambulances to the New York Red Cross for use with military base hospitals organized in New York.

Georgia Survey.—The officers of the Medical Reserve Board of Augusta began a sanitary survey of the city, March 26, to determine the fitness of Augusta as a site for an army base hospital and mobilization camp.

Hookworm Infection.—It is reported from Camp Wilson, San Antonio, that there is widespread infection from hookworm among the troops from Alabama, Mississippi and Texas, but that the disease is now under control.

Twenty-Five Thousand Dollars to Equip Hospital Base.—A gift of $25,000 from Mrs. Henry L. Collins of Sewickley Heights will be used to equip the University of Pittsburgh Hospital Unit. This will enable the Red Cross organization to care for 500 wounded.

Minnesota Hospital Unit.—The University of Minnesota has offered to the government a base hospital unit, of which Dr. Arthur A. Law has been placed in command. One half of the cost and equipment has been supplied by Drs. William J. and Charles H. Mayo of Rochester, and the other half by contributions of business men of the state.

Health Facilities Offered the United States.—Health Commissioner Haven Emerson, New York, has announced that all stocks of serums and vaccines of the department laboratories at Otisville will be available for the federal government in case of war. He also has offered to supply the government with a corps of food inspectors if desired.

Promotions in Guard.—The following promotions have been announced in the New York Guard: Lieut.-Col. William S. Terriberry, chief surgeon of the New York Division, has been made chief surgeon, N. Y., N. G.——Majors Edward R. Maloney, M. C., Walter C. Montgomery, M. C., and William H. Steers, M. C., have been promoted to lieutenant-colonel.

Medicomilitary Instruction.—A course of instruction arranged for the members of the senior class of the University and Bellevue Hospital Medical College was given by Major Frederick S. Macy, M. C., U. S. Army, at Governors Island, N. Y., April 9 to 14, inclusive. The course consisted of lectures on military surgery and hygiene and instruction in military drill.

Philadelphia Active for Medical Preparedness.—The Philadelphia County Medical Society has arranged plans for service in time of war. Dr. J. Norman Henry was appointed chairman and Dr. William H. Walsh, secretary of a special committee.——April 4, a general meeting was held at the Academy of Natural Sciences, at which Lieut.-Col. Henry Page, M. C., U. S. Army, and Lieut.-Com. Robert A. Bachmann, U. S. Navy, delivered addresses.——As a result of a meeting in the Acadamy of Natural Sciences, April 5, at which Lieut.-Col. Henry Page, U. S. Army, and Surg.-Gen. Robert A. Bachmann, U. S. Navy, urged members of the Philadelphia County Medical Society to enlist in the Medical Reserve Corps of both branches of the service, several hundred have already enlisted and others have signified their desire to do so.

Police Surgeons Mobilized.—Announcement has been made from New York City by Chief Surg. Edward T. Higgins that 150 physicians and surgeons had volunteered their professional services under the direction of the police department. An organization by boroughs has been perfected and Dr. Higgins is obtaining the necessary equipment for field services. The expense of this equipment is to be defrayed by women interested in the work.

Alabama Favors Early Graduation for Medical Service.—At a meeting of the Alabama State Board of Health, held April 2, resolutions were adopted to recognize as having completed the prescribed course, students graduated early from the school of medicine of the University of Alabama, or any other Class A medical school whose diplomas are recognized by the board, who enter the Federal service. Such students will not be denied the privilege to examination by the board by reason of having failed to spend in their medical college

courses for the senior year the amount of time prescribed by the board.

Mobilization of New York Hospitals.—On April 8, Mayor Mitchell of New York announced the appointment of a committee on hospitals of the Mayor's Committee on National Defense. Dr. S. S. Goldwater, consultant on health and hospitals of the Board of Estimate and Apportionment, is its chairman. Preliminary steps have been taken to mobilize the resources of the municipal hospital of New York, including the department of public charities, Bellevue and Allied hospitals and the department of health. Various city departments and all the hospitals of New York City have been asked to take membership on this committee. The committee may be addressed care of mayor's office.

Philadelphia War Hospitals and Supplies.—Mrs. Charles C. Harrison, wife of the ex-provost of the University of Pittsburgh, and treasurer of the Women's Working Committee of the South-Eastern Chapter of the American Red Cross, has raised $50,000 for the equipment of the American base hospitals in or near Philadelphia.——The Merion Civic Club has announced the opening, in the near future, of the "first distinctly Red Cross House in the United States." A site for the headquarters has been purchased by the society.——At a special meeting of the North-Western General Hospital staff, Governor Brumbaugh and Mayor Smith were offered the use of the hospital for the care of wounded soldiers and sailors, and plans were made for a course of public instruction in first aid work and emergency nursing.

Base Hospital Ready.—The Johns Hopkins Base Hospital is rapidly being brought up to the standard required by the government and within two weeks it is expected that the listing of attendants, the assemblage of supplies and the full muster of officers will be completed. The necessary funds for supplies and equipment have been provided. The roster of twenty-five physicians is complete; fifty nurses and twenty-five nurses' aids have volunteered for service. Dr. George Walker will be adjutant to Dr. Winford H. Smith, Dr. John M. T. Finney will be chief of the surgical division and Dr. Thomas R. Boggs will direct the laboratory division. Fourth year students of the medical school of the university have volunteered their services as well as a large percentage of the third year men.

Illinois Committee on Medical Preparedness.—The following committee has been appointed to coordinate the medical colleges and organizations of the state: Dr. L. L. McArthur, chairman; Dr. D. A. K. Steele, president, Illinois Division Medical Reserve Corps and dean of Illinois College of Medicine; Dr. William L. Noble, president, Illinois State Medical Society; Dr. A. A. O'Neill, president, Chicago Medical Society; Dr. John M. Dodson, dean, Rush Medical College; Dr. J. P. Cobb, dean, Hahnemann Medical School; Dr. Alfred Deroulet, dean, Loyola University Medical School; Dr. G. E. Wincken, secretary, Chicago College of Medicine and Surgery; Dr. Richard H. Street, president, Illinois Homeopathic Society; Dr. Albert J. Ochsner, University of Illinois; Dr. Wilbur H. Gilmore, secretary, Illinois State Medical Society, Mount Vernon; Dr. Fred A. Besley, Northwestern University Medical School; Dr. Charles E. Kahlke, Hahnemann Medical School; Dr. Dean D. Lewis, Rush Medical College; Dr. James F. Percy, Galesburg, and Dr. Arthur R. Kendall, dean, Northwestern University Medical School, secretary of the committee.

Preparations for War in New York Hospitals.—In addition to the American Red Cross Hospital units that have been organized in connection with the larger hospitals of New York, a plan is announced for the establishment in connection with the Medical Department of Columbia University of a hospital of 1,000 beds to be kept in readiness for any emergency. The proposed site of this hospital is the old Columbia Oval at Bainbridge Avenue and East Gunhill Road, the Bronx. The plan as submitted to the trustees of the university was developed by Dr. J. Bentley Squier, Jr., and endorsed by President Butler and Dr. Samuel W. Lambert, Dean of the College of Physicians and Surgeons. It is proposed to make this hospital a center for training in military surgery, and that all future students graduating in medicine shall have received training in military surgery. The present matriculates of the College of Physicians and Surgeons will receive this training at once. The hospital will be equipped to send field units, consisting of men, materials, tents and all necessary accessories, to any point where their services may be needed, not only in war but to the scene of any accident requiring such service.——St. Luke's Hospital has evolved plans making that institution a base hospital, similar to the American Ambulance Hospital in Paris. The capacity of the hospital will be doubled by the erection of temporary buildings, and the medical and nursing staff will be enlarged. The Columbia University trustees have offered the St. Luke's Auxiliary a portion of South Field as a site for the temporary hospital. A corps of orderlies will be recruited from among medical students. ——The trustees of the Cathedral of St. John the Divine, located near St. Luke's Hospital, have announced their intention of offering the Cathedral building as a pavilion hospital. ——The New York Ophthalmic Hospital has offered the use of its buildings and equipment to the secretaries of war and navy. This is the first hospital devoted exclusively to the treatment of diseases of the eye, ear, nose and throat to offer its services to the government.

Resolutions Passed by the Faculty of the University of Michigan Medical School.—The faculty of the University of Michigan Medical School on April 2, 1917, passed the following resolutions:

1. It is the opinion of the faculty of the University of Michigan Medical School that in meeting the demands for medical officers in the national service, the military authorities should give first preference for enlistment to the members of the medical classes of the past two years, viz.: 1915 and 1916.

NOTE:—These young men have recently finished their medical courses and having taken in part or altogether their hospital training, should have the latest and best information in scientific medicine, and not having as yet established themselves in practice, are best fitted to be selected for military service.

2. In view of the probably urgent demands for trained medical men, the faculty of the University of Michigan Medical School desires to place itself on record as being ready and willing to make its courses of instruction continuous through the summers of 1917 and 1918. This proposition will be submitted to the various state boards of licensure for their approval.

NOTE:—If this provision goes into effect, a week after the close of the present session, the session of 1917-18 will begin. Those who are now Juniors will become Seniors and may be graduated in January, 1918.

NOTE:—In taking this step, not only the military demands upon the medical profession, but civil demands as well are taken into consideration.

3. Taking into consideration the future needs of the country for trained medical men, it is the opinion of the faculty of the University of Michigan Medical School that it is advisable for the undergraduate medical students to complete their course of instruction and not to enlist.

4. The faculty of the University of Michigan Medical School recommends that not less than two hours per week be set aside for the military drill of undergraduate students, and that in addition to the ordinary infantry drill, we recommend training along the lines developed by the Clinical Society of Albany, and known as the "Albany Plan."

NOTE:—The medical officer should first of all be a soldier. This is necessary in order to make him most efficient as a medical officer.

5. That copies of these resolutions be furnished for suggestions of approval or disapproval to the following bodies:

(1) The surgeons general of the army and navy.
(2) The National Medical Committee on Preparedness.
(3) The National Research Council.
(4) The faculties of other medical schools.

6. That a list of the graduates of the classes of 1915 and 1916, with their standing while in the school and their present addresses, be sent immediately to the surgeons general of the army and navy.

Punishing Patriotism: A Suggested Method of Meeting This Evil.—Undoubtedly in the past civilian doctors who have been patriotic and who have served their country in the army or navy have been in a measure punished for such service by finding their practice dissipated and gone on their return home. The knowledge of this has naturally acted in preventing many a physician entering the Officers' Reserve Corps of the United States at this time.

To meet this situation the Maryland State Committee on Medical Preparedness, of which Dr. Gordon Wilson, Baltimore, is secretary, has devised the following plan to be presented at the annual meeting of the state society (Medical and Chirurgical Faculty), to be held in April.

This plan has already been endorsed by the Baltimore City Medical Society.

The committee proposes to have offered the following resolutions:

1. *Resolved,* That the Medical and Chirurgical Faculty of Maryland recognizes the patriotism of those members of the medical profession resident in Maryland who volunteer for the service of the U. S. Government, and in appreciation of this we recommend that should these members of the profession be called into active service, the doctors who shall attend their patients should turn over one third of the fees collected from such patients to the physician in active service or to his family.

2. *Resolved,* That the secretary of the society shall have prepared letter blanks according to the form attached, to a number sufficient to supply those physicians who are called into active service, with a sufficient number so that they can send a filled-out form letter to each patient, a carbon copy going to the doctor who has agreed to look after the physician's practice, and a second carbon copy to be sent to the secretary of the state society.

The secretary of the state society is instructed to file the carbon copies received by him, and on notification by a physician that he has terminated his service with the government and has resumed his practice, the secretary of the state society shall then send out to each of the patients of this physician whose names and addresses he has received in the filed letters a letter stating that the physician has resumed the practice of medicine, and requesting the patient in the name of the society to recognize the physician's patriotism by summoning him should he be in need of medical attention.

This method is the only one devised which can in any way meet the situation that confronts the physician who is patriotic, and who is penalized for his patriotism by the loss of his practice. By this method the profession at large is "put on its honor," the patients of the physician are urged to retain his services, and this urging is done, not in the physician's name, but in the name of the profession and as a patriotic duty.

It is proposed, should these resolutions be adopted, to send a description of the plan to every member of the profession, a copy of the form letter, and also two cards, one to be signed by the physician endorsing personally the first resolution, and the other an application for admission to the Medical Officers' Reserve Corps.

Below are a specimen of the proposed form letter and two cards.

PROPOSED FORM LETTER

(Regular Letter-Head of Medical and Chirurgical Faculty.)

M———————

Street———————

Postoffice———————

Dear M———————: As a member of the Reserve Corps of the United States Army (Navy), I have been ordered into active service by the Government, and on that account I am writing to you of this fact, so that, in case of illness, you may summon some other doctor to attend you. In my absence Dr. ——— of ———, Telephone No. ———, has kindly consented to attend my patients, and I can heartily recommend him.

Sincerely, ———————

Resolution adopted by Medical and Chirurgical Faculty of Maryland:

"Resolved that the Medical and Chirurgical Faculty of Maryland recognizes the patriotism of those members of the medical profession resident in Maryland who volunteer for the service of the U. S. Government, and in appreciation of this we recommend that should these members of the profession be called into active service, the doctors who shall attend their patients should turn over one-third of the fees collected from such patients to the physician in active service or to his family."

Please present this letter to any doctor whom you may call in to attend you.

CARDS

I agree to abide by resolution adopted in relation to fees for attendance on patients of doctors ordered into active service for the government.

In the remote chance of misunderstandings or disagreements arising under this resolution I agree to submit the facts to the board of censors of the society and abide by their decision.

(Signed) .....

RESERVE CORPS

I hereby make application for appointment to membership in Reserve Corps of U. S. Army (scratch one out).
Navy

(Signed) .....

Address .....

Date .....

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Legislative Notes.—The Arkansas legislature has passed a bill creating a bureau of sanitation under the state board of health, and providing that all hotels or restaurants where meals and sleeping accommodations are furnished for transient guests shall be under the control of this bureau.——The legislature has also appropriated $2,000 for the medical department of the state university, and has authorized the building of a state charity hospital.

COLORADO

Fee Splitting Forbidden.—The Colorado legislature has passed the bill introduced by Senator Knauss prohibiting the division of fees by physicians, surgeons, chiropractors, midwives or chiropodists.

DISTRICT OF COLUMBIA

A Warning Against Exhaust Gases from Gasoline Engines.—Every person who takes out a license to operate an automobile, either as owner or chauffeur, in the District of Columbia, is to receive hereafter a leaflet warning him of the dangerous character of the gases given off by gasoline engines. The same leaflet will be distributed among the operators of gasoline launches and wherever gasoline engines are to be found.

To Prevent Measles by Publicity.—Because of the unusual prevalence of measles and of the recognized failure of ordinary official methods for the control of that disease, the health officer had had printed and distributed about 30,000 leaflets describing measles and telling what the parent and the schoolteacher can do to prevent it. Distribution has been made in the public and private schools and the Sunday schools, through the public library and its various branches, and through all available agencies.

GEORGIA

Elected Hospital Trustees.—Drs. Walter E. Barber and Thomas D. Longino have been elected trustees of Grady Hospital.

Personal.—A banquet was given by the medical profession of Atlanta, March 9, in honor of Dr. John G. Earnest, marking the fiftieth anniversary of his entrance into the practice of medicine.

ILLINOIS

Memorial Service for Dr. Sachs.—Memorial services for the late Dr. Theodore B. Sachs were held at Naperville, April 2, by the Jewish Consumptive Relief Society.

Personal.—Dr. J. Morgan Sims, Collinsville, formerly coroner of Madison County, is under treatment for neurasthenia in a sanatorium in St. Louis.

Director of Public Health Appointed.—Governor Lowden has announced the appointment of five members of his cabinet created under the Consolidation bill. Those appointed include Dr. C. St. Clair Drake, director of the Department of Public Health. The director of the Department of Registration and Education has not yet been announced.

Chicago

Campaign of Sanitation.—At a mass meeting held at the Cort Theater, March 30, a campaign was inaugurated against infantile paralysis. Drs. Edwin W. Ryerson and William A. Evans delivered addresses. The plan contemplates a committee to look after the sanitary conditions in every city block, a precinct captain to watch over the various block guardians and a ward supervisor and committee for each ward.

Consulting Staff for Isolation Hospital.—Mayor Thompson has appointed on the consulting staff for the new Municipal Contagious Disease Hospital Drs. Isaac A. Abt, Merlin Z. Albro, Robert A. Black, Jacob F. Burkholder, Rachael Hickey Carr, Howard R. Chislett, Arthur M. Corwin, Frederick G. Dyas, Roy R. Ferguson, Nathaniel A. Graves, Clifford C.

Grulee, Elmer E. Henderson, Julius H. Hess, Henry E. Irish, Richard H. Street, Theodore Tieken, Charles A. Wade, W. Henry Wilson and F. Robert Zeit.

INDIANA

What the Legislature Did.—The Chiropractic bill providing for a separate examining board was killed by the legislature; also the bill to modify the medical laws. Three hundred and fifty thousand dollars was appropriated for the medical department of the university, but the governor refused to approve the appropriation. The all time county health officer bill and the bill providing for the medical examination of schoolchildren were both defeated. Bills providing for health insurance, the regulation of venereal diseases, the prohibition of the sale of habit-forming drugs and the requiring of health certificates for a marriage license were also killed.

IOWA

Chiropractic Bill Defeated.—A bill providing for the licensing of chiropractors has been killed in the house.

MARYLAND

Personal.—Dr. Lewis A. Sexton, who has been superintendent of the Johns Hopkins Clinic for several years, has accepted the position of superintendent of the Hartford Hospital, Hartford, Conn., and will take up his new duties within the month.

Medical Building.—The Young Men's Christian Association at Saratoga and Charles streets, Baltimore, has been sold for more than $200,000. The building will be torn down and on its site the new medical building, a steel and concrete gothic structure, eight stories in height, to cost about $300,000, will be erected.

Meetings.—The second of a series of public health lectures under the auspices of the Medical and Chirurgical Faculty of Maryland was held in Osler Hall, Baltimore, April 10. The topic under discussion was the mental defective. "How the Public Schools of Baltimore City and the Counties Attempt to Meet the Problem of the Mentally Retarded Child" was the subject for the afternoon session, and "How the Criminal Courts Attempt to Meet the Problem of Those Mentally Irresponsible" was discussed at the evening session. Among the speakers were Dr. Henry H. Goddard, director of the Research Laboratories, Vineland, N. J.; Dr. Joseph P. Byers, executive secretary of the National Committee of Provision for the Feeble-Minded, Philadelphia; the various judges of the supreme bench of Baltimore; Dr. M. Bates Stephens, superintendent of the state board of education of Maryland; Prof. Charles J. Koch, superintendent of the Baltimore city public schools, and Dr. C. Macfie Campbell of the Phipps Psychiatric Clinic.

MICHIGAN

Speaks in Muskegon.—At the meeting of the Muskegon-Oceana County Medical Society, held at Hackley Hospital, Muskegon, March 30, Dr. Adelbert M. Moody, Chicago, spoke on "Laboratory Methods in Diagnosis."

Medical Department and Public Library.—The Genesee County Medical Society has obtained the consent of the board of education of Flint to use a portion of the public library for a medical department, for the use of local physicians.

Hospital Changes Name.—The president of the Children's Free Hospital Association, Detroit, announces the change in the name of the institution to the Children's Memorial Association. This does not mean that the free care of sick children is to be abolished by the hospital.

Graduate School in Detroit for University.—The regents of the University of Michigan have adopted a resolution providing for taking over the Detroit School of Medicine as a graduate school, provided $1,000,000 can be raised by the latter to insure the state against loss.

Health Work in Detroit.—Dr. James W. Inches, formerly mayor of St. Clair, has been appointed health officer of Detroit until July 1, to fill out the term of Dr. William H. Price, resigned.——Dr. Guy L. Kiefer, formerly health officer of Detroit, has been appointed consulting health officer.——The scarlet fever situation in Detroit has been serious, a total of more than 1,240 cases having been reported up to March 27. The hospital capacity of the city was overtaxed, and the demand for nurses was far in excess of the possibility of supply.

Personal.—Dr. Leo C. Donnelly, Detroit, has returned to the United States after a year's service in French Base Hospital, No. 43, bis., back of the Somme front.——Dr. Richard M. Olin, Caro, has been elected secretary of the state board of health, to succeed Dr. John L. Burkart, Big Rapids.——Dr. Roscoe C. Main has resigned as health officer of Marquette, and has been succeeded by Dr. Arthur K. Bennett.——Dr. Eugene Smith was the guest of honor at a dinner given by the Ophthalmological Club and the Oto-Laryngolocial Club of Detroit, March 21, at the Hotel Statler, in celebration of the semicentenary of practice of Dr. Smith in Detroit.

MINNESOTA

Personal.—Dr. Frederick Barrett, mayor of Gilbert, is ill with smallpox.

Meningitis.—The old Maternity Building of the St. Paul City and County Hospital has been prepared for patients suffering from spinal meningitis.

Quarantine Hospital for Minneapolis.—The city council, March 9, endorsed the request of $75,000 by the Board of Charities and Correction for the purchase of land at Seventh Avenue South and Fifth Street for a quarantine hospital.

Hospital News.—It is announced that a new wing will be added to the Norwegian Lutheran Deaconess Hospital, Minneapolis, to cost $50,000, for exclusive use as a maternity hospital, and that the Fairview Hospital will build an addition to cost $100,000.——The new Kelly Hotel building, Rochester, was opened, March 21, as a hospital, under the management of the Roberts Hotel Company. It is now known as the Stanley.

Smallpox.—The smallpox epidemic at Eveleth is believed to be under control. About 8,000 people of Eveleth and its environs have been vaccinated.——Eleven of the sixteen cases of smallpox in Duluth have been traced to two children who arrived in the city from Eveleth several days before.——During February there were 130 cases of smallpox in Minneapolis and 249 cases in the entire state.——Ernest Amundson, Perham, is said to have been sentenced to ten days in the work house by Judge Bardwell of Minneapolis on the charge brought by Dr. Harry M. Guilford, city health commissioner, that he had wilfully exposed the public to the disease. Amundson was arrested as he stepped out of the quarantine hospital after having been confined two weeks with smallpox.

NEW JERSEY

Venereal Diseases Reportable.—The legislature has passed a bill to compel the reporting of the state department of health of all persons suffering from venereal diseases. The record is not to be published nor is it to be a public record. Its purpose is to conserve the public health by empowering the state department of health to establish such quarantine measures as may be necessary, at the same time insuring privacy and protecting the victims of these diseases from exposure and exploitation. The legislature has also passed a bill making it a misdemeanor for any one affected with a venereal disease to marry.

NEW YORK

To Investigate Sickness.—A bill providing for a commission to investigate sickness among wage earners in New York creates a commission of five members of the legislature and four others, including wage earners, employers and physicians. The state commissioner of health and the industrial commission are authorized to cooperate in recommending methods for the better protection of workingmen and their families in time of sickness. The creation of the commission has the approval of the advocates of the Mills bill for health insurance and also of those who are not yet ready to see such legislation passed.

New York City

Orthopedic Surgeons Organize.—Orthopedic surgeons and representative men of the several orthopedic hospitals of the city met, March 29, at the New York Hospital for Ruptured and Crippled, on the invitation of Dr. Virgil P. Gibney, and effected an organization for the surgical care and treatment of orthopedic patients in the event of hostilities. Dr. Gibney was elected president and Dr. George Barrie, secretary. A committee on organization was appointed.

Health Campaign Among Negroes.—The death rate among negroes in this city is almost double that of the city at large. In 1916, the negro death rate was 24.4 per thousand as compared with the general city death rate of 13.7 per thousand.

Colored babies born in this city have only half the chance of living through the first year that white babies enjoy. The department of health will conduct an educational campaign during the last two weeks in April in cooperation with the National League on Urban Conditions Among Negroes.

Hospital Social Service.—The New York Conference on Hospital Social Service will be held at the New York Academy of Medicine, April 18, at 8:15 p. m. The subject of the evening is "The Control of Gonorrhea and Syphilis." The program includes "Survey of Four Years' Clinical Work," by Dr. Henry A. Fisher; "Dispensary Control," by Dr. Alec Nicol Thomson, Brooklyn; "Community Control," by Mr. Frank Osborn, New York Social Hygiene Society, and "Dispensary Follow-Up," by Miss Grace Barclay, Johns Hopkins Hospital.

Personal.—Dr. Lee K. Frankel, third vice president of the Metropolitan Life Insurance Company, has been appointed a member of the Council on National Defense.——Dr. Hermann M. Biggs, who recently returned from France, delivered an address to the third and fourth classes of the University and Bellevue Hospital Medical College, in the amphitheater, April 5, detailing his experiences and the medical conditions as they exist in France.——Dr. Linsly R. Williams, now deputy commissioner of the New York State Board of Health, has been appointed first deputy to the New York City Department of Health.——Dr. Edward W. Ryan, formerly in charge of the American Hospital in Belgrade, has been asked by the Serbian government to reorganize the sanitary and relief work north of Saloniki. His work will be to put on a permanent basis the beginning made by the American Sanitary Commission in fighting typhus in Serbia two years ago.

OHIO

Ohio Scores Clean Records.—The Ohio legislature has adjourned with a clean record on public health subjects. The osteopathic, optometry and Christian Science bills were defeated. The bill amending the workmen's compensation law, abolishing the $200 limit for medical, surgical, nurse and hospital attendants, was passed. The model health insurance bill of the American Association for Labor Legislation was introduced, but was later withdrawn, and a substitute bill introduced providing for the establishment of a state commission to study health insurance, appropriating $25,000 for such investigation and directing the commission to report to the legislature in 1919.

OKLAHOMA

Hospital for University Medical Department.—The legislature has passed a bill appropriating $200,000 for the building and equipment of a hospital at Oklahoma City, to cost $200,000 and to be conducted under the supervision of the medical department of the state university. The Tulsa County Medical Society has formally endorsed this action of the legislature.

Personal.—Dr. Frank Woolard, Welch, sustained a fracture of the arm by the overturning of his automobile recently.——Dr. John S. Stults, Olustee, was accidently shot by a hunter while driving in the country recently.——Dr. Dumont D. Howell, Nowata, sustained painful injuries recently in a collision between automobiles.——Dr. Okey S. Somerville, Bartlesville, has been appointed physician of Washington County, and Dr. John R. Collins, Nowata, has been appointed county physician of Nowata County.

OREGON

Legislative Appropriations.—The legislature appropriated $1,000 for the medical department of the state university. A bill was passed reducing the appropriation of the state board of health from $30,000 to $25,000 for the next two years. A bill allowing osteopaths to do minor surgery was also passed.

PENNSYLVANIA

Philadelphia

Hospital Incorporated.—The Physicians' General Hospital has been incorporated with a capital stock of $50,000. The name of Henry S. Sultzer appears as the incorporator.

Tuberculosis Dormitory.—A new dormitory for tuberculous patients will be erected this summer at the Byberry Farms, completing the work being done to relieve congestion in the Philadelphia General Hospital. The dormitory will have accommodation for 300 patients.

Personal.—Dr. Lina D. Schwatt has been appointed physician to the insane department for the feebleminded at Byberry.——Dr. William J. Enders has been elected medical superintendent of the Protestant Episcopal City Mission Home for Consumptives in Chestnut Hill.

Roentgen-Ray Department Opened.—The Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases has opened a new Roentgen-ray department, equipped in part through the memorial fund to Miss Maria Gouverneur Mitchell, daughter of the late Dr. S. Weir Mitchell, one of the founders of the hospital. Dr. Ralph S. Bromer is in charge.

To Combat Infantile Paralysis.—The Child Federation of Philadelphia, cooperating with Dr. Wilmer Krusen, director of public health and charities, began a campaign, March 24, to combat infantile diseases believed to be caused by flies. An appeal has been made to the various institutions and social charitable agencies to provide inspectors for the 6,000 stables in the city, which are breeding places for flies.

Symposium on Occupational Diseases.—The meeting of the Philadelphia County Medical Society, April 11, was devoted to a discussion of the industrial or occupational diseases. Dr. Joseph W. Schereschewsky, U. S. P. H. S., presented the main paper of the evening. Other speakers included Mr. John Price Jackson, commissioner of labor and industry, Harrisburg; Dr. Walter G. Hudson, Wilmington, Del., medical director of the DuPont Powder Works, and Dr. T. Grier Miller.

Medical Institutions.—The Babies' Hospital of Philadelphia, April 2, elected Dr. Charles A. Fife, president of the board, other members being Drs. Joseph S. Neff, Arthur Newlin, Joseph Sailer, John F. Sinclair and James E. Talley. Eleven thousand dollars has been contributed toward the purchase of a site for a dispensary building.——Public lectures for women in the course on "Health Problems of Every Day Life," at the Woman's Medical College, North College Avenue and Twenty-First Street, include one on April 11 by Dr. Ellen C. Potter on "The Health of Schoolchildren" and another on April 18 by Dr. Arthur A. Stevens on "Conditions and Care in Old Age."

SOUTH DAKOTA

State Legislature Acts.—The chiropractic bill failed to pass. A law forbidding the division of fees was enacted.

TENNESSEE

Disciplinary Laws for Physicians Enacted.—The legislature has passed a bill forbidding fee splitting; also one punishing physicians for signing false statements.

TEXAS

Cult Bills Defeated.—Both the optometrist and chiropractic bills have been defeated.

Measles Must Be Reported.—The attorney general has ruled that, it being a matter of common knowledge that measles is a contagious disease, each case should be reported by the physician in charge to the local health officer in the manner prescribed by the sanitary code.

Personal.—Dr. Cleve C. Nash, Palestine, has been appointed chief surgeon of the International and Great Northern Railway.——Dr. Edmund B. Parsons, March 23, was appointed chief surgeon of the International and Great Northern Railway Hospital at Palestine.——Dr. Kincy J. Scott, assistant city physician of Fort Worth, has resigned to accept a position with the Daughter of the King Hospital.

State Quarantine Station Located.—Dr. William B. Collins, state health officer, accompanied by Lieut.-Col. William J. Barden, C. E., U. S. Army, has gone to Sabine to select the location of the new Texas State Quarantine Station on the Sabine-Neches Canal. An appropriation of $65,000 was made by the last legislature for this station, which will serve the ports of Sabine, Sabine Pass, Port Arthur, Port Neches, Orange and Beaumont.

Licenses Revoked.—The Texas State Board of Medical Examiners reports that on Dec. 6, 1916, the license of Dr. Ella M. Maddix, Dublin, was revoked, on the grounds of drug addiction and for having been convicted of violating the Harrison Narcotic Law, and that on March 13, 1917, for similar reasons the license of Dr. W. F. Gordon, Fort Worth, was revoked. It was also stated that on March 20, 1917, the license of Dr. William A. Link, Fort Worth, was revoked, on the ground of his having been convicted of a felony and sent to the penitentiary.

UTAH

Sectarian Bills Defeated.—The chiropractic bill was killed in the house by a vote of 23 to 20. The drugless healers' bill was killed by the sifting committee, as was the bill requiring health certificates before marriage. Bills regulating doctors' fees, creating a state department of health and amending the medical practice act so as to permit chiropractors to practice were killed in the house by striking out the enacting clause. Practically no public health legislation of any importance was enacted.

WASHINGTON

Governor Vetoes Bills.—A drugless healer bill and an amendment to the medical practice act were both vetoed by the governor.

WEST VIRGINIA

Constructive Laws Passed.—Legislature passed bills establishing a tuberculosis sanatorium for colored people, amending the medical practice act by increasing the requirements for a license forbidding the division of fees and providing for the licensing of chiropodists by the state board of health council.

WISCONSIN

Industrial Service.—The Northern Paper Mills, Green Bay, have established an industrial service department under the direction of Dr. Ralph M. Carter, Green Bay, and a registered nurse. Complete medical and surgical care for employees and their families will be furnished, and a thoroughly equipped dispensary with reading, rest and recreation rooms is under construction.

Septic Sore Throat in Galesville.—The twelfth death from septic sore throat at Galesville occurred, March 22. Physicians of the state board of health have discovered six infected cows in a herd of twenty-six, which supplied milk for Galesville.

Personal.—Dr. Oscar Lotz has been appointed a member of the State Board of Medical Examiners, to fill the unexpired term of Dr. John M. Beffel, Milwaukee.——Dr. Henry C. Werner has been appointed supervisor of the State Institution for Feebleminded Children at Union Grove, Racine County.——Dr. John R. McDill, Milwaukee, who recently returned from Germany, was the guest of honor at a dinner and smoker given by the Press Club, March 24.——Dr. Michael E. Corbett, Oshkosh, entertained the Oshkosh Medical Club and the Winnebago County Medical Association at his home, March 17.——Dr. Max Bornstein has been elected secretary of the Milwaukee County Division of the Medical Reserve Corps, U. S. Army.

CANADA

Drugless Healers in Saskatchewan.—An amendment to the Medical Profession Act is before the legislature of the Province of Saskatchewan. It provides that an applicant for a drugless practitioner certificate must show that he has attended a course of lectures pertaining to his work extending over a period of four years and embracing at least five months of each year, satisfactory evidence of which shall be produced if required.——The council shall also admit every person registered under the osteopathic act at the time of the coming into force of this act: Any person who shall produce to the registrar a certificate under the hand of the registrar of the University of Saskatchewan as having passed satisfactorily the hereinafter mentioned examinations for drugless practitioners: provided that such person shall restrict his practice to the method of treatment cited in his license.

Personal.—Col. John T. Fotheringham, C. M. G., Toronto, is returning to Canada, having been appointed director of Invalid Services in Canada.——Col. Frederick W. Marlow, who resigned the post of A. D. M. S., Toronto Military District, will shortly sail for England, where he will be given an important post in the Canadian Medical Service.——Capt. Edward Ryan, formerly superintendent of the Rockwood Hospital for Mental Diseases, Kingston, Ont., and who has been chief of the psychopathic ward of the Ontario Military Hospital, Orpington, England, will succeed Major Frederick J. Munn as medical officer of the Military Hospitals Commission in the Toronto District.——Lieut.-Col. P. Walter W. McKeown, Toronto, who has been attached to the pension board for nearly two years in England, has left Shorncliffe to become attached to the Kitchener Hospital, Brighton, England.——Dr. William A. Harvie, Regina, Sask., who went overseas with the Saskatchewan Medical Unit, has been appointed a member of the Standing Medical Board.

Hospital News.—The medical staff of the Regina General Hospital are having a memorial tablet placed in a public place in the hospital in memory of the late Dr. John A. Cullum, who was a member of the staff, and who was killed in action in France.——The Saskatchewan Hospital Unit, Stationary Hospital No. 8, is located at Hastings, England.——The number of invalid soldiers now being cared for in Canada by the Canadian Hospitals Commission is nearly 5,000. The convalescents number 3,913, of whom 2,104 are in convalescent hospitals, and 1,809 outpatients. Consumptives number 520, including 193 "camp" men. All but eleven are being treated in special sanatoriums for tuberculosis. Sixty-seven men are in the hospitals for the insane, besides six outpatients, while there are 196 men in ordinary hospitals and other institutions.——The Canadian soldiers in hospitals in the United Kingdom on March 9 numbered 15,060, including 467 officers, and consisted of 9,389 sick and 5,194 wounded; 103 are in tuberculosis institutions.——The Ontario government has increased its grant to the hospitals of the province from $1 per patient per day to $1.20.

GENERAL

Physician Practicing Without License.—It is reported that Godfried Leonhard Hagen-Berger has been found guilty of practicing medicine without a license before the Dade County Court at Miami, Fla., and was sentenced to pay a fine of $50 or to serve ninety days in jail.

Lane Medical Lectures.—The Lane Medical Lectures for 1917 will be delivered by Dr. Simon Flexner of the Rockefeller Institute. During the week beginning Monday, October 8, there will be five lectures and they will be given on consecutive evenings. The subject of the series will be "Physical Basis and Present Status of Specific Serum and Drug Therapy."

National Child Labor Conference.—The thirteenth National Conference on Child Labor closed its session at Baltimore with the firmly established conviction that whatever war measures this country is obliged to adopt, there should be no let-down in the standards for child protection. Forms of child labor to be found in every state in the Union and yet not controlled by the federation law were discussed at some length, and among other subjects, suggestions were made for the codification of all child welfare laws and the need of federal aid to elementary education as the means of equalizing the educational opportunities of children throughout the country.

Public Health Service Personals.—Asst. Surg.-Gen. Henry R. Carter has been ordered to proceed to New Orleans and other places in the southern states to supervise the study of malaria.——Surgs. Joseph W. Schereschewsky, George L. Collins and Frederick C. Smith have been directed to inaugurate an investigation of the textile industry in Philadelphia and vicinity.——Drs. Thomas Parran, Jr., Washington, D. C.; Henry Stoll Mustard, Charleston, S. C.; Joseph Davis Applewhite, Winona, Miss.; John Wilson Tappan, El Paso, Texas; Roy Preston Sandidge, New York; Paul Darwin Mossman, Berea, Ky.; Ralph Chester Williams, Montgomery, Ala.; Julius Stanley Shourds Gardner, Washington, D. C., and Richey Laughlin Waugh were appointed and commissioned as assistant surgeons, March 22.

Bequests and Donations.—The following bequests and donations have recently been announced:

Methodist Hospital, Indianapolis, a donation of $1,500, by Mr. and Mrs. Verling Stanley, Lapel, as a memorial to their only daughter, who died last December.

Pennsylvania Medical Missionary Society, a bequest of $5,000, by the will of Miss Sarah Benners.

St. Christophers Hospital, Philadelphia, a bequest of $3,000, by the will of Marianne Biddle.

Library of the Women's Medical College of Pennsylvania, Philadelphia, the library and the hospital of the Women's Medical College of Philadelphia and the surgical instruments of the late Dr. Pearce Kintzing, Baltimore.

St. John's Riverside Hospital, Yonkers, N. Y., $1,000, and Homeopathic Hospital and Maternity, Yonkers, N. Y., $5,000 in memory of Eva Smith Cochran, by the will of Mrs. Mary Lewin T. Smith.

Columbia University, for the maintenance of the new school of dentistry, a gift of $7,055 from an anonymous benefactor.

Medical School of Columbia University, in memory of her son, Dr. Charles Wood McMurtry, the entire furnishings of his library, valued at $7,000, by Mrs. Clara L. McMurtry.

The Medical School of Columbia University, a donation of 600 volumes, valued at $3,000, by Dr. Frederic S. Lee.

The Medical School of Columbia University, $2,500, for the maintenance of the Coolidge Research Fellowship of Medicine for 1917-1918, by Mrs. Frederick S. Coolidge.

FOREIGN

Social Insurance for Parturients in Italy.—The *Policlinico* states that arrangements have now been made for aid to prospective mothers in wage earning families. They are each to receive 40 lire, about $8. The funds for this are to be provided from a fund to which the wage earner contributes 1 lira annually, the factory owner 1.25, and the state 12 lire. The insurance society makes up the balance to 40 lire at each childbirth.

Deaths in the Profession Abroad.—**G. Argento,** professor of surgery at the University of Palermo, aged 70. He always took a prominent part in public health matters and the hygiene of the hospitals throughout Sicily.——**D. de Sandro,** instructor in special pathology at the University of Naples.——**A. Gordon,** at one time professor of physiology at the University of Havana, but long retired from active practice.——**M. O. Morejon** of Madrid, aged 83. Under his initiative the hospital and dispensary service of Madrid was organized as the Cuerpo Municipal de Beneficiencia and thus first placed on a systematic and sound basis.——**J. Riedinger,** professor of orthopedics at the University of Würzburg, aged 52.

Death of Welander.—Our Scandinavian exchanges bring obituary notices of Edvard Wilhelm Welander, the Swedish authority on syphilis and dermatology in general, aged 77. He was professor of skin and venereal diseases at the University of Stockholm until his retirement on reaching the age limit. He was the first to affirm that inunction courses of mercurial treatment are in reality inhalation courses, and hence that it is possible to dispense with the inunctions if the mercury is inhaled from a surface smeared with it. He had his patients wear a kind of apron over the chest, on which the mercury was smeared. His name is connected with the Welander homes for children with inherited syphilis. He founded the first one on a small scale at Stockholm, and it proved so successful in insuring thorough and systematic treatment for the children and in obviating infection of others that it has been constantly enlarged and others have been founded. There are Welander homes now in Christiania, Copenhagen, Berlin and Vienna.

PARIS LETTER

Paris, March 15, 1917.

The War

RATIONAL USE OF THE SURGEONS, AND FUNCTION OF SURGICAL SQUADS

In a previous letter (The Journal, Feb. 17, 1917, p. 558) I referred to certain changes made in the organization of the surgical department of the army. The undersecretary of state of the military health service has given notice as to what these changes are to be. The new organization proposes to counteract the dearth in the number of surgeons, whose skill and mastery of technic are well known, by (1) making it possible to transport the surgeons with greater facility to places at which there is greatest need for their services, and (2) by forming surgical squads capable of rendering immediately the best of service, no matter where they are called. With this end in view, the undersecretary has decided to surround each surgeon with a staff of especially selected and competent assistants. This group will form a surgical squad or operating unit which may be sent anywhere as a surgical reinforcement. Each squad or unit will be composed of a surgeon and assistant surgeon, an anesthetist and two nurses. The anesthetist is a medical adjutant (lieutenant or sublieutenant), a medical auxiliary (corresponding to the grade of adjutant) or an auxiliary pharmacist. The two special nurses are either medical students or pharmacist students, preferably the former. The assistant surgeon must be not only a competent assistant, but also a capable operator, one who can be placed on his own responsibility with the view of assuming the duties of surgeon of a squad; in other words, he is a surgeon in reserve.

It has been customary to send surgeons here and there to render assistance, but it is quite evident that without the surgeon his aids are useless, and, on the other hand, the output of an operator who is obliged to work with strangers, men who are not familiar with his methods, is greatly diminished. Hereafter, the surgeon and his entire squad will be sent as a reinforcement. These squads will always be mobilized in the sense that immediately on receipt of a request for their assistance they will be conveyed either by railroad or by automobile, by the shortest possible route, and as quickly as possible, to the place from which the call came. After its work has been done, the squad rejoins the sanitary formation of which it is ordinarily a part. In its own territory the function of the squad varies according to the degree of activity. Sometimes this activity is intense because the nearest hospitals may be filled by recently wounded, thus necessitating such extra assistance as the squad may render. The regional director of the health service may detach the surgical squad from its place, and transport it at once to a place which is at that time swamped with work. This squad proceeds from place to place serving as a surgical reinforcement wherever it is needed. If the services of the squad are not in demand in its own immediate territory, the director of the region advises the undersecretary of state to that effect so that the disengaged squad is available for service in some other region or district. When the squad is again at liberty it returns to its original station awaiting further call. At the same time that the surgical squads are so retired, their services may be utilized: (1) by being assigned to the service of one or more hospitals with but one surgeon on the station; (2) by combining the services of two or more hospitals into one, or (3) by closing the entire hospital temporarily. At the same time that these surgical squads are called on for reinforcements, their surgical services, in a state of great activity, are extended by the application of measures opposite to the preceding ones. Such an elastic organization of the surgical service will have for effect the possible mobilization of the surgical squads: (1) within the limits of one region (on the initiative of the director of the region), or (2) from one region to another (on the order of the undersecretary of state).

TREATMENT OF WAR WOUNDS BY MAGNESIUM CHLORID

In the course of the military operations on the Somme, Dr. Guillaume-Louis personally took care of more than 1,200 severely wounded in the surgical automobile ambulances. He communicated the results of his study to the Society of Surgery of Paris. On the arrival of the wounded he always employed the same treatment, which was as follows: Removal of all foreign bodies and necrotic tissue; disinfection with ether. After the first time he made use of various therapeutic measures, but experience led to his preferring magnesium chlorid. He did not use any drains. Instead, he places in the wound a wick which soaks up the solution. On the surface he applies a compress saturated with the same solution. The dressing is renewed every day with the greatest possible aseptic precautions. Rapidly, under the influence of magnesium chlorid, the wound is cleansed, the pathogenic agents are diminished in number, and the secretions are dried up. In the course of a few days the wound is disinfected sufficiently so that it can be sutured for secondary union. Guillaume-Louis has employed other methods of dressing with good results, such as Labarraque's solution, oxygenated waters, neutral solution of chlorinated soda (Dakin's solution) and magnesium hypochlorite, but he has not obtained the same satisfactory results from any of these as from the use of magnesium chlorid. Delbet believed that he had demonstrated several times that neutral solution of chlorinated soda is not as harmless as it is said to be; that while it may not alter the tissues themselves it does alter the leukocytes and transforms the albumin of the exudate so as to make it a good culture medium for bacteria.

THE TAX ON SACCHARIN

The government proposes to limit the use of saccharin to certain pharmaceutical products temporarily employed in the manufacture of foods. The minister of finance has estimated that under these conditions the consumer of saccharin was not to be exempted from the payment of the tax which he has paid heretofore on sugar. As saccharin possesses a sweetening power from 400 to 500 times greater than that of cane sugar, the minister of finance fears that under these circumstances concentrations of saccharin may be used in spite of the regulations within which such use is to be confined or limited. Therefore it is proposed to place a tax on saccharin corresponding to that placed on sugar, which was placed at 200 francs ($40) per kilogram.

THE STUDENTS OF THE VAL-DE-GRÂCE

A decree has been issued recognizing the public utility of the friendly society of the students and former students of the school for the application of military medicine and pharmacy of Val-de-Grâce. Henceforth, that society, which numbers 800 members, will be permitted to receive donations and bequests. The society will aid the widows and orphans of those of its members who have succumbed in the course of the war (580 members have died since the beginning of hostilities). The treasurer is Médecin-Major Fasquelle, rue Ballu, No. 8, Paris.

Association News

THE NEW YORK SESSION

Time for Reservations in Scientific Exhibit Extended

In order that all members of the Association having interesting material for the Scientific Exhibit may have an opportunity to present it, the time for closing reservations for space for the Scientific Exhibit for the New York session has been extended to May 1. Space has been assigned to all those from whom applications have been received. As there is only a small amount of space left, all those desiring to make an exhibit should make application at once. The Belvedere or Summer Garden on the top floor of the Hotel Astor has been reserved for the Scientific Exhibit. This beautiful hall has been divided into spaces averaging 12 by 6 feet. Wall space is also available for displaying charts, tables and photographs. All the remaining space will be assigned, May 1. For application blanks and further information address the Director of Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

First Announcement of Special Train

For the accommodation of those going to the annual session of the American Medical Association in New York, June 4-8, 1917, the Michigan Central Railroad will operate an "American Medical Special" leaving Chicago from the Central Station, Twelfth Street and Michigan Avenue, at 5:40 p. m., Saturday, June 2.

This will be an all Pullman train, consisting of club car, standard and compartment sleepers, observation car and dining cars. The train will make intermediate stops on the Michigan Central at Kalamazoo, Battle Creek, Jackson and Detroit, and is scheduled to arrive in Niagara Falls at 6:10 a. m., June 3, where cars may be occupied until 8 a. m. The entire day may be spent visiting the various points of interest at Niagara Falls. Arrangements will be made with one of the principal hotels to serve breakfast, luncheon and dinner. The special train will leave Niagara Falls at 7:20 p. m., June 3, to arrive in New York at 7:50 a. m., June 4.

If some of the party wish to make the trip down the Hudson River from Albany to New York via the Hudson River Day Line boat, sleepers will be attached to the special at Niagara Falls and dropped at Albany on arrival of the train at that point early Monday morning, June 4. Those in this party can leave Albany via boat at 8:30 a. m., arriving in New York at 5:30 p. m.

The advantages of these special arrangements are many. They permit leaving Chicago at the close of the business day on Saturday, spending an entire day at Niagara Falls, and arriving at New York Monday morning in ample time for the meeting, without payment of excess fare. Those desiring to use the special from Chicago going through to New York direct without stopover at Niagara Falls can do so, arriving New York 5:35 p. m., June 3, by paying an excess of $5. For more detailed information consult any agent of the Michigan Central or write directly to Mr. Fred. E. Deal, C. P. A., 228 S. Clark Street, Chicago.

Marriages

HUGH TODD RYAN, M.D., Schuylkill Haven, Pa., to Miss Mary E. Standiford of Uniontown, at Philadelphia, March 28.

GRACE OTTOLEE DOANE, M.D., Des Moines, Iowa, to Mr. Leo L. Crowl of Des Moines, at Osceola, Iowa, April 8, 1916.

CLYDE FERDINAND LOY, M.D., Shawnee, Okla., to Miss Katherine Ormsby of Louisville, March 26.

DAVID NATHANIEL KREMER, M.D., to Miss Minnie K. Gabouvitz, both of Philadelphia, March 25.

WILLIAM PARK MILLS, M.D., to Mrs. Alice W. MacLeod, both of Missoula, Mont., March 25.

ROBERT SONNENSCHEIN, M.D., to Miss Flora Kieferstein, both of Chicago, April 5.

Deaths

Augustus White Stinchfield, M.D., Rochester, Minn.; Medical School of Maine, Brunswick, 1868; aged 74; formerly a Fellow of the American Medical Association; one of the founders of the Olmsted County Medical Society; a veteran of the Civil War; president of the First State Bank of Rochester and also of the Eyota and Dover State banks and Rochester Loan and Trust Company; died at his home, March 15, from cerebral hemorrhage.

Walter Bayne Geikie, M.D., Toronto, Ont.; Medical Board of Upper Canada, 1851; Jefferson Medical College, 1852; University of the Victoria College, Coburg, Ont., 1859; L.R.C.P. (Lond.), 1867; L.R.C.S. (Edin.), F.R.C.S. (Edin.), 1867; aged 86; dean of the Trinity Medical College, Toronto, for twenty-five years; a member of the Ontario Medical Council; died at his home, January 12, from senile debility.

Frank Carothers Wilson, M.D., Louisville, Ky.; University of Virginia, Charlottesville, 1867; aged 75; formerly a member of the Kentucky State Medical Association, and professor of chest diseases, physical diagnosis in the University of Louisville, Ky., and lecturer on hygiene and dietetics; a Confederate veteran; died at the home of his sister in Dunedin, Fla., March 22, from arteriosclerosis.

John S. Van Voorhis, M.D., Belle Vernon, Pa.; Jefferson Medical College, 1847; aged 93; formerly a member of the Medical Society of the State of Pennsylvania; first secretary of the Washington County (Pa.) Medical Society; one of the organizers of the first railway in the Monongahela Valley; a member of the state legislature from Washington County in 1855; died at his home, March 15.

Evelyn Baldwin, M.D., Rochester, N. Y.; Women's Medical College of the New York Infirmary, New York, 1892; aged 56; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; for many years a member of the staff of the Rochester General Hospital; died at her home, March 24, from pneumonia.

William van Eman Riddle, Burgettstown, Pa. (license, Washington County, Pa., 1881); aged 77; for fifty-three years a practioner; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania, and once president of the Washington County Medical Society; died at his home, March 25.

William Edward Vest, M.D., Des Moines, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1878; Jefferson Medical College, 1880; aged 61; a Fellow of the American Medical Association, and one of the leading surgeons of Des Moines; died in his apartment in Des Moines, March 22, from meningitis following an acute otitis media.

John Norton Pascoe, M.D., Denver; Northwestern University Medical School, Chicago, 1880; aged 65; formerly a Fellow of the American Medical Association; a member of the Colorado State Medical Society; for many years a practitioner and mining prospector of Silverton, Colo.; died in St. Joseph's Hospital, Denver, March 7.

Albert Morrall, M.D., Wamego, Kan.; Rush Medical College, 1867; aged 87; an officer in the Confederate Service during the Civil War; assistant surgeon for the Union Pacific System at Wamego, and from 1894 to 1898 postmaster; died in the University Hospital, Kansas City, Mo., March 4, after a surgical operation.

John Kline Seaman, M.D., Reading, Pa.; Bellevue Hospital Medical College, 1869; aged 72; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; for several years a member of the medical staff of St. Joseph's Hospital; died at his home, March 12.

Miles Nelson Newman, M.D., Ossian, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1870; aged 73; formerly a Fellow of the American Medical Association; a veteran of the Civil War; for eight years trustee of Jefferson Township, Wells County, Ind.; died at his home, March 26, from heart disease.

Lewis Garibaldi Langstaff, M.D., Thorne Hill, Toronto, Ont.; Victoria University, Coburg, Ont., 1884; aged 57; formerly a Fellow of the American Medical Association, and adjunct physician to St. John's Hospital, Brooklyn; a veteran of the Spanish-American War; died at his home, March 16, from brain tumor.

Theodore Ilg, M.D., St. Louis; Marion-Sims Medical College, St. Louis, 1894; aged 40; formerly a member of the

Missouri State Medical Association; whose license was revoked five years ago on account of conviction for illegal practice; died, March 20, at the St. Louis City Hospital, from kidney disease.

Joseph Francis O'Shea, M.D., Lynn, Mass.; New York University, New York, 1886; aged 53; a member of the Massachusetts Medical Society; a member of the surgical staff of the Lynn Hospital; assistant medical examiner for Essex County; city physician of Lynn; died at his home, March 29.

Henry Mortimer Brush, M.D., New York; New York University, New York, 1862; aged 80; secretary of the Alumni Association of his alma mater from 1867 to 1870; surgeon of the Fourth New York Volunteer Field Artillery during the Civil War; died in Hahnemann Hospital, New York, March 28.

William G. Winder, M.D., Philadelphia; Jefferson Medical College, 1869; aged 69; a Fellow of the American Medical Association; formerly physician to the Convent of the Sacred Heart, Torresdale, Pa., and the Edwin Forrest Home, Holmesberg, Pa.; died at his home, March 26, from neuritis.

Anna S. Rosenbluth, M.D., Paterson, N. J.; Women's Medical College of the New York Infirmary, New York, 1894; identified with the Jewish hospital work in the United States; superintendent of the Zion Hospital, Brooklyn; died in that institution, March 30, from cholecystitis.

George Baker Underwood, M.D., Gardner, Mass.; Dartmouth Medical School, Hanover, N. H., 1882; aged 62; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, February 2, from tuberculosis.

Charles Frederick Denny, M.D., St. Paul; Harvard Medical School, 1882; aged 59; a Fellow of the American Medical Association; for many years a member of the staff of the St. Paul City and County Hospital; died in Los Angeles, March 24, from heart disease.

Oscar Newton Carter, M.D., Republic, Mo.; University of the South, Sewanee, Tenn., 1899; aged 42; formerly a Fellow of the American Medical Association; a member of the Missouri State Medical Association; died in his office, March 27, from cerebral hemorrhage.

Arthur Vinol Lyon, M.D., Brockton, Mass.; Harvard Medical School, 1887; aged 53; a member of the Massachusetts Medical Society; a member of the visiting staff of the Brockton State Hospital; died at his home, February 21, from cerebral hemorrhage.

Thomas Edward Cunningham, M.D., Cambridge, Mass.; Harvard Medical School, 1883; aged 66; a Fellow of the American Medical Association; a specialist on internal medicine; died at his home, February 27, from carcinoma of the right lung.

Wallie C. Lane, M.D., Mountain Grove, Mo.; University Medical College of Kansas City, Mo., 1898; aged 42; died in Springfield, Mo., March 13, from the effects of a gunshot wound, self-inflicted, with suicidal intent, while mentally deranged.

Richard Hastings Dillon, M.D., Manchester, N. H.; College of Physicians and Surgeons, Chicago, 1897; aged 48; formerly a member of the New Hampshire Medical Society; at one time a medical officer in the state militia; died at his home, recently.

J. D. McNeiley, M.D., Sewal, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1886; aged 65; while returning from a professional call, March 9, sustained a fracture of the spine by the overturning of his automobile, and died six hours later..

William A. Hunt, M.D., Evansville, Ind.; Missouri Medical College, St. Louis, 1891; aged 75; a member of the Indiana State Medical Association; a practitioner for forty-five years; died at his home, February 23, from bronchial pneumonia.

George Francis Adye, M.D., Newtonville, Ind.; Cincinnati College of Medicine, 1865; Eclectic Medical Institute, Cincinnati, 1870; aged 79; a member of the Indiana State Medical Association; died at his home, February 7.

Columbus A. Cox, M.D., Stanford, Ky.; University of Louisville, Ky., 1860; aged 81; surgeon of U. S. Volunteers during the Civil War; died at the home of his son in Jonesboro, Tenn., Februrary 2, from senile debility.

Arthur von Werder, Chicago (license, Illinois, 1889, on certificate from War Department, Russia, 1883); aged 75; a practitioner since 1859; died at his home, March 23, from cerebral hemorrhage.

Isaac Crowther, M.D., Chester, Pa.; Hahnemann Medical College, Philadelphia, 1880; aged 59; a member of the medical staff of the J. Louis Crozier Hospital, Chester; died at his home, March 21, from heart disease.

George Clark Blaisdell, M.D., Contoocook, N. H.; Harvard Medical School, 1867; aged 72; a Fellow of the American Medical Association; local surgeon for the Boston and Maine System; died at his home, March 5.

J. Albert Mattson, M.D., Chisago City, Minn.; University of Minnesota, Minneapolis, 1904; aged 42; a member of the Minnesota State Medical Association; died suddenly, March 18, from postpharyngeal abscess.

Philip G. Foust, M.D., Somerset, Ind.; Medical College of Indiana, Indianapolis, 1895; aged 44; formerly a Fellow of the American Medical Association; died at his home, February 21, from pneumonia.

H. W. Heasley, M.D., Grand Rapids, Mich.; Detroit College of Medicine and Surgery, 1893; aged 54; a member of the Michigan State Medical Society; died at Harper Hospital, Detroit, March 14.

Justus Crosby French, M.D., Webster, S. D.; Harvard Medical School, 1875; who retired from practice about twenty-five years ago; died in a hospital in San Diego, Calif., March 6, from pneumonia.

Charles S. Macy, M.D., New York; New York Homeopathic Medical College, New York, 1881; aged 67; for many years instructor in obstetrics at the Flower Hospital; died at his home, March 15.

William C. Campbell, M.D., Creighton, Neb.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; a member of the Nebraska State Medical Association; died in Omaha, February 6.

David Kline Bond, M.D., Waterloo, Iowa; State University of Iowa, College of Homeopathic Medicine, Iowa City, 1904; aged 51; died at his home, March 14, from uremia.

J. C. Iserman, Topeka, Kan. (license, Kansas, 1901); aged 79; for more than half a century a practitioner of Kansas; at one time postmaster; died recently in Florida.

A. C. Brabsan, Otto, N. C. (license, North Carolina); aged 77; for more than fifty years a practitioner of Rabun County, N. C.; died at his home near Otto, March 7.

Walter Estus Deuel, M.D., Chittenango, N. Y.; New York Homeopathic Medical College, New York, 1876; aged 64; died at his home, March 5, from pneumonia.

Francis James Hogan, M.D., St. John, N. B.; Harvard Medical School, 1908; aged 34; formerly of Bridgeport, Conn.; died at his home, March 8, from pneumonia.

William H. Hornor, M.D., Duck Creek, W. Va.; Eclectic Medical College, Cincinnati, 1865; aged 76; died at his home, February 11, from bronchial pneumonia.

Jasper P. Norcross, Miller, Neb. (license, Nebraska, 1902); aged 66; a practitioner and druggist of Buffalo County, Neb., since 1884; died at his home, March 19.

G. T. Hale, M.D., Junction City, Ark.; American Medical College, St. Louis, 1876; aged 82; died at the home of his daughter in Junction City, recently.

Samuel G. Miller, M.D., Livermore, Pa.; Western Reserve University, Cleveland, 1867; aged 88; died, March 15, at the home of his son in Blairsville, Pa.

Andrew Glass Gorrell, M.D., Ossian, Ind.; State University of Iowa, Iowa City, 1875; aged 76; a veteran of the Civil War; died at his home, March 20.

Amplias Alonzo Hurt, M.D., Hickory, Ky.; Hospital College of Medicine, Louisville, 1876; aged 66; died at his home, February 10, from pneumonia.

Joseph W. Baker, M.D., Louisa, Va.; Medical College of Virginia, Richmond, 1864; a Confederate veteran; died at his home, March 14.

Sidney J. Burch, M.D., Rhineland, Mo.; Washington University, St. Louis, 1877; aged 61; died at his home, March 4, from diabetes.

John Cameron, M.D., Wheelock, Texas; Tulane University, New Orleans, 1860; aged 91; died at his home, Ferbuary 19, from cystitis.

Andrew J. Carper, M.D., Elkhart, Ind.; Medical College of Fort Wayne, Ind., 1882; aged 71; died in his office, March 20.

Michael J. Donnelly, M.D., Summithill, Pa.; Rush Medical College, 1869; aged 78; died at his home, March 13.

Correspondence

Dr. C. A. L. Reed and the Etiology of Epilepsy

To the Editor:—I cannot but feel that the letter of Dr. Charles A. L. Reed (The Bacteriologic Phase of Chronic Convulsive Toxemia [Epilepsy] of Intestinal Origin, THE JOURNAL, Feb. 24, 1917, p. 652) deserved a more important place than it received. Although over a month has passed since its publication, it seems to have attracted the attention of comparatively few readers. This article, to my mind, is the most important that Dr. Reed has published, notwithstanding the fact that he has, as yet, failed to appreciate that heredity and gross brain lesions do occasionally play some part in the production of epilepsy.

He apparently has come to the point at which he appreciates that negative findings have a certain definite value, which view no one would have accused him of possessing when he closed his article published in THE JOURNAL, Oct. 14, 1916, by stating, "as such I, like other clinicians, must be guided by the technical findings of pathologists and bacteriologists, but they must be findings of something, not of nothing." To this statement I would say that there is no field of research work in which finding "things" is easier than it is in bacteriology. Surroundings and technic play quite as important a part in bacteriology as heredity and gross brain lesions do in epilepsy.

I fail to see where Dr. Reed has added one thing of importance to the literature on epilepsy. All that he has written has been generally accepted for years, and the surgical aspect of the treatment of the toxic cases was reviewed by Dr. Ernest LaPlace, professor of surgery at the Medico-Chirurgical College, Philadelphia, years ago. What he has done by his premature publications has been to fill the general practitioner, who depends on the research laboratories as a source of information, with doubt and misgiving.

D. A. THOM, M.D., Worcester, Mass.
Assistant Pathologist, Massachusetts Commission on Mental Diseases.

Pennsylvania and Entrance Conditions

To the Editor:—I am enclosing a resolution which I would ask that you publish in THE JOURNAL.

J. M. BALDY, M.D., Philadelphia.

WHEREAS, In 1914 certain "conditions" in the preliminary sciences were permitted by the Association of American Colleges, to terminate September, 1917, and

WHEREAS, Said Association of American Colleges during its meeting in Chicago, February, 1917, extended these "conditions" for a further period of time, therefore, be it

Resolved, That the Bureau of Medical Education and Licensure of the State of Pennsylvania hereby registers its protest against such action and announces that approval will be refused any candidate applying to enter Pennsylvania either through examination or through reciprocity with any condition of any kind after September, 1917. And it is further

Resolved, By the said bureau, that it will remove from the approved list of the State of Pennsylvania the name of any medical college allowing any conditions on the preliminary requirements after September, 1917.

[NOTE.—The foregoing communication was referred to the secretary of the Council on Medical Education of the American Medical Association, who says:

These preambles and resolutions need a word in correction. The rules in regard to conditions were prepared in 1915 by a joint committee representing the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges, after an extensive correspondence with leading medical educators. Those conditions were to be allowed, meanwhile, until Jan. 1, 1917, after which time they were to be either discontinued or continued, as might be determined at the next annual meetings of the two associations. By a further understanding the rules with certain modifications were extended to Jan. 1, 1918. Under the present arrangement the student is permitted to enter the medical school conditioned in four semester hours of *either* physics or biology but not in both. No condition is to be allowed in chemistry, and high school physics is no longer to be accepted in lieu of college physics. The committee representing the two organizations believe that the rapid but very desirable advances which are being made in preliminary education will work undue hardship on a large proportion of students unless such conditions were allowed. After a few years have been allowed for readjustments under the higher standards, it may then be found reasonable to insist that students enter the medical course without conditions. In the meantime, it is believed that to allow certain deserving students to carry a four semester hour condition will not handicap such students in their medical course.]

An Unmulish Trick!

To the Editor:—I wish to report an extremely rare and interesting observation: March 4, 1917, at the farm of Mr. T. B. Neely, Peoria, Ariz., I saw an iron gray mare mule, 4 years old, 15½ hands high, and weighing 1,100 pounds, suckling a male colt to which she had given birth two months previously. The owner, Mr. Neely, informed me that the mother was raised by him, and he knows her to be a true hybrid. She has this appearance to me, and in no way resembles a jennet. He further stated that, at the time conception evidently occurred, this mare mule was confined in a pasture with a large sorrel stallion, and the act of copulation between the two animals was repeatedly observed. As pregnancy, naturally, was unsuspected, the mare mule was worked at her usual task on the plow until immediately before the birth of the colt. The colt is of good size, vigorous and healthy, and eagerly suckles. Its feet, ears and head have the appearance of those of a mule, the ears and head, however, being unusually long. The shape of the body more nearly resembles that of a horse. Its color is sorrel or light bay. These facts can be authenticated by the owner.

RAY FERGUSON, M.D., Patagonia, Ariz.
Chairman, Committee on Public Health and Vital Statistics, Arizona State Senate.

The Clarification of Milk

To the Editor:—In THE JOURNAL, March 24, 1917, Prof. E. G. Hastings of the University of Wisconsin presents his views concerning the clarification of milk. They are distinctly hostile to this process, and leave the impression that the use of a clarifier not only encourages sloppy methods at the point of production, but that health officers favoring the process are deceiving the public. Cincinnati and five other cities are cited as examples of the lengths to which misguided enthusiasts will go in an endeavor to supply a community with milk that is not only safe but decent in appearance.

Cincinnati health officials have never suggested that clarification is a substitute for cleanliness at the point of production. They do believe that it is a very efficient adjunct to cleanliness. The material removed will do more to open the eyes of a careless dairyman to his shortcomings than many hours of eloquent appeal. Seeing is believing. The Cincinnati Department of Health has not passed a regulation requiring clarification.

Professor Hastings admits that, "under ordinary conditions, more or less dirt of an insoluble nature gets into the milk," and that strainers are used for the purpose of eliminating a portion of it at the point of production. He failed to include the soluble material that constantly gets into milk. Microscopic and macroscopic examination of milk sediment reveals the presence of an occasional blood clot, hairs, cow manure, pus cells, bacteria and other flotsam and jetsam of the dairy industry. These inclusions occur in the product of the best regulated dairies, in spite of the greatest precautions taken to exclude them.

The question naturally arises, If it is a good thing to eliminate a portion of the foreign material by straining at the point of production (a process which he does not condemn),

why is a method that removes all of it open to condemnation? Clarification will not neutralize the danger of infection that may reside in unpasteurized milk. It is immeasurably superior to the ordinary methods of straining employed on dairy farms. If efficiency in performing this function is to be the measure of condemnation, and if the degree of condemnation is to be proportionate to the degree of efficiency, then the advocates of clarification should be sentenced to service in a diet squad created for the purpose of solving the high cost of living. Clarification (perfect straining) removes all visible sediment. If this is bad practice, why is partial removal by imperfect straining good practice?

Reasoning backward, all methods of straining should be discontinued, for the more perfect they are, the more reprehensible they become. The covered milk pail should be abolished because it excludes dirt that would be included "under ordinary conditions," and cleansing the cow becomes one of those finicky ideas which, if carried out, prevents the consumer from knowing just how dirty a sample of milk may be "under ordinary conditions." People naturally object to having milk served to them wearing a flowing beard or a toupee or sadly in need of a haircut, and clarification confiscates all of the hirsute appendages found in milk produced "under ordinary conditions." We might go a step farther and include the cow manure that gave milk its body, bouquet and delectable flavor in the good old days before dairy inspectors got busy.

Experience has taught me that the happiness of the consumer is not increased when he finds the foreign material that escapes the strainer at the point of production. Following the lead suggested by Professor Hastings, practically every bottle of milk would show visible sediment, little if any of it having any direct effect on health, but a positive effect on appetite, and, therefore, indirectly on health.

Furnishing a safe milk does not, in my humble judgment, end the responsibility of a public health official. It must also make a decent appearance and an appeal to appetite. To fill these requirements, it must be produced in clean dairies by clean milkers, cooled quickly, shipped in sterile containers, pasteurized, *clarified* and delivered to the consumer in sealed packages.

J. H. Landis, M.D., Health Officer, Cincinnati.

[Dr. Landis' letter was referred to Professor Hastings, who replies:]

To the Editor:—The rules and regulations which are passed by the health departments of our various governmental units, whether they be municipal, state or federal, should have some actual relation to health problems; whenever a health department is instrumental in the passage of regulations that have no relation to public health it is in truth deceiving the public. It seems to me perfectly true that any city which passes an ordinance requiring the clarification of milk or any health department which passes such a rule is leading the public astray. I should not say that the clarification of milk encourages sloppy methods, but I do think that it may permit the use of methods which could not otherwise be used.

The statement made in the article concerning the cities that have passed ordinances requiring clarification was based on what I supposed to be reliable information. I certainly regret having included Cincinnati in this list since this city has made no such requirement.

I think an inference has been drawn from the article that is not wholly justifiable, namely, that it is a good thing to eliminate a portion of the foreign matter by straining at the point of production. I did not condemn this process because, as it seems to me, it is such an ingrained custom of the American farmer that it will be many years before we can hope to prevent him from straining the milk. I do, however, believe that if this process could be eliminated it would have an immense value in inducing cleanliness. A beginning is being made in this work. The inspectors of the New York City Board of Health have found in their work at the various milk receiving stations that the dirt test becomes of little value to them as soon as the farmer applies efficient methods of straining the milk. The officials have apparently begun to consider whether it would not be a wise thing to prohibit the straining of milk on the farm. For many years this has been a custom in certain of the milk-producing districts of Switzerland, not only for milk that is to be used as market milk, but also for milk to be used in the manufacture of cheese. This custom has been brought to this country by some of the Swiss cheese makers. They realize that they can tell far more concerning the methods which the farmer is using in the production of the milk if he does not strain the milk than if he does. I desire to correct the impression which I apparently have made: that I believe that partial removal by imperfect straining of milk is a good practice. I do not think, however, that any city needs to pass an ordinance requiring that the farmers shall strain the milk.

In one other paragraph of Dr. Landis' letter he seems to have confused prevention of the introduction of dirt into milk with its removal. It is well known that the bacteria which are introduced with the mud and manure that get into milk are largely washed from the solid materials with which they were in contact. When these microscopic objects are strained from the milk the bacteria are not likewise removed but remain in the milk. The bacteria are certainly the agents that are instrumental in causing the spoiling of milk, and in many cases influence its healthfulness. The removal of the carrying agent but not the bacteria cannot improve the healthfulness of the milk. I suppose if an agar culture of the typhoid organism were introduced into a vat of milk and allowed to remain until all of the organisms had been washed off and then if the agar on which the bacteria were carried was removed from the milk, we should have something quite comparable to what we actually have in the straining of milk. This certainly would be very different from preventing the introduction of the culture into the milk. The covered milk pail prevents the introduction of dirt with its adherent bacteria. The cleaning of the animal and every other process that prevents the introduction of foreign matter into the milk are certainly to be recommended, but the removal of what we may call the inert agent and leaving the active agent behind can be of little value to the milk consumer other than from purely esthetic grounds.

The largest milk company in the state of Wisconsin has been and still is, I believe, using a very simple straining device. This device costs the company but little to make and nothing for its operation. It apparently does for this company what very much more expensive processes are doing for other companies, and it enables that company to handle milk at a lower margin than would otherwise be the case. It certainly shows that clarification of milk is not an essential factor in the happiness of the consumer.

E. G. Hastings, Madison, Wis.

Why I Do Not Favor Compulsory Health Insurance

To the Editor:—I do not favor compulsory health insurance:

1. Because it would destroy the personal relations that have always existed between physician and patient.

2. Because it would reduce the rank and file of a learned and respected profession to the level of wage earners.

3. Because it is nothing more or less than lodge or contract practice on a universal scale, and this has proved by experience to be an unmitigated evil; unsatisfactory from the standpoint of both physician and patient.

4. Because, specious arguments of its advocates notwithstanding, compulsory health insurance has *not* been the means of lowering the mortality rate of any country in the world, for it has been reduced as greatly in those countries that have no state or industrial insurance system as it has been in those that have compulsory health insurance.

5. Because it is pure socialism, and if such medical service is enforced by laws there is no reason why we should not have compulsory insurance for feeding, clothing, sheltering and providing employment for the same classes, as their health depends as much on proper feeding, clothing, shelter and employment as it does on proper medical attention.

6. Because the problems that have given rise to the agitation for compulsory health insurance are not medical problems at

all, but purely economic ones, and with a living wage paid by employers to the workers they will be satisfied, and in a position to pay their own bills, medical and otherwise, without aid from the state or any other source.

7. Because it is complicated, adjusted to the peculiarities of European conditions, and would be practically impossible to harmonize with American institutions and ideals.

8. Because the rank and file of the medical profession, reduced from an independent position to the condition of employees working for a corporation, would be as underpaid and dissatisfied as are other wage earners, and this state of affairs would not conduce to the advancement of medicine or redound to the benefit of those under their care.

9. Because the healthy rivalry now existing among physicians to give increasingly efficient service to their patients in order to gain and to hold practice would cease, as no physician would gain anything by increasing his efficiency.

10. Because the meetings of medical societies now devoted to the discussion of scientific subjects would become sessions of debate concerning matters pertaining to the workings of compulsory health insurance to the exclusion of those scientific subjects, the undisturbed consideration of which is necessary for our advancement and learning.

11. Because neither capital, organized labor, the state nor the medical profession desire to have a revolutionary upheaval at the present time, or in fact at any time.

12. Because it would enslave, burden and belittle all parties to it, especially the wage earner and the physician, would completely commercialize the latter, and ring the death knell of medicine as a humanitarian calling.

13. Because it would be a nightmare with no awakening.

14. Because, from the standpoint of sentiment in the United States of America, it is a fad of the hour, akin to universal twilight sleep, the setting of the clock an hour ahead, and other sick minded efforts to change the things that are.

15. Because nobody really wants it, it being a self-evident fact that, like everything else, cheapening medical service means lowering its quality, and no person in this country need suffer from lack of medical attention and care, as those too poor or too improvident to pay are at all times accommodated in hospitals or other institutions; and because compulsory health insurance does not in Europe, and cannot here, either prevent disease or accident or drive a lazy, malingering or chronically sick individual to work.

RALPH S. CONE, M.D., Westwood, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INSTRUCTION IN FIRST AID

To the Editor.—If you have a manual suitable for the use of a first aid class, kindly send me a copy on approval.

CHARLOTTE B. GARDNER, M.D., Cumberland, Md.

To the Editor.—Have you any articles or booklets which would be suitable to use in instructing, through lectures and demonstrations, a large class of women in first aid? If you do not publish any, will you refer me to some that are approved for such use by the American Medical Association?

EVA M. LOCKE, M.D., Nashua, N. H.

ANSWER.—The American National Red Cross publishes a woman's edition First Aid book, price, 30 cents, which can be secured from most booksellers, and which is used as a textbook in connection with courses in First Aid to the Injured by the American Red Cross. When instructing men it is requested that particular attention be given litter bearer work and other transportation methods in order that they may, after taking the First Aid course, be partially prepared for service in any Red Cross organizations that may be formed for the purpose of assisting the armed forces of the United States in time of war.

The First Aid course for women is intended only to teach them what they can do when accidents and sudden illnesses occur within their own homes or elsewhere, and is not, except that they have added to their general information, expected to qualify or accepted as qualifying them for service with the Red Cross in time of war. Women who desire to prepare themselves for war service should write to the "Division of Instruction for Women" of the American Red Cross, Washington, D. C., which offers courses in "Elementary Hygiene and Home Care of the Sick," "Dietetics" and "Preparation of Surgical Dressings."

While it is recommended that women take instruction in First Aid with the belief that it will be a valuable asset to them in their everyday lives, the American Red Cross states that such instruction does not fit them for service in time of war because the Red Cross is not, except in great emergency, allowed to operate in the zone of the advance (front).

The following has been suggested as a series of lectures on First Aid:

1. Shock, use of bandages, triangular bandage, four tail bandage, etc.
2. Fractures.
3. Fractures and review of previous work.
4. Wounds.
5. Bleeding and review of previous work.
6. Insensibility and poisoning.
7. Drowning, choking, etc.; artificial respiration.
8. Review.
9. Removal of patient; home preparations.
10. Review.
11. Examination.

One and one half hours is devoted to each subject. A lecture is given which is usually followed by practical demonstrations in which one member of the class uses another as a patient. The practical work is thus linked with the theoretical.

VENEREAL PROPHYLAXIS UNIT

To the Editor:—Where can I find a description for the preparation of a venereal prophylaxis as is used in the Army?

H. H. FARKAS, M.D., York, Pa.

ANSWER.—According to the manual for the Medical Department of the Army, 1916, the venereal prophylaxis unit contains the following articles:

3 enamel-ware basins
200 sheets form 77, medical department
1 glass graduate, 120 c.c.
350 tablets hydrargyri chloridum corrosivum; 1 tablet in 500 c.c. of water makes a 1:1,000 solution
200 ampules of protargol, 2 gm. in an ampule.
2 cakes Ivory soap
4 boxes gauze sponges, 1 dozen in a box
4 penis syringes
12 hand towels
4 bottles unguentum hydrargyri chloridi mitis, 30 per cent., ½ pound in each bottle.

This is packed in a pine box with a hinged lid. The weight of the outfit is 45 pounds. A list of contents and directions for administering the prophylactic treatment are pasted on the inside of the cover.

One outfit of this character is supplied to each evacuation hospital, base hospital or medical reserve unit. A medical reserve unit is a collection of medical supplies which it is estimated will meet the immediate requirements of a reserve for one infantry division.

VALUE OF "STERLING VIOLET RAY GENERATOR" IN THERAPEUTICS

To the Editor:—I am curious to learn the value of the violet ray in the treatment of disease. The violet ray seems to be much in evidence in Canada at the present time in various towns. It is well advertised, not in the same way as a "patent medicine" would be, but as a genuine form of treatment. The enclosed booklet gives a brief outline of what the agents for the "Sterling Violet Ray Generator" claim it will do. The reason I am troubling you about this matter is that I feel if there is anything in it as is claimed, it should be better known. It also seems that if this treatment is not capable of doing what is claimed for it, it is a rather serious thing for a person who may defer calling a physician.

J. A. G.

ANSWER.—The "Sterling Violet Ray Generator" is a small high frequency apparatus with some vacuum and possibly other electrodes. There is a violet color in these vacuum electrodes when they are energized. The apparatus is not one for producing violet or ultraviolet rays in the scientific meaning of those words. The apparatus certainly will not do the things claimed for it in the booklet which include the treatment of practically every ailment known to mankind.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

Arkansas, Eclectic: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Arkansas, Homeopathic: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

Hawaii: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.

Illinois: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.

Massachusetts: Boston, May 8-10. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Nevada: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

New York: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that 36 candidates were licensed through reciprocity from Aug. 9 to Dec. 6, 1916:

College	Licensed through reciprocity	Year Grad.	Reciprocity with
Howard University	(1912) West Virginia;	(1915)	Dist. Colum.
Northwestern University Woman's Medical School	(1902)	(1902)	Illinois
Rush Medical College	(1900)	(1915)	Illinois
Indiana Medical College	(1907)		Indiana
Indiana University	(1910)		Indiana
Medical School of Maine	(1909)		Maine
Baltimore Medical College	(1902) West Virginia;	(1909)	Maryland
College of Physicians and Surgeons, Baltimore	(1914)		Maryland
Johns Hopkins University	(1912)	(1915)	Maryland
Tufts College Medical School	(1912)		Maine
Detroit College of Medicine and Surgery	(1916,2)		Michigan
University of Michigan Homeo. Med. School	(1898)		Michigan
Univ. of Mich. Med. School	(1909) (1912) (1915,2)	(1916)	Michigan
University of Minnesota	(1915)		Minnesota
St. Louis University	(1915, 2)		Missouri
Bellevue Hospital Medical College	(1898)		New York
Long Island College Hospital	(1915)		New York
University of Buffalo	(1904)		New York
Jefferson Medical College of Philadelphia	(1913)		New York
	(1915,2)		Penna.
University of Pennsylvania	(1902) Iowa;	(1915)	Penna.
Woman's Medical College of Pennsylvania	(1902)		Penna.
Vanderbilt University	(1912)		Texas
University of Berlin	(1903)		Illinois

Oregon January Report

Dr. Herbert S. Nichols, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, Jan. 2-4, 1917. The total number of subjects examined in was 15; total number of questions asked, 104; percentage required to pass, 75. The total number of candidates examined was 30, of whom 24 passed, including 4 osteopaths, and 6 failed. The following colleges were represented:

College	Passed	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco		(1916)	76, 81
Hahnemann Med. College of the Pacific		(1916)	75
Coll. of Phys. and Surgs., Chicago	(1902) 75;	(1903)	79
Rush Medical College		(1915)	79
University of Illinois		(1914)	83
University of Michigan Medical School		(1916)	78
University of Minnesota		(1910)	77
Missouri Medical College		(1897)	78
St. Louis College of Physicians and Surgeons		(1915)	78
Ohio Medical University		(1897)	75
University of Oklahoma		(1911)	75
University of Oregon	(1908) 75; (1916) 75, 75, 76, 78,		79.
Jefferson Medical College of Philadelphia		(1916)	87
	Failed		
University of Illinois		(1914)	74
University of Louisville		(1907)	62
Maryland Medical College		(1905)	69
Cincinnati College of Medicine and Surgery		(1900)	73
Jefferson Medical College of Philadelphia		(1915)	77
Tennessee Medical College		(1901)	64

Rhode Island January Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports that, Jan. 11, 1917, a graduate of the Homeopathic Medical College of Pennsylvania, 1882, was granted a license after an oral examination, the grade obtained being 80 per cent.

Medicolegal

Requirement of Vaccination in School District Justified by Conditions in County

(Hill et al. vs. Bickers et al. (Ky.), 188 S. W. R. 756)

The Court of Appeals of Kentucky dissolved an injunction granted by the circuit court in this suit by Hill, the principal teacher in the Bethlehem graded common school, the five district trustees, and ten patrons of the school, as plaintiffs, against the Henry County board of health and the county health officer, to prevent the defendants enforcing an order of the county board of health which required the teachers and pupils in the common schools of the county to be vaccinated as a condition to their further attendance. The court of appeals says that the state board of health had, by virtue of Section 2049 of the Kentucky statutes, giving it general supervision of the health of the citizens of the state, with power to make and enforce rules and regulations to prevent the introduction or spread of infectious or contagious diseases to or within the state, promulgated Rule 35 that "No person shall become a member of any school within the jurisdiction of this board, as teacher or scholar, without furnishing a certificate from some reputable physician that he or she has been successfully vaccinated, and has been revaccinated at least once in each seven years." Aug. 31, 1916, the Henry County board of health took steps to enforce this rule on and after Sept. 11, 1916, by notifying the teachers and trustees of the county schools to obey the rule. Hill conceived the idea that he had no right or authority as teacher to reject any pupil who offered to attend, and, backed by the chairman of the district board of trustees, who took the ground that the local board of health had no authority to enter or enforce the order of August 31, Hill declined to prohibit the attendance of unvaccinated pupils. Thereupon the local health board caused warrants to be issued against Hill and the chairman for disobedience of said order, and it was alleged that the defendants were threatening to have other and repeated similar warrants to issue against the plaintiffs. Affidavits showed that the residents of Bethlehem district, almost without exception, were violently opposed to the enforced vaccination of their children, and regarded it as an unnecessary and unwarranted invasion of their rights. It was said that there had not been a case of smallpox in that district within the past eight years, and that there was no reasonable apprehension of an outbreak. But the court thinks that, in view of what was shown to be the experience in Henry County, it was idle for the residents of Bethlehem district to say there was no necessity of enforcing the vaccination rule in the schools, or that it was an unreasonable requirement of the health board. They would make their unprofessional opinions jeopardize the health and lives of all the citizens of the county. Matters of such grave importance are not to be decided according to the whims of laymen. It presents a medical question; and for that reason boards of health are usually composed of physicians, experts in that line. The proof made it plain that the action of the board of health was not only reasonable, but also necessary. If it had done less, it clearly would have failed in its duty. The general and uniform rule is that, when there is a reasonable apprehension of the outbreak of a communicable disease, such as smallpox, health boards have authority to take such action as was here directed, in order to stamp out the disease and prevent its spreading. Even without a specific delegation of power, local or administrative authorities having control of the schools or general care of the public health are justified, by the existence of an emergency, in making vaccination a condition for admission to the public schools. And the legislature may also, by express provision, in the exercise of its police power, require or empower a local or administrative authority to require vaccination of children as a condition of their being admitted to the public schools, although smallpox be not prevalent, or its outbreak be not apprehended. But the converse is equally true, that unless power is clearly conferred local bodies may not require vaccination in the absence of smallpox, or the apprehension of an immediate outbreak thereof.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Georgia Medical Association, Augusta, April 18-20.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Dakota State Medical Association, New Rockford, May 9-10.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Wyoming State Medical Society, Casper, May 9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March, XXI, No. 2

1 Laws of Bone Architecture. J. C. Koch, Baltimore.—p. 177.
2 Development of Scala Tympani, Scala Vestibuli and Perioticular Cistern in Human Embryo. G. L. Streeter, Baltimore.—p. 299.
3 *Effects of Inanition and Refeeding on Growth and Structure of Hypophysis in Albino Rat. C. M. Jackson, Minneapolis.—p. 321.

3. **Growth and Structure of Hypophysis in Rat.**—This paper forms the fourth of a series of studies made by Jackson on the effects of inanition on the albino rat. The material used included the hypophyses from ninety-one rats, 44 normal (control) rats of both sexes, varying from newborn to about 1 year of age; 15 rats held at maintenance (constant body weight) by underfeeding beginning at the age of 3 weeks; 6 older rats subjected to acute inanition and 5 to chronic inanition; and 21 young rats refed for various periods after being held at maintenance from the age of 3 weeks to 10 weeks or more. During normal postnatal growth there is considerable individual variation in the relative volumes of the three parts (lobes) of the hypophysis; but in general in the older rats the pars anterior (distalis) becomes relatively larger, and the pars nervosa correspondingly smaller, the pars intermedia remaining about the same in relative (percentage) volume. The relatively larger hypophysis of the female rats is due chiefly (if not entirely) to a larger anterior lobe. During the inanition, the volume changes in the lobe are variable. In young rats held at maintenance (constant body weight), the pars anterior is somewhat reduced, the intermedia and nervosa correspondingly larger. In chronic (adult) inanition the partes anterior and intermedia appear reduced, the nervosa increased. In acute (adult) inanition, the pars anterior appear relatively increased, intermedia decreased, and nervosa unchanged in relative volume. In young animals held at maintenance, the volume of the vascular stroma usually increases to about 13 per cent., and in acute or chronic inanition of adults to about 17 per cent. The parenchyma is, of course, correspondingly reduced in relative volume. During inanition, the loss is usually greater in the cytoplasm, the nuclei thereby increasing to 26 to 28 per cent. of the cell volume in the young held at maintenance, and to 23 to 26 per cent. in adults with chronic or acute inanition. The changes described in the hypophysis during hibernation are probably inanition effects. The rapid growth, of the body following periods of inanition may be due to the embryonic condition to which the cells are reduced; but there is no evidence that such growth is due to any specific histologic changes in the hypophysis or other ductless glands.

American Journal of Roentgenology, New York

March, IV, No. 3

4 Lateral Roentgenography of Spine. P. M. Hickey, Detroit, Mich.—p. 101.
5 *Roentgen Appearances of Osteomyelitis. R. Hammond, Providence, R. I.—p. 107.
6 Broader Relationship Between Roentgenology and Various Theories of Systemic Disorder from Localized Sources. P. Brown, Boston.—p. 110.
7 *Roentgen Diagnosis of Metastatic Malignant Disease of Bone with Special Reference to Spinal Column. G. E. Pfahler, Philadelphia.—p. 114.
8 *Renal and Ureteral Stone Symptoms in Spondylitis. E. S. Blaine, Chicago.—p. 122.
9 Simple Method of Immobilization. P. M. Hickey, Detroit.—p. 131.

5 and 7. Abstracted in THE JOURNAL, Nov. 11, 1916, p. 1469.
8. Abstracted in THE JOURNAL, Nov. 11, 1916, p. 1470.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, 1916, XXV, No. 4

10 Clinical Pathology of Tuberculous Laryngitis. J. Dworetzky, Otisville, N. Y.—p. 803.
11 Radical Mastoid Operation. T. J. Harris, New York.—p. 835.
12 Accidents in Bronchoscopy. H. H. Forbes, New York.—p. 845.
13 Factor in Prognosis of Acute Suppuration of Middle Ear. F. E. Franchere, Sioux City, Iowa.—p. 857.
14 Study of Physicomechanical Function of Faucial Tonsil. E. L. Kenyon and W. T. Kradwell, Chicago.—p. 862.
15 Involvement of Labyrinth by Way of Ductus Endolymphaticus. N. H. Pierce, Chicago.—p. 881.
16 Case of Syringomyelia with Marked Vestibular Symptoms. G. E. Shambaugh, Chicago.—p. 891.
17 Massage of Eustachian Tube. A. Lewy, Chicago.—p. 898.
18 Double Mastoid Operation; Report of Case and Exhibition of Roentgenographs of Mastoids. N. H. Goodenow, Everett, Wash.—p. 904.
19 Modified Radical Operation for Chronic Suppurative Otitis Media. H. B. Blackwell, New York.—p. 908.
20 Nondiabetic Acidosis, with Special Reference to Postoperative Acidosis in Children. I. Frank, Chicago.—p. 917.
21 Social and Economic Aspects of Deafness. A. J. Amateau, New York.—p. 930.
22 Sore Throat Clinically Considered. S. Johnston, Baltimore.—p. 942.
23 Extensive Keloid of Mastoid Wound Cicatrix. F. L. Ryerson, New York.—p. 947.
24 Case of Epithelioma of Posterior Pharyngeal Wall Cured by Electrocautery. D. Roy, Atlanta, Ga.—p. 951.
25 Difficulties and Complications of Sphenopalatine Ganglion Injection. H. L. Pollock, Chicago.—p. 958.
26 Intramural Malignant Tumor of Lateral Wall of Nasopharynx. E. P. Norcross, Chicago.—p. 967.
27 Relation of Autointoxications to Acute Membrane Disturbances. S. F. Snow, Syracuse, N. Y.—p. 973.
28 Sequestrum of Labyrinth. L. M. Hubby, New York.—p. 980.
29 Diagnosis and Operation of Sinus Thrombosis. J. Holinger, Chicago.—p. 985.
30 Study of One Hundred Cases of Mastoiditis and Its Complications, Requiring Operation. J. W. Downey, Jr., Baltimore.—p. 994.
31 Upper Respiratory Mucous Membrane as Key to Error in Metabolism. C. W. Stickle, Brooklyn.—p. 1006.
32 Two Maxillary Sinuses in one Maxilla. O. H. Horrall and H. F. Rawlings, Chicago.—p. 1015.
33 Advantages of Denker Over Other Operations on Maxillary Antrum, with Review of Twenty-One Cases After this Method. W. L. Simpson, Memphis, Tenn.—p. 1019.

Annals of Surgery, Philadelphia

March, LXV, No. 3

34 *Place of Radium in Surgery. E. M. Foote, New York.—p. 273.
35 *Intrathyroid Injections of Boiling Water in Hyperthyroidism. J. C. O'Day, Portland, Ore.—p. 279.
36 Treatment of Bony Defects of Lower Jaw; Report of Cases. C. A. McWilliams, New York.—p. 283.
37 *Studies in Plastic Surgery of Face. J. F. Esser, Holland.—p. 297.
38 Traumatic Aneurysm of Temporal Artery; Report of Cases. J. S. Horsley, Richmond, Va.—p. 316.
39 Trend of Surgery in Empyema of Thorax. M. W. Ware, New York.—p. 320.

40 *Prognostic and Therapeutic Significance of Skeletal Metastases in Carcinoma of Breast. I. Levin, New York.—p. 326.
41 *Significance of Patulous Appendix. J. W. Squires, Charlotte, N. C.—p. 341.
42 Renal Tuberculosis; Report of Cases. A. G. Rytina, Baltimore. —p. 346.
43 Reduplication of Ureter; Report of Cases. J. F. Geisinger, Richmond, Va.—p. 355.
44 Case of Isolated Sprain Fracture of Trapezium Produced by Indirect Violence. J. L. Bendell, Albany, N. Y.—p. 364.
45 Artificial Cell Proliferation with Horse Serum in Treatment of Burns. E. P. Robinson, New York.—p. 367.

34. **Place of Radium in Surgery.**—When the investigator in radium becomes so expert that he can say with definiteness, "Here is such and such a type of tumor and its bulk is approximately so and so. I know from experience that I can cause its entire disappearance with so much radium applied for so many hours," Foote thinks it will be time enough to advise radium in primary operable cases.

35. **Intrathyroid Injections of Boiling Water in Hyperthyroidism.**—O'Day claims that in seventeen cases treated by this method nothing but good has resulted, even in those first treated, when lack of experience was accompanied by its corresponding undeveloped technic.

37. **Plastic Surgery of Face.**—Esser reports cases of use of skin from the neck to replace defects; plastic operations about the mouth and epidermic inlay.

40. **Skeletal Metastases in Carcinoma of Breast.**—A clinical and roentgenologic study of ten cases reported by Levin shows that the skeletal metastases undoubtedly were present in all of them at the time of the operation. Pain in the different parts of the skeleton either appeared before or soon after the operation. The roentgenograms taken on admission to the hospital showed usually an extensive involvement of the bone, and the identical condition was found at the necropsy All this shows that the metastases were of long standing. Statistical investigations indicate that skeletal metastases of carcinoma may be very slow in their development. It may take years before clinical manifestations of any kind present themselves. The microscopic study of these cases by Levin showed that osteoplasia and osteomalacia are usually present side by side, and only in one case osteosclerosis, or new bone formation, predominates, while in another osteoporosis, or the destruction of the old bone, is mainly evident. The mechanism of the bone destruction in metastases of carcinoma differs from the one observed in inflammatory osteoporosis. In Levin's cases carcinoma cells, as well as the small connective tissue stroma cells, are found in close immediate apposition to the walls of the lacunae. The carcinoma cells were so frequently the only cellular elements within the lacunae of the bone that there cannot be any doubt that carcinoma cells act as direct osteoclasts. The impression gained by Levin is that the small stroma cells only subsequently enter between the bone and the carcinoma cells. The osteosclerosis, or the extensive formation of new bone tissue, is characteristic of skeletal metastases. The radical operation for a malignant tumor means a complete eradication of all tumor tissue from the organism. It is patent that a radical operation in this sense of the word is impossible as long as a skeletal metastasis was diagnosed before the operation. It would seem that in the overwhelming majority of all the cases of carcinoma of the breast the best surgical methods of treatment do not completely eradicate the disease, but only prolong life. But on the basis of the latter interpretation of the therapeutic results in carcinoma of the breast, skeletal metastases give a better prognosis than metastasis in other organs, since they are much slower in their development and may therefore be more readily controlled.

41. **Significance of Patulous Appendix.**—It is Squires' belief that when the muscular contraction at the appendiceal orifice, the valve of Gerlach, the peristalsis, or whatever the mechanism is that guards the appendiceal orifice, first becomes incompetent there results a compensatory hyperstalsis of the appendix. And gradually, for some reason, probably the increased pressure of fecal material, there is a failure of compensation and the appendix can no longer empty. It is on the same principle as the changes occurring in a heart lesion. There is first a compensatory hypertrophy of the heart, later a failure of compensation. In the appendix there is first a compensatory hyperperistalsis, later a failure of peristalsis. There is a roentgenologic symptom syndrome associated with the patulous appendix, the detection of which is sufficient evidence of an abnormal appendix. A patulous appendix, even though its drainage is good, is abnormal. The roentgenologic evidence of the damage being done by the patulous appendix is present in both the stomach and ileocecal region.

Boston Medical and Surgical Journal

March 22, CLXXVI, No. 12

46 *Neurologic Aspects of Food Poisoning. A. W. Fairbanks, Boston. —p. 413.
47 Seminal Vesiculitis and Prostatitis Treated by Vesiculotomy and Prostatic Drainage. J. H. Cunningham, Jr., Boston.—p. 422.
48 Feeblemindedness as Seen in Court. V. V. Anderson, Boston.—p. 429.
49 Proposed Health Insurance Legislation. F. W. Anthony, Haverhill. —p. 431.
50 Wise Preliminary to Adoption of Any Compulsory Health Insurance Act. E. A. Codman, Boston.—p. 435.

46. **Neurologic Aspects of Food Poisoning.**—Instances of food poisoning in which an unknown toxin manifested a conspicuously selective action on the nervous system are reported by Fairbanks. Fish was responsible for the illness of these people. It was apparently in good condition when obtained. It was purchased in a small town, where presumably the rest of it was sold and where, so far as known, no other instances of similar illness occurred. It was kept in a refrigerator four hours, then baked and immediately eaten. From this refrigerator other food, placed therein after the fish poisoning occurred, caused illness in several people, whereas the same food eaten before it had been in the refrigerator caused no illness whatever. Moreover, the individual who cleaned the refrigerator, who was not a member of the family, and who did not partake of any of the food that made the others ill, was also slightly ill afterward. This would seem to indicate that the icebox was infected and that a bacterial toxin was responsible for the illness. As it had been in constant use and no food taken therefrom had caused illness, until after the fish had been kept therein, it would seem that the fish must have been in some direct way responsible for the contamination of the refrigerator. If so, it must have been to some extent infected when placed in the refrigerator. The appearance of the nervous phenomena occurred with striking uniformity twenty-one days after the onset of the gastric symptoms.

Canadian Medical Association Journal, Toronto

March, VII, No. 3

51 Functional Reeducation and Vocational Training of Disabled Soldiers. E. M. von Eberts, Montreal.—p. 193.
52 Sphagnum Moss: Surgical Dressing. J. B. Porter, Montreal.—p. 201.
53 End Results of Various Disabilities of Returned Soldier. E. H. Reed, Calgary, Alberta.—p. 208.
54 Treatment of Syphilis. H. K. Detweiler, Toronto.—p. 213.
55 Medical Treatment of Obstetric Cases. H. C. Swartzlander, Oyen, Alberta.—p. 222.
56 *Obtaining Blood for Diagnostic Purposes in Infancy; Preliminary Report on Longitudinal Sinus Transfusion. E. M. Tarr, Montreal.—p. 226.
57 Newer Views on Ventilation. A. Fisher, Calgary, Alberta.—p. 229.
58 Ability of Mothers to Nurse Their Infants. A. Brown, Toronto. —p. 241.

56. **Obtaining Blood for Diagnostic Purposes in Infancy.**—Tarr recommends the longitudinal sinus route. He has entered the sinus 207 times for blood and has been disappointed but three times. Dextrose solutions have been administered sixty-four times in forty-nine infants. Salvarsan and diarsenol have been administered to eight infants under 2 and to one child 28 months old. Nineteen cases of so-called acidosis in infants under 2 years were treated with sodium bicarbonate solution intravenously with fifteen recoveries. One child 3 years old was given, during a period of five days, 980 c.c. of the solution. The patient was discharged well on the tenth day after admission. In this case the fontanel was rather cartilaginous and a gold plated lumbar puncture needle was used. Tarr also uses this route for blood transfusion.

Delaware State Medical Journal, Wilmington

March, VIII, No. 3

59 Recent Work at American Ambulance, Paris, France. R. R. Spahr, Wilmington.—p. 4.

Illinois Medical Journal, Chicago

March, XXXI, No. 3

60 *Biochemistry of Topical Applications with Special References to Use of Boric Acid in Septic Infections. E. H. Ochsner, Chicago. —p. 139.
61 Removal of Gallbladder. E. S. Judd, Rochester, Minn.—p. 144.
62 Etiologic Relationship Existing Between Gastric Ulcer and Gastric Cancer. F. Smithies, Chicago.—p. 149.
63 Surgical Complications of Pregnancy. W. C. Danforth, Evanston. —p. 156.
64 Medical Complications of Pregnancy. R. A. Scott, Evanston.—p. 159.
65 Treatment of Specific Diseases by Nonspecific Foreign Protein. F. B. Lusk, Chicago.—p. 162.
66 Modern Aspect of Cancer Problem. G. Kolischer, Chicago.—p. 163.
67 Adiposis Dolorosa (Dercum's Disease); Report of Case. A. G. Wittman, Peoria.—p. 165.
68 Amebic Dysentery. J. W. McGuire, Chicago.—p. 168.
69 Hemorrhoids, Their Cause and Treatment. F. A. Turner, Rockford.—p. 174.
70 Some Forms of Insanity Most Frequently Met by Physicians. C. H. Anderson, McLeansboro.—p. 178.
71 Pyelitis Treated Successfully with Silvol. J. C. R. Wettstein, Effingham.—p. 181.

60. See THE JOURNAL, Jan. 20, 1917, p. 220.

Iowa State Medical Society Journal, Des Moines

March, VII, No. 3

72 Cancer Problem. A. M. Pond, Dubuque.—p. 87.
73 Rheumatism; Report of Cases. J. W. Shuman, Sioux City.—p. 90.
74 Some Practical Points in Treatment of Diseases of Children. F. G. Murray, Cedar Rapids.—p. 94.
75 Tuberculosis of Kidney. C. M. Wray, Iowa Falls.—p. 98.
76 Acidosis as Surgical Complication. W. M. Shirley, Carroll.—p. 101.
77 Early Diagnosis and Surgical Treatment of Gallbladder Disease. L. C. Kern, Waverly.—p. 103.
78 Treatment of Pneumonia. R. E. Gunn, Deep River.—p. 107.
79 Throat Infection Complicated by Mastoiditis. C. F. Howland, Des Moines.—p. 109.

Journal of Infectious Diseases, Chicago

April, XX, No. 4

80 *Nonfiltrability of Typhus Virus. P. K. Olitsky, New York.—p. 349.
81 Intracutaneous Typhoidin Reaction. Preparation and Properties of Antigen. K. F. Meyer and C. R. Christiansen, San Francisco.—p. 357.
82 *Id. Nature and Specificity of Reaction. K. F. Meyer and C. R. Christiansen, San Francisco.—p. 391.
83 *Id. Relation of Cutaneous Hypersensitiveness to Experimental Immunity and Infection. K. F. Meyer, San Francisco.—p. 424.
84 *Treatment of Experimental Tuberculosis in Guinea-Pigs and Rabbits by Taurin, Alone and in Combination with Gold Chlorid and Sodium Oleate. M. Takeoka, Berkeley, Calif.—p. 442.
85 Differentiation of Paratyphoid Enteritidis Group. E. O. Jordan, Chicago.—p. 457.

80. **Nonfiltrability of Typhus Virus.**—In the experiments recorded by Olitsky it has been conclusively demonstrated that the infective agent of typhus belongs to the group of nonfiltrable viruses. This agrees with the previous observation that *Bacillus typhi-exanthematici* is nonfiltrable.

82. **Nature and Specificity of Typhoidin Reaction.**—Cutaneous hypersensitiveness of rabbits to typhoidin and similar preparations Meyer and Christiansen believe is, in all probability, the result of sensitization with typhoproteins or similar bacterial proteins. The hypersusceptibility to extract preparations of cultures can be transferred passively and small amounts of typhoidin are capable of producing local sensitization of the skin to subsequent injections of the same, or similar, antigens. In a fairly high percentage of hyperimmune or infected rabbits, nonspecific skin reactions follow the injection of extracts of pure bacterial proteins or microorganisms neither biochemically nor immunologically related to the organisms with which the animal has been treated. Some typhoid immune rabbits show nonspecific reactions with paratyphoid and *B. coli* extract, which can be considered as group reactions; but frequently such animals, when highly immunized, will also give reactions with heterologous antigens not in the least related to *B. typhosus*. These reactions may be explained as the probable result of nonspecific sensitization with protein substances common to all bacteria or vegetables in general.

83. **Relation of Cutaneous Hypersensitiveness to Experimental Immunity and Infection.**—Meyer's experiments suggest that careful quantitative tests with pure typhoprotein should be made on carriers of human typhoid. A simple test like the typhoidin test, if it should develop that this test does detect carriers, would be a valuable weapon in the hands of the health officer in the eradication of typhoid from communities in which the infection is apt to be perpetuated in this manner. A positive typhoidin skin reaction in a rabbit does not indicate that this animal will resist a subsequent intravenous injection of living typhoid bacilli, or that the animal is so protected that it will not become a chronic carrier of bacilli in gallbladder or liver. Cutaneous hypersensitiveness to typhoidin is most marked in rabbits infected with typhoid bacilli. Carriers of bacilli in gallbladder and liver develop skin reactions which apparently vary directly with the degree of the inflammatory process in the organs.

84. **Taurin in Treatment of Experimental Tuberculosis.**—Facts suggesting some relation between constituents of the bile and a resistance to infection with the tubercle bacillus, led Takeoka to incorporate the most characteristic amino-acid of the bile, taurin, in a combination treatment with a colloidal mixture of sodium gold chlorid and sodium oleate in experimental tuberculosis in guinea-pigs and rabbits. Apparently as favorable results were obtained with taurin alone as with taurin combined with sodium gold chlorid and sodium oleate. Guinea-pigs were infected with either bovine or human strains of tubercle bacilli. The results were similar with both. In nearly every instance the controls all died before any of the treated animals, and whereas the controls lost weight almost uniformly, the treated animals gained. The contrast in the extent of visible tuberculosis between controls and treated animals was marked. Whereas the process was advanced in the controls, it was arrested and in some instances apparently cured in the treated animals. The success of the treatment varied naturally in accordance with the variations in infecting dose, the route of inoculation, and the time of beginning treatment. The process of the disease was arrested and apparently cured when treatment was begun as late as three weeks after infection.

Journal of Laboratory and Clinical Medicine, St. Louis

March, II, No. 6

86 Spirochetes. H. Noguchi, New York.—p. 365. To be continued.
87 *Effect of Certain Drugs on Skin Reactions. J. A. Kolmer, S. L. Immerman, T. Matsunami and C. M. Montgomery, Philadelphia. —p. 401.
88 *Distribution of Blood Sugar as Regards Corpuscles, Plasma and Whole Blood in Health and Disease in Man. R. B. H. Gradwohl and A. J. Blaivas, St. Louis.—p. 416.
89 New Kind of Long Paper Kymograph. D. E. Jackson, St. Louis. —p. 424.
90 Construction of Clinical Laboratory Equipment. M. J. Breuer, Lincoln, Nebr.—p. 427.
91 *Rapid Examination of Occult Blood by Wagner Benzidin Method. W. T. Vaughan, Boston.—p. 437.

87. **Effect of Certain Drugs on Skin Reactions.**—The authors found that the iodids and particularly potassium iodid influenced the luetin and prodigiosis intracutaneous tests to a marked extent. Normal nonsyphilitic persons, reacting negatively in the luetin test, may show marked reactions when tested after the oral administration of 60 or more grains of potassium iodid. The bromids of potassium and sodium in the same dosage were found to have a similar but less marked influence. The chlorids of potassium and ammonium in the same dosage were found to influence the prodigiosin reactions but not the luetin reactions except to a very slight extent. The administration of the protiodid of mercury influenced the luetin reaction to some extent. It is probable that the administration of larger doses of these drugs would exert a more marked influence on skin reactions. Ether and chloroform anesthesia did not appear to influence skin reactions. Substances most likely to excite inflammatory reactions in the skin appear to be most readily influenced by the iodids and to some extent by bromids; intracutaneous tests with agar-agar, prodigiosin and ordinary luetin were more readily influenced

by these drugs than the reactions following the injection of a luetin of washed spirochetes and free of culture medium. Cutaneous tests are not as readily influenced by these drugs as intracutaneous tests. Conjunctival tests among normal rabbits to tuberculin were apparently not influenced. Cutaneous and intracutaneous reactions to tuberculin among persons reacting positively to both, appear to be rendered more extensive by potassium iodid and to a lesser extent by potassium bromid. Anaphylactic reactions to luetin in syphilitic persons appear to be rendered more extensive by potassium iodid and potassium bromid. The oral administration of potassium iodid and to a lesser extent of potassium bromid, increased the phagocytic power of the blood serum for B. prodigiosis; the increased severity of skin reactions in persons taking these drugs may be due to heightened leukocytic infiltration and phagocytosis about the injected material or to an increase of tryptic activity through the saturation of fatty acid radicals according to the hypothesis of Jobling and Petersen. It is suggested that it is probable that these drugs have influenced the luetin reactions as clinically applied and have been responsible in part for the divergent results observed and reported. Physicians are urged to be careful to rule out the possible influence on these drugs before conducting skin reactions.

88. **Distribution of Blood Sugar.**—Using the latest methods of sugar analysis in blood, namely, that of Lewis and Benedict as modified by Myers and Bailey, Gradwohl and Blaivas found that the amount of sugar is practically the same in the whole blood, plasma and cells. This is in the main in perfect agreement with the work of Tachau who used the older technic of sugar estimation. This seems to disprove the theoretical views of some of the older physiologists who held that a part of the sugar in the blood was in a state of loose combination with some other substance.

91. **Examination of Occult Blood by Benzidin Method.**—The Wagner benzidin test for occult blood is recommended by Vaughan on account of its ease, rapidity and comparative cleanliness in execution, and on account of its reliability. Meat fibers, pus and the usual drugs and foods ingested do not interfere with the reaction. The ordinary hospital diet, with meat, gives a negative reaction; but, if sufficient quantities of rare meat be taken, the stool reaction may become definitely positive.

Medical Record, New York

March 24, XCI, No. 12

92 Medical Flanders Before French Revolution. J. B. Stein, New York.—p. 487.
93 Effects of Altitude and Depression on Blood Pressure. H. Stamp, Philadelphia.—p. 499.
94 Some New Medicolegal Questions. T. D. Crothers, Hartford, Conn.—p. 501.
95 Is Appendicitis a Transmissible Disease? M. D. Bloomfield, Philadelphia.—p. 502.
96 Temporosphenoidal Abscess of Brain; Operation; Recovery. I. Grushlaw, New York.—p. 503.
97 Latent Heart Weakness Causing Obscure Congestive Disorders. M. B. Leviton, Chicago.—p. 504.

New York Medical Journal

March 24, CV, No. 12

98 Bacteriology of Influenza. W. H. Park, New York.—p. 529.
99 Clinical Types of Influenza. N. E. Brill, New York.—p. 530.
100 Treatment of Influenza. S. A. Brown, New York.—p. 536.
101 Treatment of Tuberculosis with Cyanocuprol. M. Otani, Tokyo, Japan.—p. 537.
102 Pyorrhea Alveolaris. A. H. Merritt, New York.—p. 543.
103 Gastromesenteric Ileus. J. W. Moore, Louisville, Ky.—p. 544.
104 Conservative Treatment of Diseases of Nasal Sinuses. E. L. Vansant, Philadelphia.—p. 547.
105 Folliculitis Urethralis. J. Kaufman, New York.—p. 549.
106 Local Vaccine. J. A. Pratt, Aurora, Ill.—p. 552.

Pennsylvania Medical Journal, Athens

March, XX, No. 6

107 *Typhoid and Typhophors. S. G. Dixon, Harrisburg.—p. 389.
108 Carriers in Schools with Special Reference to Diphtheria. H. J. Benz, Pittsburgh.—p. 395.
109 *Significance of Hunger Pain. J. W. Luther, Palmerton.—p. 399.
110 *Facts and Fallacies Concerning Electrotherapeutics. W. L. Clark, Philadelphia.—p. 405.
111 *Railroad Phase of First Aid. J. B. Hileman, Harrisburg.—p. 412.
112 *Injuries Common to Policemen and Firemen and Their First Aid Treatment. H. R. Owen, Philadelphia.—p. 413.
113 Beginnings and Needs of Philadelphia in Postgraduate Medical Study. J. B. Roberts, Philadelphia.—p. 421.
114 Ambulance of American Hospital of Paris. L. F. Stewart, Clearfield.—p. 427.

107, 109, 110. Abstracted in The Journal, Oct. 28, 1916, p. 1328.

111, 112. Abstracted in The Journal, Nov. 4, 1916, pp. 1394 and 1395.

Washington Medical Annals

March, XVI, No. 2

115 *Acute Pulmonary Abscess Treated with Artificial Pneumothorax. W. D. Tewksbury, Washington, D. C.—p. 73.
116 Case of Intestinal Obstruction Following Cesarean Section. S. R. Karpeles, Washington, D. C.—p. 79.
117 Breast Feeding and Some of Its Problems. J. Foote, Washington, D. C.—p. 82.
118 *Roentgen Therapy of Exophthalmic Goiter and Hyperthyroidism. C. A. Simpson, Washington, D. C.—p. 92.
119 Gliosarcoma of Insula, Illustrating Focal Diagnosis. T. A. Williams, Washington, D. C.—p. 99.
120 Some Experiences with Chloroform Anesthesia. L. Eliot, Washington, D. C.—p. 101.
121 Case of Aortic Aneurysm. H. C. Macatee, Washington, D. C.—p. 107.

115. **Acute Pulmonary Abscess Treated with Artificial Pneumothorax.**—Two cases are reported by Tewksbury to show that artificial pneumothorax is a rational method of treatment in all cases having a communication with bronchus. It gives promise of very appreciably lowering the mortality and raising the percentage of cure in acute abscess of the lung.

118. **Roentgen Therapy of Exophthalmic Goiter and Hyperthyroidism.**—Of seventeen cases reported by Simpson four were failures. Of the four, one was a carcinoma of the thyroid. In most of the cases there has been a decrease in the size of the tumor, in a few the size of the neck has become normal. The exophthalmus was not influenced. The pulse rate was lowered in all the cases.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

October, 1916, XXXIX, Parts 3-4

1 *Possible Functions of Cerebrospinal Fluid. W. D. Halliburton.—p. 213.
2 Intracranial Aneurysms. E. G. Fearnsides.—p. 224.
3 *Degeneration of Muscle Following Nerve Injury. F. Roberts.—p. 297.
4 Disturbances of Sensations in Cases of Cerebral Lesions. T. G Brown and R. M. Stewart.—p. 348.
5 Records of Speech in Disseminated Sclerosis. E. W. Scripture.—p. 455.
6 *Factors which Govern Penetration of Arsenic (Salvarsan) and Anilin Dyes into Brain; Bearing on Treatment of Cerebral Syphilis. J. McIntosh and P. Fildes.—p. 478.

1. **Possible Functions of Cerebrospinal Fluid.**—The cerebrospinal fluid, which is merely Locke's modification of Ringer's solution, Halliburton believes performs certain important functions. The view he has been led to take is that the nervous mechanism, being so sensitive, so easily influenced by anything unusual, therefore the neurons must be bathed in an ideal physiologic saline solution to maintain their osmotic equilibrium; the trace of protein it contains is probably quite sufficient for nutritive processes, and is no doubt the kind of protein particularly suited to repair the small amount of wear and tear which is the result of nervous action. The sugar, just as in Locke's solution, would serve for a supply of energy. The choroidal epithelium, in its wise choice of a suitable circumambient medium for the neurons, is really exercising a protective function. In order to keep out harmful proteins (toxins and the like), the comparatively harmless ones are kept also, almost completely; all share the same process of exclusion. This protective action applies, in addition, to the majority of soluble drugs; this may operate so as to be detrimental in disease conditions. The nonaccess of metallic and other poisons to the nervous elements is such a sine qua non for their health, that during those periods

when such substances are given for the relief of disease, or the slaughtering of parasites, the choroidal cells are unable to change their habits and do not allow the drugs to get through. Such, Halliburton believes, is the real significance of the simple composition of this remarkable secretion.

3. **Degeneration of Muscle Following Nerve Injury.**—In cases of peripheral nerve injury there is usually no doubt as to whether the muscle is degenerated or not. The question of practical importance is the extent of the injury which the nerve has suffered. To this question, it must be admitted, electric reactions give but a limited answer, the chief reason being that the electric response does not go *pari passu* with voluntary power. In cases of gunshot wounds of nerves, if the full reaction of degeneration is given by wasted paralyzed muscles, if the sensory loss is full and trophic changes well developed, exploratory operation is advisable without delay, provided the wound is aseptic. Cases in which the muscles give the reaction of degeneration, in which the wasting is slight, in which the sensory loss is not complete, and when the trophic changes are not developed, should be watched first for a couple of months or so. Injuries of this class usually recover without operative interference. As to the question of subsidiary treatment by electricity and massage, Roberts considers the constant current interrupted by a metronome to be the best. This should be done for at least fifteen to twenty minutes daily. Care must be taken that the current does not spread so as to stimulate the healthy muscles of the opposite side of the limb. If this is done, the paralyzed muscle is damaged by being stretched. For this reason the method of immersing the whole limb in an electric bath is strongly to be deprecated. The greater spread of current which occurs when the condenser is used makes this instrument less efficient as a means of treatment than the interrupted constant current.

6. **Penetration of Arsenic and Anilin Dyes Into Brain.**—McIntosh and Fildes found that certain dye substances can pass directly from the blood to the brain substance proper without being found in the cerebrospinal fluid, while others fail to penetrate into the brain. The chief factor which governs the passage of the dyes is their solubility reactions. This is a peculiar solubility and not a general lipoid solubility. It corresponds to a solubility in chloroform and in water or perhaps to their partition coefficient in these liquids. The present day arsenical remedies are, to some extent, inefficient in the treatment of syphilis of the central nervous system because they do not possess the necessary solubility to allow them to pass from the blood vessels into the brain substance. Their relative inefficiency has nothing to do with their absence from the cerebrospinal fluid.

British Journal of Ophthalmology, London

January, I, No. 1

7 Blood Pressure in Eye and Its Relation to Chamber Pressure. P. Smith.—p. 4. To be continued.
8 Pathology of Choroidal Melanomas. R. F. Moore.—p. 26.
9 Removal of Foreign Bodies by Means of Giant Magnet. G. H. Pooley.—p. 30.
10 Technic of Haab and Small Magnets in Extraction of Intra-Ocular Foreign Bodies. M. H. Whiting and C. Goulden.—p. 32.
11 Ring Magnet. T. H. Butler.—p. 46.

Journal of Pathology and Bacteriology, Cambridge

December, 1916, XXI, No. 1

12 *Thymusectomy and Its Relationship to Rachitis. J. M. Renton and M. E. Robertson.—p. 1.
13 *Isolation of Tubercle Bacilli from Sputum and Determination of Their Type. C. Y. Wang.—p. 14.
14 *Studies on Thyroid. W. Edmunds.—p. 23.
15 New Methods for Production of Antistreptococcal Serums. A. H. Caulfeild.—p. 28.
16 Biochemistry of Loss of Power of Tubercle Bacillus to Stain with Carbol-Fuchsin. A. H. Miller.—p. 41.
17 *Some Streptothrixes Isolated from Tumors. A. S. Leyton and H. G. Leyton.—p. 47.
18 *Human Bone and Joint Tuberculosis. A. S. Griffith.—p. 54.
19 *Unusual Malformations of Heart in Case of Congenital Heart Disease. J. I. Robertson.—p. 78.
20 Transplantation of Bone Marrow into Spleen; Experimental Observations on Myeloid Metaplasia. Y. Matsuoka.—p. 84.
21 *Vitamins, Amino-Acids and Other Chemical Factors Involved in Growth of Meningococcus. D. J. Lloyd.—p. 113.

12. **Relation of Thymusectomy to Rachitis.**—It is held by Renton and Robertson that spontaneous rickets gives rise to exactly the same symptoms as Basch, Klose, Vogt and Matti attribute to thymusectomy, if one excepts the adipose stage of Klose and Vogt. The removal of the thymus does not make the animals more susceptible to spontaneous rickets, and if they develop it, they do so at the same time and in the same manner as the controls. Thymusectomy of itself does not appear to cause any symptoms. The authors are thus of the opinion that removal of the thymus cannot be held responsible for the onset of rickets or similar bony changes, and the evidence they have obtained points to the changes which have been credited to loss of the thymus really being due to the development of spontaneous rickets in young animals. These conclusions are based on animal experiments.

13. **Isolation of Tubercle Bacilli from Sputum.**—Twenty-eight of the twenty-nine bovine strains isolated by Wang from the sputum, produced, in the rabbit, either no tuberculosis or only a retrogressive tuberculosis, similar to that produced by bacilli of the "human" type. The remaining culture showed well marked cultural characteristics of the "bovine" type, and was of high virulence for the rabbit. A rabbit inoculated with this strain died during the sixth week after injection, and, on examination, showed extensive tuberculosis of a rapidly progressive type. The virulence of this culture was again tested, and the same extensive tuberculous lesions were found. The cultural characters and the pathologic lesions in this case, therefore, agreed in essential particulars with that produced by the tubercle bacilli in the "bovine" type. Wang says that the conclusion can safely be drawn that, by means of the rabbit tests alone, tubercle bacilli as they occur in lesions in the human body can be divided into two distinct groups. One group possesses identical cultural characters and virulence for rabbits with those exhibited by tubercle bacilli isolated from bovines, and may be thus termed the "bovine" type; the other group has a low virulence for rabbits, is practically always obtained from a human source, and may be termed the "human" type.

14. **Compensating for Lost Thyroid Function.**—Sixteen attempts were made by Edmunds to keep dogs alive after total excision of both thyroid and parathyroids by milk feeding and, if necessary, intravenous injections of calcium lactate, but in only six out of sixteen was the treatment successful, and in them it was probably necessary, as was done, to continue the calcium feeding to prevent tremors, ataxia, convulsions and death. If the administration of calcium in milk by the mouth fails to keep off the symptoms, intravenous injections of the lactate of calcium may be given. These may or may not be successful in preventing symptoms and death; if they are, they generally succeed in the first three months or so; after that the animal may live for months or even years on the milk with added calcium. From this it would appear that after a time some change occurs in the animal, and this would seem to be a compensating hypertrophy of the pituitary. With respect to treatment, partial or complete loss of the parathyroids in thyroid operations can be treated with the parathyroid preparations now on the market. In the same way can be treated cases of disease suspected of being due to parathyroid insufficiency. An alternative, or additional, treatment is by the administration of calcium, which, as Edmunds has just seen, may succeed where parathyroid preparation fails; but it is necessary to give the calcium in large doses. Five or 10 grains of lactate of calcium is of no use. Ten grains corresponds to the amount of calcium in 2 ounces of milk, and it is necessary to put the patient on a diet mainly or wholly of milk, and it may be advisable to give, in addition, intravenous injections of lactate of calcium.

17. **Streptothrices Isolated from Tumors.**—The Leytons examined twenty-one human tumors and from sixteen they have isolated a streptothrix. Eight failed to grow after the second generation, and two have since died out, so that at present six strains are living and growing. Of all these, one was obtained directly from the patient's blood; eleven were grown from tumors removed by operation within the preced-

ing twenty-four hours, and four were isolated from post-mortem room material. Nine tumors were of mammary origin, and of the remainder, one each came from the tongue, larynx, mediastinum, gallbladder, abdomen, cervix uteri and skin of the foot. Whether the streptothrix bears any relation to the formation of tumors the authors are not ready to say. It is significant that in one case after feeding on streptothrix a mediastinal tumor was found in a rat, and the same type of streptothrix was recovered from the tumor. They also have evidence that vaccination with streptothrix will protect a certain percentage of rats from inoculated sarcoma.

18. **Human Bone and Joint Tuberculosis.**—The total number of cases investigated by Griffith is 155. This series shows that infection in bone and joint tuberculosis may be acquired by way either of the respiratory tract or of the alimentary tract. The total number of strains isolated from 141 patients is 216, of which 82 (representing 73 viruses) were obtained direct. Twenty-five yielded cultures of bovine tubercle bacilli, 111 cultures of human tubercle bacilli and 5 atypical cultures.

19. **Unusual Malformations of Heart.**—Briefly, the following conditions were present in the heart which Robertson obtained from a boy 13½ years of age. The heart was situated in the left thorax, the afferent vessels were normal; the atria were transposed; the ventricles were transposed; while the efferent vessels were straight and transposed. The course of the aorta beyond the heart was normal, as it crossed the left bronchus and descended along the left of the spinal column. It was therefore a case of dextrocardia of the atrial and ventricular chambers, with transposition (not reversed torsion, which would have completed the mirror picture of a normal heart) of the efferent vessels, but there was no *situs inversus*.

21. **Vitamins, etc., in Growth of Meningococcus.**—Lloyd states that the primary cultivation of the meningococcus in vitro is only possible in the presence of certain accessory growth factors (the so-called vitamins) present in blood, serum, milk and other animal fluids and probably present also in vegetable tissues. The meningococcus, after isolation from the body, gradually develops a change in its metabolism of such a nature that it becomes increasingly independent of a vitamin supply in the medium. Old laboratory strains need no additional vitamin supply if the medium contains an abundant supply of free amino-acids. Culture of the meningococcus must be kept permanently in a moist atmosphere in order to retain their vitality.

Practitioner, London

March, XCVIII, No. 3

22 Dreams and Their Interpretation. R. Armstrong-Jones.—p. 201.
23 Cancer Problem and World War. W. S. Bainbridge.—p. 220.
24 Strangulated Hernia; Report of Cases. W. S. Handley.—p. 235.
25 Labyrinthine Focal Infections. M. Yearsley.—p. 245.
26 Transfusion of Blood with Reference to Pernicious Anemia. O. Leyton.—p. 251.
27 Inheritance of Normal and Pathologic Traits in Man. H. Drinkwater.—p. 257.
28 Salvarsan and Its Substitutes. J. L. Bunch.—p. 279.
29 Simplified Technic for Administration of Neosalvarsan. C. E. Jenkins.—p. 287.
30 Two Cases of Sudden Death After Kharsivan Injection. S. Vassallo.—p. 290.

Annales de Gynécologie et d'Obstétrique, Paris

January-February, LXXII, pp. 385-448

31 *Welfare Work for Infants in Paris District during Second Year of War. (De la protection de l'enfance pendant la deuxième année de guerre.) A. Pinard.—p. 385.
32 *The Functions of the Corpus Luteum. (Sur les rôles du corps jaune.) C. Mulon.—p. 415. To be continued.

31. Reviewed in these columns, February 10, p. 491.

32. **The Functions of the Corpus Luteum.**—Mulon remarks that only quite recently has the corpus luteum been promoted to the rank of a glandular organ with an internal secretion. As soon as this was established, various functions were attributed to it, so that the corpus luteum, regarded for so long as nothing but a cicatrix, is now held responsible as the *primum movens* of the entire genital physiology in the female. She discusses in turn the twenty-six various functions that have been attributed to the corpus luteum. Many of them are exactly contradictory, but arguments and data have been advanced in favor of each as she describes. The article is to be continued.

Annales de Médecine, Paris

January-February, IV, No. 1, pp. 1-107

33 *Typhoid and Paratyphoid Bacilli in the Stools. M. Labbé and G. Canat.—p. 1.
34 Clinical Evolution and Treatment of War Wounds of the Chest. L. Reverchon and S. I. De Jong.—p. 12.
35 Fractures of the Sixth Cervical Vertebra in Diving. (Plongée de tête par fond insuffisant. Fracture de la sixième vertèbre cervicale.) J. A. Sicard and L. Rimbaud.—p. 34.
36 Elimination of Chlorids in Two Cases of Dropsical Beriberi. P. Pagniez and P. Vallery-Radot.—p. 45.
37 *Pleural Tuberculosis and Tuberculous Polyserositis. P. Ameuille.—p. 55.
38 *Etiology, Evolution and Prognosis of Acute War Nephritis. F. Trémolières and L. Caussade.—p. 73.
39 Picric Acid Intoxication and Picric Jaundice. P. L. Marie.—p. 85.

33. **Typhoid and Paratyphoid Bacilli in the Stools.**—Canat relates that he obtained positive findings in 60 of the 198 examinations of the stools from 128 typhoid or paratyphoid cases. The details of the whole number are tabulated for comparison. The bacilli appear early in the stools but grow less with each week. They were found in 50 per cent. of the grave cases but only in 30 per cent. of the milder ones. In 102 patients with various affections other than paratyphoid or typhoid, paratyphoid bacilli were found in the stools of 8, but no typhoid bacilli carriers were encountered.

37. **Pleural Tuberculosis.**—Ameuille relates that in the last ten months of the 2,600 tuberculous soldiers he has examined, he found that the serous membranes were involved in 270. Isolated tuberculous pleuritis was the most frequent, but in a number of the cases the peritoneum, pericardium, meninges or synovial membranes were involved likewise or alone. As a rule, the pleurisy without effusion is the first process. Scarcely any of the men were over 24. The lung did not become involved often. The infection in the pleura is usually the result of the fanning into a flame of some old glandular, mediastinal or pleural process; direct contact infection is not needed to explain it.

38. **Acute Nephritis Among the Troops.**—In about 33 per cent. the kidney disturbances noted in the soldiers on active service are merely simple albuminuria. In 67 per cent. there is actual subacute nephritis with a tendency to dropsy. After six weeks or two months of hospital care the albuminuria disappears in about 10 per cent. It persists in 25 per cent. in minute proportions but varying with fatigue and diet and thus compelling a reserved prognosis notwithstanding the good general condition. The men with subacute nephritis were left with a tendency to edema in about 44 per cent. of the cases. If there is no cardiovascular derangement, the only relics left may be a residual albuminuria or albuminous nephritis. In 7 per cent. the nephritis passed into a chronic stage, some cases proving speedily fatal.

Archives de Médecine des Enfants, Paris

February, XX, No. 2, pp. 57-112

40 Diagnosis and Treatment of Congenital Stenosis of the Pylorus. C. G. Grulee and Dean Lewis (Chicago).—p. 57. To be continued.
41 Fatal Pneumococcus Infection in Three Newborn Infants. (Une petite épidémie de pneumococcie chez le nouveau né.) Condat.—p. 88.
42 *Pneumococcus Brain Abscesses in Boy of Six. Condat.—p. 92.
43 *Prophylaxis of Measles. (Prophylaxie de la rougeole.) J. Comby.—p. 94.

42. **Multiple Pneumococcus Abscesses in Brain of Boy of Six.**—The child had apparently succumbed the eighth day to acute meningitis, but necropsy revealed twelve pneumococcus abscesses the size of a nut scattered through and on the brain. They were unmistakably metastatic. The right lung showed traces of recent pneumonia.

43. **Prophylaxis of Measles.**—Comby describes the regulations that have been enforced in England and Wales since November, 1915, respective to notification and disinfection in cases of measles and German measles. He reproduces the official circulars that are distributed.

Bulletin de l'Académie de Médecine, Paris

February 20, LXXVII, No. 8, pp. 217-256

44 *Discussion of Measures for Welfare Work among Factory Workers' Infants. Doléris and others.—p. 222. Continuation.
45 Operative Correction of Stenosis of Trachea and Esophagus from War Wound; Two Cases. Guisez.—p. 254.

February 27, No. 9, pp. 257-306

46 Successful Extraction of Scrap of Shell in Anterior Mediastinum in Contact with Superior Vena Cava. E. Kirmisson.—p. 296.
47 Monomyoplegia from War Wounds of Peripheral Nerves. Mally and Corpechot.—p. 298.
48 Spontaneous Rupture of Right Auricle in Young Man with Infectious Endocarditis, Aneurysm of the Mitral Valve and Coronary Sclerosis. P. R. Joly.—p. 299.
49 *Child Welfare Work at Havre during the War. (L'enfance au Havre pendant la guerre.) L. Loir and H. Legangneux.—p. 303.

44. **Welfare Work for Factory Working Mothers and Their Infants.**—The discussion on this subject has continued several weeks in the Académie. Pinard declared that as the present laws grant an allowance to women only for the four weeks preceding delivery, the benefit therefrom is often annulled by the fact that no one can tell exactly when the delivery is going to occur. If the four weeks pass without the childbirth, she is not entitled to further allowance. Pinard insists that an allowance of 5 francs a day (about $1), should be given to every pregnant woman and every woman nursing a child less than 1 year old, if the women claim it. He adds that during the war the births have dropped to 60 per cent. of the 1909 figure. Instead of 760,000 births there were only 450,000 last year, so the amount to be paid out in this allowance he pleads for, is not such an overwhelming sum. This presupposes that the factory will refuse to accept pregnant women. He says that the munitions factories in England reject pregnant applicants for work, and that the manufacturers in certain towns in France have long made provision for their pregnant and nursing workers. Doléris presented a long list of industrial towns where factories provide a *chambre d'allaitement* where the women go at regular hours to suckle their babes. The manufacturers want the supply of workers kept up, and numbers of them have introduced innovations in the way of welfare work of various kinds for the mothers and the infants. But even at the best, Pinard exclaimed, "the factory is the killer of children—*tucuse d'enfants.*" Prenant voiced the fear that the factory may even in time annihilate the maternal instinct, adding that the whole question of welfare work for prospective mothers is on a different basis now from what it has ever been before as women are now doing men's work in so many lines. Senator Strauss took part also in the debate. While deploring the low birth rate, he declared that it did not average lower among factory workers than in other groups of women, and that the children born to the factory workers averaged high in the maternity records. He fears that exclusion of pregnant women from the factories will encourage sterility and abortions. Bar insisted that a working woman should not suffer in her material interests from bearing or suckling a child. On the contrary, it should be to her interest to do so.

49. **Infant Welfare Work at Havre.**—Loir's statistics show a considerable decline in the birth rate and rise in infant mortality. He declares that for the latter, congenital weakness is mainly responsible, the women working in the munitions factories bearing feeble infants from the deleterious influence of the overwork and the manipulation of chemicals. He emphasizes that the present methods of financial assisting of women at childbirth foster pauperism. The remedy for this is to give the financial aid to all women in this condition, without their having to beg for it.

Journal de Chirurgie, Paris

Concluding Number of Vol. XIII, No. 6, pp. 645-755

50 *Parotitis in Typhoid. P. Emile-Weil.—p. 709.

50. **Parotitis in Typhoid.**—This is only an abstract of the article by Weil, which was published elsewhere. He relates that in the course of severe typhoid he witnessed parotitis develop in nine cases. Five of the men died among the seven with suppurating parotitis. The two who recovered had been treated by squeezing out a spoonful of pus through the duct of Steno morning and night, followed by application of hot water compresses. In the two nonsuppurating cases the parotitis subsided in a week under the moist heat alone. This number of the *Journal de Chirurgie* contains no original articles. It completes the volume that was under way when the war broke out. This number is dated therefore December, 1915. It is now proposed to resume regular publication every two months. The first six numbers in 1917 are to be devoted to war surgery.

Lyon Chirurgical

1916, XIII, No. 6, pp. 837-974

51 Treatment of War Wounds and Diseases of Joints. (L'immobilisation et la mobilisation dans le traitement des maladies articulaires.) A. Broca.—p. 837.
52 Immobilization of War Wounds of Long Bones and Joints with Slats, with or without Plaster. (Immobilisation à l'aide d'attelles de store.) Eynard and P. Santy.—p. 864.
52 Treatment of Compound War Fracture of the Shaft of the Humerus. H. Alamartine.—p. 877.
54 Treatment of Wounds of the Skull. (Les blessures du crâne.) J. Boeckel.—p. 903.
55 *Local Anesthesia. (De l'anesthésie exclusivement locale à la novocaine-adrénaline en chirurgie.) P. A. Petridis.—p. 912.
56 *Histologic Study of Homoplastic Skin Grafts; Two Cases. G. Cotte and Dupasquier.—p. 947.
57 Hemangioma plus Lymphangioma; Two Cases. J. Bolognesi (Siena).—p. 957.
58 Restorative Operation for War Wound of Perineum Region. (Plaie par balle probablement explosive. Lésions d'éclatement du périnée postérieur avec section de l'urètre membraneux et du rectum. Restauration précoce. Bon résultat anatomique et fonctionnel.) J. Bosquette.—p. 963.

55. **Local Anesthesia.**—Petridis gives an illustrated description of his method of blocking the nerves by injecting a 0.05 per cent. solution of novocain in a 0.9 per cent. salt. solution, adding a little epinephrin as needed. He relates his experiences with operations on the head, neck, trachea, in six cases of removal of the breast, in thirteen of resection of ribs, in two vaginal hysterectomies, and in numbers of other major and minor operations—a total of 142 operations under this local anesthesia with only ten failures. The anesthesia was complete in 367; fifteen required a little supplementary chloroform. This latter group includes ten appendicectomy cases. Among the practical points mentioned is that phlegmonous tissue does not take the anesthetic by any means as well as normal tissues. He also comments on the special advantages of epinephrin in operations for hemorrhoids, as it does away entirely with the usual hemorrhage.

56. **Skin Grafts.**—Cotte and Dupasquier relate that they covered the denuded head of a young woman, who had been completely scalped, with skin grafts from a stillborn child. By the end of a few weeks not a trace of the scraps was left. They had all been absorbed without suppuration, melting away like sugar in water. Then skin from a 10 year old child, killed in an accident, was applied. This, too, was absorbed by the leukocytes in less than a month. In its place young connective tissue had formed with an attempt at cicatrization.

Presse Médicale, Paris

February 1, XXV, No. 7, pp. 65-72

59 *War Wounds and Prophylaxis of Infection. H. Vincent.—p. 65.
60 *Technic for Paravertebral Anesthesia in the Neck Region. (Anesthésie régionale.) A. D. Santoni.—p. 67.
61 Congenital Absence of Thumb. (Ectrodactylie du pouce avec intégrité du radius.) S. Mercadé.—p. 68.

February 5, No. 8, pp. 73-80

62 *Reflex Action from Irritating Vapors on the Nasal Mucosa. (Les réflexes pnéo-pnéiques et pnéo-cardiaques.) H. Roger.—p. 73.
63 *Osteitis of Tip of Petrous Portion of Temporal Bone. (L'ostéite de la pointe du rocher.) A. Jouty.—p. 76.

59. **Prophylactic Treatment of Wounds.**—This article has already been summarized, page 1009.

60. **Nerve Blocking for the Neck and Arm.**—Santoni has been studying the concentration of the anesthetic as affecting the anesthesia. He injected the anesthetic in salt solution ranging from 15 to 30 per thousand, and also in pure water. The hypotonic solutions induced the anesthesia more promptly, but it did not last over an hour, while with the hypertonic solution the effect was slower in developing but lasted longer. By this means the specific action of the anesthetic is supplemented by a secondary action, purely physical. He has found extremely useful and effectual a method of cervical-paravertebral regional anesthesia, as he describes in detail. The patient lying on his side bends his head to throw into relief

the seventh cervical spinous process. A band of intradermic infiltration is then applied 3 cm. from the median line. The needle is introduced 5 mm. above the seventh cervical, it is pushed in until it hits the transverse process. Then the needle gropes along to its upper edge and, as soon as this is felt, the tip is slanted downward at an angle of 20 or 25 degrees and the needle is worked in for another 10 or 15 mm. It is then close to the seventh pair and 3 c.c. of the 2 per cent. solution of the anesthetic (novocain or its equivalent) are injected, sending the fluid in all directions. The points to reach the other nerves are 15, 30, 45, 60, 70 and 80 mm. higher. To anesthetize them, the above procedure is repeated at the proper points.

62. **Heart and Respiratory Reflexes from Sudden Irritation of Mucosa of Air Passages.**—Roger gives a detailed description of what he calls pneo-pneic and pneo-cardiac reflexes, induced by sudden application of irritating fumes to the nasal mucosa, ammonia, ether or chloroform. The experiments were made on rabbits, the denuded carotid connected with a manometer while the respiration was recorded with a pneumograph and chromograph record on the same chart. Provision was made to ensure that the reflex action was due exclusively to the effect on the nasal mucosa, and not to deeper inhalation of the fumes. Some of the experiments were made after the vagus had been severed on both sides. The reflex consists in a respiratory spasm, arresting the respiration in expiration, with a drop in blood pressure, followed by extreme oscillations, the blood pressure finally rising above its primary level. In some of the rabbits the excitation of the nasal mucosa induced a tetanic contraction of the heart. Inhalation of chloroform or ether does not have the same effect as its sudden application. The absorption of the drug reduces the amplitude of the respiratory movements and lowers the blood pressure.

63. **Osteitis of the Petrous Portion of the Temporal Bone.**—Jouty says that the development of trigeminal neuralgia and of external oculomotor paralysis, in the course of an ordinary otitis media, shows that the tip of the petrous portion has become involved. When these two signs appear together or with a few days' interval, the diagnosis is certain. In most cases this focus of osteitis retrogresses, but if it progresses the neuralgia grows worse and an abscess forms, with danger of meningitis. Necropsy has shown meningitis in all the known fatal cases to date. In the two cases on record in which this petrous focus was suspected, the whole petrous portion was gouged out before discovering the focus in the tip. The patients recovered, but nervous disturbances and neuralgia followed from the extensive destruction of the internal ear and facial nerve. Jouty differentiated the trouble with precision in a personal case described, basing his diagnosis on the simultaneous appearance of trigeminal neuralgia and the external oculomotor paralysis. The operation was thus exclusively restricted to the apex of the petrous bone, and the patient recovered completely without damage of the internal ear or facial nerve. The first step is to ensure ample petromastoid drainage. This is better than mere trephining of the mastoid region.

Progrès Médical, Paris

February 3, XXXII, No. 5, pp. 37-44

64 Treatment of Nasal and Bronchial Asthma by Local Applications of Pituitary Solution. H. Bourgeois.—p. 37.
65 Wire to Encircle Shattered Bone. (Cerclage au fil métallique dans le traitement des éclatements des os longs par projectiles de guerre.) M. Sénéchal.—p. 38.

February 10, No. 6, pp. 45-52

66 *Paratyphoid Fevers and Dysentery. J. Carles.—p. 45.
67 Frostbite and Its Treatment with Novocained Paraffin. A. Chalier.—p. 46.
68 Snapping Hip in an Acrobat. (A propos d'un cas de hanche à ressort.) V. Combier and J. Murard.—p. 48.

66. **Paratyphoid Fevers and Dysentery.**—Carles' experience has confirmed that paratyphoid fever may deceptively simulate dysentery. It may also cause the flaring up of an old and supposedly long healed dysentery. He has encountered cases of simultaneous paratyphoid and dysentery, and others in which dysentery was followed by paratyphoid. Differentiation is almost impossible without bacteriologic examination of the blood and stools, and treatment, to be effectual, must be based on an exact diagnosis. Otherwise each disease is liable to pass into a chronic and very tenacious phase.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 10, XLVII, No. 6, pp. 161-192

69 Acute Exophthalmos with Quincke's Edema. Meyer-Hürlimann.—p. 161.
70 *Spirochete Bronchitis. (Bronchite de Castellani.) B. Galli-Valerio.—p. 169.
71 Aspirating Bougie for Esophagus and Stomach. M. Einhorn (New York).—p. 175.
72 Sulphur in Salvarsan. (Ueber eine im Salvarsan (606) in sehr geringen Mengen vorkommende Schwefelverbindung.) C. Strzyzowski.—p. 176.

70. **Spirochete Bronchitis.**—Galli-Valerio gives a list of sixteen different maladies in which spirochetes have been found, and in some were regarded as responsible for the affection. Spirochete bronchitis has been encountered in Ceylon, India, the Philippines, Europe and elsewhere, since Castellani called attention to it. Galli-Valerio has had seven cases in his practice at Lausanne. The prognosis is favorable if the treatment is energetic enough to arrest the disease before it has passed into a chronic phase. Microscopic examination of the stained sputum reveals the spirochetes; all his patients had been labeled tuberculous. In treatment he advises bed rest, keeping up the patient's strength and giving arsenic, merely Fowler's solution by the mouth or intramuscular injection of some mixture containing sodium cacodylate. He recommends also salvarsan. The disease runs an acute course in five or six days, with high fever and profuse expectoration of a whitish or yellowish sputum. Percussion is practically negative, and auscultation reveals merely disseminated râles. Headache and pains in the limbs, reduction in hemoglobin and reds, with manifest leukocytosis, are other features. The chronic form shows a hectic fever, deceptively like that of tuberculosis, with chronic cough and expectoration and sometimes actual hemoptysis, with much weakness and anemia. Untreated, it may drag along for years with intervals of improvement.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 4, XXXVIII, No. 10, pp. 145-160

73 *The Blood Findings in Typhoid in the Vaccinated. (Nota riassuntiva sulle ricerche siero-diagnostiche ed emoculturali fatte nei tifosi con riguardo alle vaccinazioni antitifiche.) G. Baglioni.—p. 146.

February 8, No. 11, pp. 161-176

74 Traumatic Paralysis of Left Hypoglossal Nerve with Traumatic Neurosis of the Right Arm, Following Stab Wound of the Neck. V. Russo.—p. 161.

73. **Typhoid in the Vaccinated.**—Baglioni tested the blood of 174 typhoid patients and obtained positive agglutination with typhoid bacilli in 96, with paratyphoid *A* in 22, and *B* in 33. There was group agglutination in 8, and no agglutination of any type in 25. Typhoid bacilli were cultivated from the blood in 28 cases, paratyphoid *A* in 26 and *B* in 17, while the blood seemed to be sterile in 102. He concludes that not much reliance can be placed on the seroreactions in the vaccinated. The immunity conferred by antityphoid vaccination varies in individual cases, just as one attack of typhoid may or may not protect against another attack.

Policlinico, Rome

February 11, XXIV, No. 7, pp. 201-232

75 Abdominal Wounds in War. (Osservazioni sulle ferite addominali curate nella terza ambulanza chirurgica.) R. Bastianelli.—p. 201.
76 Test to Detect Simulation of Deafness. (Sul problema della valutazione dell'ipoacusia.) T. Mancioli.—p. 204.
77 *Advantages of Tar for Dressing Minor Wounds. (Il catrame nella chirurgica minore.) M. Pasquali.—p. 204.
78 Phenol Treatment of Tetanus. L. Cerchione.—p. 211.

February 18, No. 8, pp. 233-264

79 Physiologic Value of Alcoholic Beverages. (Precetti e preconcetti medici in fatto di alimentazione pratica. IV.) S. Baglioni.—p. 233.
80 Inflatable Pads for Local Hemostasis. (Emostasi per mezzo di pallancini elastici; abolizione del laccio emostatico.) A. L. Soresi (New York).—p. 247.

77. **Tar for Dressing Wounds.**—Pasquali calls attention to the advantages of vegetable tar poured over frostbitten feet, over burns and other torpid minor surgical processes. If necessary, it is heated a little to render it more fluid. To date there have been no untoward by-effects. The men all laud the relief from pain and itching, while the lesions seem to heal more rapidly under the tar than without. The tar does not dry out nor grow stiff, and it can be easily washed off with a little alcohol or benzin.

Brazil-Medico, Rio de Janeiro

February 10, XXXI, No. 6, pp. 43-50

81 Brazilian Method of Eliciting Achilles Tendon Reflex. (Da pesquisa do reflexo achilleo.) O. Ayres.—p. 43.
82 Heliotherapy in Brazil. A. Moncorvo, Jr.—p. 44. Continuation.

Cronica Medica, Lima

February, XXXIV, No. 644, pp. 41-76

83 Present Status of Our Knowledge of Leprosy. E. Odriozola.—p. 41.
84 *Gallstone Surgery in Peru. (Estadistica nacional en la cirugia de las vias biliares.) F. Wieland.—p. 52.
85 *The Alligator Pear Adapted for Antidiabetic Diet. (La palta como alimento de los diabeticos.) E. Escomel.—p. 67.

84. **Gallstone Surgery in Peru.**—Wieland relates that gallstone trouble requiring operative measures is comparatively rare in Peru. The first operation of the kind there was in 1904, and he has been able to find records of only twenty operations on the biliary apparatus to date. The few fatalities were due to the long delay before operative treatment was accepted.

85. **Alligator Pear in Antidiabetic Diet.**—Escomel for some years has been calling attention to the fruit of the *Persea gratissima,* a kind of laurel, as a welcome addition to the diet of diabetics. It is a common fruit and he says that it does not contain starch or sugar. His analysis showed 34.1 per cent. fat; 3.79 per cent. albuminoid substances and 3.5 per cent. ash, with 38 per cent. water, and 0.4617 per cent. phosphates. (The fruit is known as the alligator pear, avocado, vegetable marrow and midshipman's butter. An editorial was devoted to it in THE JOURNAL, March 18, 1916, p. 898.)

Revista de la Asociacion Medica Argentina

January-February, XXVI, No. 146-147, pp. 5-141

86 *Anterior Cephalocele; Three Cases. M. H. Vegas and J. M. Jorge.—p. 5.
87 *Organic Nature of Sydenham's Chorea. A. Gareiso.—p. 35.
88 *Milky Ascites. (Etio-patogenia de los derrames quilosos.) C. B. Udaonda and M. R. Castex.—p. 58.
89 *Pelvic Varicocele. C. A. Castaño.—p. 76.
90 Pigmented Retinitis with Atrophy of the Choroid and Retina. (Atrophya gyrata chorioideae et retinae.) P. Argañaraz.—p. 102.
91 *Acute Postpartum Dilatation of Stomach and Duodenum. P. Ramos.—p. 109.
92 *Sclerosis of Pulmonary Artery. (Caso de enfermedad de Ayerza.) P. M. Barlaro.—p. 121.

86. **Anterior Cephalocele.**—In each of the three cases of which an illustrated description is given, the cephalocele was between the eyes. The patients were children of 11, 6 and 1 or 2 years old. They seem normal otherwise except that the older child has contracture of the right arm and limps a little with the right leg. The parents of this child refused to permit an operation; the encephalocele extended over the root of the nose and part of the right cheek, but was not prominent enough to be very noticeable from the side. In the younger child it formed a tumor round and large as an orange which was easily removed. In the other child the tumor spread from eye to eye and a little on the cheeks, and was increasing in size. This too was easily removed. The tumors seemed to be of the nature of hernia but they evidently date from early embryonal life, before the formation of the face. Hydrocephalus does not accompany this anterior type of cephalocele, as a rule. It forms a tumor of a gelatinous consistency, and its excision was not followed by any appreciable symptoms. In the 6 year old child the cleft in the bone was so broad that Vegas and Jorge closed it with a bone periosteum flap from the eleventh rib. The tumor had reformed in this case after it had been resected three times.

87. **Organic Nature of Chorea.**—Gareiso reports that signs of encephalitis were evident in forty-nine of the fifty cases of Sydenham's chorea tested for the Babinski and other indications of organic disease. The reflex responses varied from day to day in different cases. He gives the detailed findings in twenty-eight cases. As the chorea subsided, the signs of the superficial, transient encephalitis inducing the choreic movements subsided with it.

88. **Milky Ascites.**—Cancer of the stomach and liver was the primary cause of the chylous ascites in the first of the five cases reported. In the others, aleukemic glandular disease, cancer of the stomach or tuberculous peritonitis—all chronic processes.

89. **Pelvic Varicocele.**—By this term Castaño means permanent varicose enlargement of certain veins in the female pelvis. It may be secondary or primary, and it is undoubtedly responsible for the complaints of many women who are regarded too often as merely neuropathic or hysteric. Returning varicocele at the menses may be responsible for dysmenorrhea in many cases. He reviews the literature on the subject, from Richet in 1854 to A. Wall in 1916, and discusses the clinical picture according to the vein involved. The women affected are full-blooded, inclined to constipation, and minor thyroid insufficiency. For the same reasons as in men, the left side is predominantly affected. Girls inclined to overstudy and neglect hygiene bring on this congestion in the pelvic organs, starting the varicocele. Sitting on a hard piano stool for hours to practice, without heed to menstruation, also favors local congestion. It is easily corrected at first by repose, but after the veins become enlarged the varicocele is rebellious to simple measures. Other factors may be long standing, running the sewing machine, excessive dancing and tight lacing, erotic stimulation from plays, moving pictures, etc. Mechanical, anatomic, infectious and constitutional factors may afford a predisposition.

91. **Acute Dilatation of the Stomach Postpartum.**—Ramos cites from the literature of the last nine years seventeen cases of acute gastroduodenal dilatation following childbirth. He then describes a case from his own practice. His experience in this case enabled him to make a retrospective diagnosis of a similar case a few years before in which at the time the condition was not recognized. The dilatation may occur from paralysis of the stomach or from occlusion of the mesenteric artery, but probably both factors are associated and aggravate each other. Labor in his case had been brief but the midwife had repeatedly tried to expel the afterbirth by expression. Ramos finally had to remove it by hand, without anesthesia. He left the woman in good condition but he was recalled in four hours as she was vomiting constantly and suffering from extreme thirst, the pulse 140, thready, the expression anguished. She said her stomach felt as if there was an iron bar in it. The condition grew worse every minute until the woman was turned to lie on her stomach in the knee-chest position, when gases rushed out of the stomach with a continuous rumble, the abdomen sank in, and the whole clinical picture cleared up as by magic. He thinks it probable that many instances of acute postpartum dilatation of the stomach have been masked by the obstetric conditions and have escaped recognition. The abrupt changes in the intra-abdominal pressure and the manipulations during the third stage of labor are liable to induce the arteriomesenteric occlusion. In his case the peristalsis observed in the stomach and the sudden disappearance of the disturbances indicate that probably constriction of the duodenum was the primary trouble and not paralysis of the stomach.

92. **Sclerosis of Pulmonary Artery.**—Barlaro describes a case of what he calls Ayerza's disease, in a woman of 44. The face was very cyanotic, pulse 80, regular, the right heart dilated. The red count was 6,680,000. She had usually three attacks of dyspnea during the twenty-four hours, relieved by expectoration. This had been going on for three years. Occasionally there was blood in the sputum. She was inclined to be chilly and her feet were always cold. Barlaro gives a roentgenogram of the case and discusses the various affections with which this clinical picture from sclerosis of the pulmonary artery is liable to be confused. Syphilis is prob-

ably responsible for the trouble in many cases; this was evident in the case here described. Barlaro adds that probably some of the cases were of this type which have been recorded as primary and chronic myelogenous polycythemia —Vaquez' disease—especially in the form with enlargement of the spleen. This is particularly likely in the cases with chronic bronchial catarrh or pulmonary emphysema or a persisting cough through two or more years, with blood at times in the sputum.

Siglo Medico, Madrid

February 17, LXIV, No. 3297, pp. 97-112

93 *Morphology of the Blood in Leprosy. S. de Buen.—p. 98. Commenced in No. 3296, p. 82.
94 Rebuilding the Face. (Las restauraciones buco-faciales.) F. Aguilar.—p. 105. Continuation.

93. **The Blood in Leprosy.**—De Buen gives the blood findings in thirty-six lepers in Granada. No special leukocyte formula could be discovered and eosinophilia was not common. Mononucleosis was frequent, and Arneth's index was displaced toward the left, but no data of importance could be deduced from the red or white count.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 27, I, No. 4, pp. 201-272

95 *Eosinophilia, Anaphylaxis and the Nervous System. D. Klinkert. —p. 202.
96 Family Care of the Insane. (Een nieuwe richting in de verpleging der geesteszieken.) J. L. Van Lier.—p. 213.
97 Resin-Containing Substances in Treatment of Wounds. (Harshoudende geneesmiddelen bij wondbehandeling.) P. Van der Wielen. —p. 221.
98 Brain Abscess Consecutive to Frontal and Ethmoidal Sinusitis; Two Cases. H. J. L. Struycken.—p. 224.

95. **Anaphylaxis, Allergy and the Nervous System.**—Klinkert presents an array of arguments to prove that all the mysteries of eosinophilia and anaphylaxis can be explained by assuming that the nervous system in certain persons is exceptionally sensitive. It reacts to irritation below the threshold of reaction in the normal. It may be naturally thus abnormally irritable or the irritability may be from cumulative action of toxins. The only difference between an idiosyncrasy to a drug and the phenomena of anaphylaxis is one of degree. With the drug idiosyncrasy, the phenomena occur at once, while with the phenomena we call anaphylaxis there has to be time for cumulative action, the albuminous substances inducing the reaction not passing off through the kidneys but accumulating until the hypersusceptible nervous system is finally overcome by their toxic action. He explains how all the phenomena in question are of unmistakable nervous origin. This is particularly evident in the changes in the skin around the area where a tuberculin salve is rubbed on the skin of a tuberculous child, and the appearance of an entirely symmetrical reaction on the corresponding area on the other half of the body. Other evidence is the reaction in the other eye also when tuberculin is instilled into one eye. Everything indicates that the Pirquet tuberculin reaction is an angioneurotic process. This explains the local eosinophilia, as this is the faithful accompaniment of all conditions of irritation in the secretory nervous apparatus. That part of the nervous system which is the most susceptible feels the effect of the irritation first and foremost, and we thus encounter anaphylactic asthma or enteritis, convulsions, urticaria, hyperesthesia of the skin or prurigo, epilepsy or clinical neuroses as the case may be. Intermittent swelling of the joints, as with serum sickness, must also be regarded as a neuro-arthritis. He explains how the manifestations of Poncet's tuberculous rheumatism, anaphylactic shock, and the natural and the acquired idiosyncrasy to horse serum all fit into this frame of nervous allergy. The albumin in the alien serum is not passed off as such through the kidneys and it irritates the nervous system. On injection of the antigen, the phenomena of shock and the fixation of the specific ferments occur almost simultaneously, and this fact has been erroneously interpreted to mean that there is a direct causal relation between them. The truth is, rather, that on account of the speed with which the phenomena of the nervous shock develop, the defensive mechanism of the specific ferments has no opportunity to afford effectual aid. In conclusion Klinkert discusses the so-called passive anaphylaxis, showing that it is in reality an active anaphylaxis. He also presents evidence to prove that the phase of anti-anaphylaxis is merely a phase of exhaustion on the part of the nervous system. The result is a refractory phase. The condition of allergy, he reiterates in conclusion, is not an element in immunity. It is the consequence of the cumulative action of toxins on the nervous system.

Hospitalstidende, Copenhagen

January 24, LX, No. 4, pp. 73-96

99 *Measuring and Recording Movements Possible to a Joint. (Om Maaling af Leddenes Bevægelsesforhold.) J. Helweg and G. Wiltrup.—p. 73.

January 31, No. 5, pp. 97-120

100 The Uric Acid Diathesis. (Undersøgelser over den urinsure Diatese.) I. P. Chrom.—p. 97.

99. **Curve of Motor Range of Joints.**—Helweg and Wiltrup expatiate on the advantages of an exact record of the movements possible to a diseased joint. Such curves aid not only in diagnosis and prognosis but also as a guide to treatment. They analyze the movements of the principal joints and give a table recording the range of movements in a typical case. They measure the movements always as starting from the position of the joint in the attitude of military attention, erect, or reclining horizontal, the arms close to the sides, the palms against the thighs, the legs extended, the feet at right angles to the leg. The movement of the joint from this starting position is recorded by the figure of the angle when normal movements are impossible.

Hygiea, Stockholm

January 31, LXXIX, No. 2, pp. 49-96

101 *War Injuries Affecting Voice and Speech. (Om krigsskador å röst- och talorganen.) E. Stangenberg.—p. 49.
102 *Case of Scarlatinal Mastoiditis with Arrosion of Sinus Wall and Fatal Spontaneous Hemorrhages. A. Hæggström.—p. 58.

101. **War Injuries of Voice and Speech.**—Stangenberg was sent to Berlin to study in particular war wounds and functional neuroses affecting the organs of speech. His investigations were mainly in Gutzmann's service where 426 patients of this class have been under treatment. He describes a few typical cases of spastic dysarthria in previously healthy men who were much improved but not cured by over five months of exercises in speaking. One officer after a shell shock and minor injuries had complete aphasia, dysarthria and dysphasia, with no improvement to date under eight months of treatment. The results on the whole are meager, and treatment requires great skill and extreme patience.

102. **Hemorrhage from Scarlatinal Mastoiditis.**—The girl of 7 developed otitis media in the course of scarlet fever with continuous high temperature. By the second day of the otitis an operation for mastoiditis became necessary. Six days later there were profuse hemorrhages from the fistula and necropsy showed the side wall of the sigmoid sinus completely arroded. The hole, as large as a pea, was in the wall of the sinus where it had been exposed at the operation. It had been apparently sound then. There was no thrombosis except in the bulb of the jugular vein. Ligation of the jugular vein on account of the thrombosis was followed by profuse hemorrhage and the child died a few days later. Hæggström has found twenty-five similar cases recorded in the literature, in which osteitis of the sinus led to spontaneous hemorrhage. In five of the ten acute cases, scarlet fever was responsible. Eulenstein advises in such a case to expose the transverse sinus and apply compression to it, and then to open up the mastoid process and seek the bleeding vessel and tampon it at the spot. His patient given this treatment recovered. On the other hand, if the bleeding comes from the arroded sinus not long after a mastoid operation, an ordinary compressing bandage may prove all that is necessary. Two-thirds of the patients treated in this way recovered. It would be safer, however, Hæggström adds, judging from his own case, to compress the sinus by working a tampon between the dura and the wall of the sinus from a trephining opening made over the transverse sinus.

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ACUTE POLIOMYELITIS

EARLY DIAGNOSIS AND SERUM THERAPY *

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NEW YORK

I. DIAGNOSIS

So far as we know, paralysis is the only undesirable result of acute poliomyelitis. Consequently, therapeutic effort should be directed to prevent this accident. It is becoming increasingly evident that most patients with the disease never develop muscular weakness, and, indeed, that paralysis is an accidental and incidental occurrence in the latter part of the course of an acute systemic infection. No treatment, save that to make a febrile patient comfortable, is needed, therefore, in many cases. But because the chance of crippling exists, we must be prepared to use promptly any safe methods which will prevent the establishment of damaging lesions in the cerebrospinal nerve tissue.

In order to discuss intelligently, however, the use and value of any procedure designed for this purpose, it is necessary first to study in detail the clinical course of the disease in man. Furthermore, it is obvious that to make statistical comparisons of untreated and treated series of cases is an impossible method of reaching a proper valuation of the serum therapy in this disease. The apparent fluctuation in virulence of the virus in different localities and periods during an epidemic, the wide range of individual susceptibility and, finally, the peculiar sequence of events in the clinical course of the disease itself make up an array of forces difficult to equalize when we try to weigh the effect of treatment by comparing untreated and treated groups.

There remains, then, the more tedious but essential task of studying individual examples of the disease. These have been selected from the 300 as examples of the various types. By comparing untreated and treated instances from the same locality and period, and especially by comparing the spinal fluid with regard to the hour of its removal in the course of the disease, a more definite judgment of serum therapy in poliomyelitis may probably be made.

The untreated cases have been arranged in three groups according to the clinical course. The first group, called the dromedary group, shows the curious phenomenon of two different periods of illness with an interval of well-being. In the second group this period of comparative well-being is not present, but there is a sustained period of indisposition of varying intensity. This is called the straggling group. In the third group only do we have all the signs pointing from the start to meningeal and nervous involvement. This we have called the sudden onset group. A striking thing is that the second portion of the first two groups is very similar to the whole course of the sudden onset group.

There will be no further routine description of the clinical picture of the disease than that which can be derived from reading the case reports presented here. One physical sign of great importance, however, must be mentioned especially. It depends on the fact that in acute poliomyelitis any manipulation which brings about anterior bending of the spine causes pain and therefore is resisted by the patient. The resulting stiffening of the body has generally been loosely described as "stiff neck" or "Kernig's sign," but there is an essential difference between these reflex phenomena of meningeal irritation and the voluntary protective rigidity assumed by the patient with poliomyelitis to prevent anterior flexion of the spine. This conscious effort is often carried to a moderate degree of opisthotonos and is the cause of the unwillingness of children with this disease to be picked up and handled even by the mother. Attention was called to this sign in the monograph from the Rockefeller Institute in 1912, and we refer to it here as the spine sign.

In the first two groups there develops a picture of general systemic infection from which the child appears to recover completely, or in part, and then to receive a second blow directly on the cerebrospinal tract. Because of the two distinct groups or humps of symptoms, the analogy to the arrangement of the dromedary's back was taken to express the type figuratively. The temperature curve often shows two elevations, but the figure refers to all the signs and symptoms of each group or hump, whether or not there is a rise of temperature in both. The total duration of the combined phases may vary from a few hours to many days, while the intensity of either phase, the systemic or the meningeal, may touch the extreme of violence or such mildness as to escape detection. In the systemic stage, or first hump, of a well marked case the clinical picture is that of almost all of the acute infections of childhood — a flushed, uncomfortable, feverish child; in the meningeal stage, or second hump, there are added the special signs and symptoms of meningeal irritability. It becomes at once obvious that the so-called "abortive" types are in all probability examples of the disease in which the first stage or hump

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of tables and many case reports. Reprints of the complete article may be obtained from the author.

* The material which forms the basis of this report is drawn from among 300 or more cases observed on Long Island by the diagnosticians of the New York State Department of Health, working from the laboratory at Roslyn. The cases have been selected from groups seen by various members of the diagnostic staff to illustrate certain points, and have been presented as an essential part of the whole discussion.

constitutes the entire course of the malady, the meningeal stage either never occurring, or, if it does, in so slight a form as to pass unrecognized. The term "abortive" consequently gives a wrong impression, for the termination of the disease at the end of the systemic phase is the more usual occurrence. It would be more correct to speak of acute poliomyelitis, with or without paralysis. In order to discuss the mechanism of this peculiar series of events it is necessary to consider certain experimental problems which bear on the disease.

UNTREATED CASES

DROMEDARY GROUP

Case 1.—*History.*—S. L., boy, aged 9 years, of Northport, L. I., Sept. 8, 1916, complained of headache and fever. This lasted twenty-four hours. He was then all right for the ensuing eight days.

September 17: The headache and fever returned (eight day interval). He was constipated for the following two days.

September 19: The child vomited several times during the last eighteen hours. His temperature was 100.4. There was muscle tenderness in the thighs and calves. There was a suggestion of left facial weakness. There was no spine sign. Lumbar puncture was performed at forty-eight hours; the fluid was clear, the pressure normal, cells 40. Globulin was negative. No further paralysis developed.

staring and glassy in appearance. The tonsils and pharynx were considerably congested, but without exudate. The heart and lungs were negative. The abdomen was normal. In the extremities there was no paralysis or muscular weakness. The knee jerks were markedly exaggerated, + + + +, most marked on the left side. Kernig's sign was marked on both sides, most on the left. The skin reflexes were active. There was slight rigidity of the neck, and hyperesthesia. Spinal puncture was performed at twelve hours. The fluid was clear under pressure. About 12 c.c. were obtained. The cell count was 250.

September 2: The patient seemed to be completely well twenty-four hours after puncture and has had no subsequent paralysis or complications.

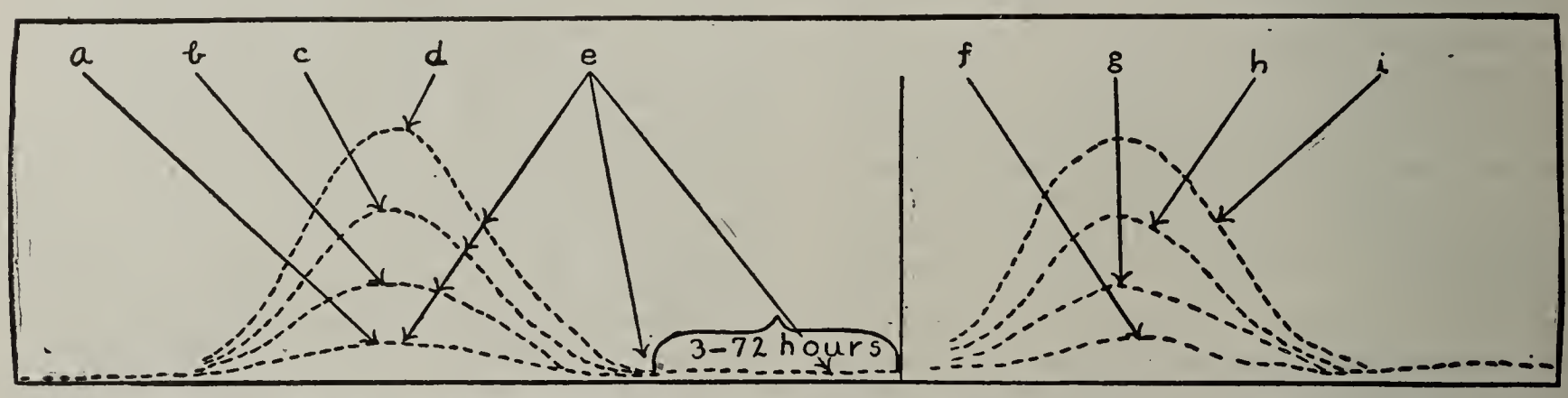
Comment.—This is an example of the unimportant impression that the early days and hours of the disease make on the mother. Yet the suggestion is clearly of an indefinite period of "out of sorts" preceding the headache of August 18.

SUDDEN ONSET GROUP

Case 26.—*History.*—D. S., girl, aged 14 years, of Babylon, L. I., Aug. 21, 1916, had a gone feeling in the stomach.

August 22: The patient had a pain in her neck and right shoulder. The temperature was 102, pulse 130.

August 23: The patient had a slight pain in the shoulder. Examination revealed no paralysis. The left knee jerk was less than the right. The patient was irritable and had slight stiffness of the neck. She was menstruating. Puncture was



To left of vertical line, period of general infection, before penetration of choroid. Puncture should be repeated every eight to twelve hours to catch beginning of meningeal invasion. Any combination of curves in this period and the period of meningeal invasion possible. Termination of disease most frequent in this period. To right of vertical line period of meningeal invasion. Serum most valuable in first twelve hours. Group *f* does not need it. *a.* Child dull for a few hours; sits around; mother forgets about it after a day. *b.* Child has slight rise of temperature—99; constipation, "green apples," etc., as cause; looks tired; may be irritable. *c.* Child definitely sick; vomits; temperature from 99 to 101; irritable, flushed; looks actively ill. *d.* Severe acute general infection—glassy bright eye—resentful look, drowsiness and irritability alternating; temperature 102; vomiting or not; flushed; no meningismus. *e.* Lumbar puncture fluid clear; pressure slight or greatly increased; amount increased; cells from 0 to 5; globulin 0, —, ± or +. *f.* Very slight spine sign, headache; fluid; pressure + + +, clear; cells from 10 to 100; globulin +, —, + +; usually no paralysis. *g.* Slight spine sign; hyperesthetic; reflexes + + or irregular; spinal fluid clear, pressure + +; cells from 100 to 300; globulin + +; may develop transient or facial paralysis. *h.* Definite spine sign; headache; reflexes + +; hyperesthetic; spinal fluid clear or slightly hazy or flocculent; cells from 200 to 700; pressure moderate; chance of paralyses great. *i.* Striking meningismus; spinal fluid hazy, pressure normal to +; cells from 500 to 2,000; globulin + + +; stupor, twitchings; sure paralyses or death.

Comment.—This case illustrates the common phenomenon met in this disease of two distinct febrile periods with a free interval. Here the first period lasted twenty-four hours, the interval eight days (rather longer than usual), and the second period from eighteen to twenty-four hours. In the last period the facial weakness developed.

This we have called the "dromedary" type of case because of the two "humps" in the temperature curve. The significance of these cases is considerable, and a discussion of them will be deferred until other examples of the type have been presented.

STRAGGLING GROUP

Case 17.—*History.*—M. A., boy, aged 4½ years, of Fort Washington, L. I., Aug. 17, 1916, had been drowsy and very irritable for several days.

August 18: This morning the child had fever. There were headache and pain in the back of the neck last night, about twelve hours ago. The child was constipated for several days previous to this, and was given numerous cathartics without success. The mother states that last night she gave the child castor oil but he vomited it. The family physician saw the child about an hour ago and found his temperature 103. The boy was lying in bed and apathetic. The eyes were

performed at forty-eight hours. There was no increase in pressure; 504 cells.

September 3: The patient had completely recovered, without paralysis.

Comment.—It is a question whether the first complaint of "gone feeling in the stomach" represents the beginning of the disease or the beginning of central nervous system involvement. The early appearance of pain in the neck and shoulder suggests the latter. Consequently the case is grouped among those with "sudden onset." The high cell count at such an early stage would have made a paralysis not unexpected. None developed.

Case 31.—*History.*—K. McL., boy, aged 18 months, of Northport, L. I., had a sister who had the disease. Aug. 19, 1916, the child was observed in bed sleeping, with no history of disease other than slight diarrhea for two days. Constitutionally he had seemed well, and was awakened from sleep for the purpose of examination and temperature. This child was well on going to bed after playing all day. At 1 a. m. the temperature was 105 F. Eyes, ears, nose and throat, heart, lungs and abdomen were normal. The neck and spine were stiff and tender. The head would not flex on the chest. Suspension by the head and buttocks caused arching of the

back and pain. The Kernig sign was positive in both legs, and no paralysis was made out in any part of the body. The reflexes were normal. Spinal puncture revealed clear fluid under normal pressure with a moderate globulin test and 320 cells. This patient was given serum, and his further history is related in connection with that group of cases.

Comment.—In this instance the mother objected to having the child awakened at 1 o'clock in the morning to have his temperature taken. The diagnostician of the health department insisted on the ground of the slight intestinal disturbance of the previous day and the fact that the sister was ill with frank poliomyelitis. This course was justified by the finding of the high temperature and high cell count. If this case had not been observed at this time, but the first observation had been made the following morning and the child found with high fever and meningeal irritation, it would have been considered a typical example of what the English call "paralysis of the morning." As the child went to bed well and waked up ill, the case would have been reported as one of sudden onset; fortunately the parents remembered the very slight intestinal upset of the previous two days which had not been sufficient to make the child stop playing. The meningeal invasion must have taken place at sometime between 6 or 7 in the evening and 1 o'clock in the morning.

CASE 35.—*History.*—W. Z., boy, aged 2 years, of Great Neck, L. I., was well until the afternoon of Aug. 12, 1916, when he was feverish and listless. He did not vomit. Spinal puncture revealed normal pressure with the fluid clear and increased in amount, no cells, with a negative globulin test.

August 13: The symptoms were the same as the day before. Spinal puncture at thirty hours revealed the fluid under moderate pressure and 90 cells. The child was sent to the hospital at Roslyn.

August 31: The child's temperature was 99.8. There was weakness of the lumbar muscle with lateral curvature in the left thoracic region. Slight spinal tenderness was observed.

Comment.—This is an instance of short course. Puncture was made a few hours after the onset of the symptoms, and showed a negative cell count and no globulin. Twenty-four hours after with the development of slight spinal signs the spinal fluid showed 90 cells. In this case there was rapid improvement, and it was not until several weeks after the acute disease that slight weakness of the lumbar muscles was discovered. In this case the period of invasion of the meninges was indicated by the consecutive lumbar puncture.

CLINICAL COURSE OF THE DISEASE: INTERPRETATION

Flexner and Amoss[1] have reported certain experiments bearing on the localization of the virus and the pathogenesis of poliomyelitis. They showed that, following the intravenous injection of the virus of poliomyelitis in monkeys, and with subsequent sacrifice of the animals at different intervals, the virus was found in the spleen and bone marrow and later in the posterior root ganglia, and, finally, in the brain and spinal cord. In other words, notwithstanding the fact that the virus of poliomyelitis has a neurotropic tendency, it is withdrawn from the general circulation primarily by the spleen and bone marrow, this event occurring shortly after infection, and before the attachment of the virus to the central nervous system. In the same report the experiment is described of the insusceptibility of monkeys to the virus of poliomyelitis, when as much as 50 c.c. is injected intravenously. Animals survive under this treatment with no signs of central nervous system disturbances. If, however, an aseptic meningitis is set up by means of an intradural horse serum injection preparatory to the intravenous inoculation of the virus, the animal succumbs to the disease.

It is further reported that when tremendously large doses of virus are given intravenously, from 250 to 500 c.c., the animals come down with the disease. The conclusions from these two suggestive experiments are that the overwhelming attack produced by the large dose breaks down the defensive power of the choroid plexus, and admits the virus to the cerebrospinal spaces. In the other instances the choroid plexus is so injured by the intradural injection of horse serum that it is no longer able to exert its usual barrier action against the toxic agents in the blood. If these experiments are kept in mind, the clinical course of the cases just described can be subjected to a more logical interpretation. A suggestive analogy becomes apparent between the first febrile period of the dromedary or straggling types, and the phenomena of lodgment of the virus in the spleen and bone marrow of monkeys after intravenous inoculation. Likewise the second hump in the human case, with its central nervous system involvement, corresponds to the late disclosure of the virus in the central nervous tissue of the monkey. Experiment has shown that the virus gains entrance with difficulty to the central nervous system tissues of monkeys subjected to intravenous inoculation. In human subjects the number of cases recognized as never giving the slightest indication of central nervous system invasion is steadily growing with our experience.

In families in which a frank paralysis case occurs, there are found so frequently other children who present persistently the same symptoms which the paralyzed child has shown in the preliminary hump that one is led to suppose that these may be examples of infection in which no penetration of the meninges occurred.

In the straggling group the same interpretation applies, the only difference being that these individuals present a continuous course with a fusion of the symptoms of the two stages. Sudden onset cases may be looked on as examples of the malady in which the systemic stage has been overlooked because of its triviality. In this group the spectacular and violent picture of meningeal disease dominates and drives the memory of the slight preceding indisposition from the mother's mind. It is difficult under these circumstances to get from the family any history of the child being unwell during the preceding days.

We have included in this group of sudden onset Case 41, in which the child was punctured at 1 a. m., having gone to bed well. This case might have been reported as one in which the child awoke with a stiff neck and high fever. Yet the parents of this child remembered that for two days previously there had been a slight and unimportant disturbance of the bowels. In other words, this case with sudden meningeal onset was an instance of typical dromedary course in which there was a preliminary hump so mild as almost to escape appreciation. Case 28, E. E. L., is another instance in which no history of early indisposition was obtained at the time of the acute onset. But later on, after the excitement of the affair was over, the mother recalled that the child complained of headache and malaise a day or two before.

In a few instances lumbar puncture has been made during what apparently was the systemic stage, and the fluid itself at this stage has been practically normal. There may be a slight suggestion of globulin increase, as appeared in two or three cases, but the pressure and volume of the fluid, in almost all instances, has been increased. The second puncture in these cases made

1. Flexner and Amoss: Jour. Exper. Med., 1914, **20**, 249.

after the signs of meningeal invasion have appeared has shown fluids with cell counts which were all above normal.

The accompanying scheme shows the plan of the foregoing interpretation of the disease. A recognition of the clinical course as described may have important bearing on the use of serum intraspinally. For as the experiments of Flexner and Amoss indicate, the injury of the choroid plexus of the meninges by the horse serum injection renders the animal more susceptible to central nervous system involvement. The question might arise, therefore, of the wisdom of giving an intraspinal injection during the period of systemic infection, or first hump. Such a procedure might conceivably convert the ordinary and usual case in which the systemic stage constituted the whole expression of the disease into a fully developed dromedary type with secondary meningeal invasion and paralysis. It must be remembered, however, that horse serum produces a more violent meningeal reaction than does the homologous human serum. But the latter is by no means a negligible quantity, for the severe pictures of meningeal irritation, with vomiting, opisthotonos and sometimes convulsions which follow human serum injections, are memorable events. Notwithstanding the intensity of these symptoms and their comparative frequency, no undesirable results have been seen to follow which are referable to the meningeal irritation. The alarming impression, however, that the child has been made much more acutely ill by the treatment is unwarranted, as the subsequent course has already proved. However, it has also been shown that after injury, set up by horse serum injection, if immune monkey serum be introduced into the canal the animal is protected from the results of intravenous injection of virus. Consequently the early use of immune human serum in human cases might be looked on as presenting possible alternative effects, on the one hand breaking down the choroidal defense, and on the other supplying the necessary antibody to neutralize the invading micro-organisms.

The discussion and interpretation of the clinical course of the disease has been of necessity an introduction to the presentation of the series of cases in which serum therapy has been carried out. The treated cases will be presented in groups as seen by different diagnosticians of the department. Some of these cases have been utilized as examples in the discussion of the clinical course of the disease.

SERUM GROUP

During the course of the study we were frequently impressed with the number of cases showing low cell counts in the first twelve to twenty-four hours after the meningeal invasion in which paralysis did not develop, and likewise the many patients with very high counts who became paralyzed. It was hoped that definite prognostic assistance might develop from this observation, but a careful subsequent analysis does not firmly establish the assumption. In fatal cases in many instances there were cell counts in the neighborhood of 1,000 or more. In the latter part of the epidemic when serum was plentiful, and the cases less violent, many patients with low cell counts were treated and recovered without paralysis. The deduction as to the therapeutic value of the serum treatment in these instances must be carefully guarded because of the fact that in many untreated cases with low cell counts the patients also escaped paralysis.

The tables constructed to show the number of hours elapsing between the onset of meningeal symptoms and the performance of lumbar puncture have been prepared with a view to comparing the results in the untreated and treated cases. A glance at these tables will show that while it is not an absolute fact that patients with a low cell count did not develop paralysis or that those with a high cell count always did, it is quite obvious that the tendency of the patients with the higher cell counts in the early hours is toward paralysis. It is indicated from these tables that after thirty-six hours the cell count in the spinal fluid is of little or no prognostic value whatever. This observation corresponds to that[2] reported in 1912. But in the cell counts in the first twelve or twenty-four hours there seems to be something of prognostic significance, as mentioned before in the general introduction. Group comparisons are not particularly valuable, especially in view of the difference in the severity of the cases according to the period in the epidemic during which they occurred.

REPORT OF CASES AS DESCRIBED BY EACH DIAGNOSTICIAN OF THE DEPARTMENT

PATIENT SEEN BY DR. HORAN

Case 17.—*History.*—M. S., boy, aged 2 years, of Northport, L. I., Sept. 11, 1916, was feverish, vomited once and was constipated.

September 12, the fever continued. The temperature was not taken.

September 13: The child was apparently well, and was up and about today and the following day.

September 15: The temperature was 103. The child vomited last night. The knee jerks were hyperactive on the left and diminished on the right. The neck was slightly stiff. There was a slight spine sign. There was no paralysis. There was slight weakness of the right leg in the sural group and anterior tibial. Lumbar puncture, at eighteen hours, revealed the fluid clear under increased pressure. The cell count was 640. Twelve c.c. of serum were given.

September 16: The temperature was 101.5. The neck was stiff and the spine sign was present. There was no paralysis or weakness. The knee jerks were unchanged. Lumbar puncture revealed clear fluid under increased pressure. The cell count was 700. Twelve c.c. of serum were given.

September 18: The temperature was 99.5. There were no new symptoms or signs.

September 23: The child was stuporous. There was no paralysis or weakness.

September 26: Weakness of the right leg came on this morning.

September 29: There was no return of power in the paralyzed leg.

Comment.—This was a very sick child. The puncture showed 640 cells and was done eighteen hours after the onset of the second hump. Two doses of serum were given, 24 c.c. in all. An interesting feature is the delayed appearance of the paralysis, eleven days after the onset of the second hump.

PATIENT SEEN BY DR. GARLICK

Case 20.—*History.*—H. K., boy aged 19 months, of Valley Stream, L. I., Aug. 26, 1916, felt feverish, the mother noticed, and later in the day began to vomit.

August 27: The child was very irritable, complained of pain in the back of the neck and head, and was extremely drowsy. There was no diarrhea or constipation. The child lay in bed with slight retraction of the neck. He was very irritable and evidently was in pain. The eyes were normal. The throat was congested. The cervical and inguinal glands were palpable. The lungs and heart were negative. There was slight weakness of the abdominal muscles. The extremities showed no apparent weakness. The knee jerks were

2. Monograph 4, Rockefeller Institute Series, 1912.

absent. Other reflexes were normal. There was a slight Kernig sign on both sides. Meningismus was marked. The temperature was 102, pulse 140, respiration 18. Puncture, after thirty-six hours, revealed slightly turbid fluid under slight pressure. The cell count was 950; globulin +. Fifteen c.c. of serum were given.

August 28: The patient was not so well. The diaphram was paralyzed. Respirations were rapid and difficult. The child was slightly cyanotic. There was no further paralysis. Fifteen c.c. of serum were administered.

August 29: The child was extremely cyanotic. The respirations were rapid, shallow and irregular. The pulse was 160, and very weak. The child grew worse and died at 3 p. m. from respiratory failure. Lumbar puncture was made probably thirty-six hours after the onset of meningeal symptoms. Weakness was already present. The cell count was 950.

PATIENTS SEEN BY DR. LEAKE

CASE 22.—*History.*—O. N., boy, aged 19 months, of Hempstead, L. I., Aug. 19, 1916, became restless and irritable. On the following day he was drowsy all day long and his mother stated that he had fever. He had not vomited.

August 21: Yesterday and this morning the child's arms have twitched convulsively at times. The temperature was 100.6. The child lay on his back in no apparent pain. His face flushed and the eyes were unusually bright. The neck was extremely rigid, and the child cried out when it was flexed. The throat was red. The cervical and inguinal glands were palpable. The chest and abdomen were negative. The muscles of the face and eyes were in a semispastic condition. The knee jerks were very sluggish. The Kernig sign was mild. When placed on his feet the patient was markedly ataxic. Lumbar puncture revealed a clear fluid under slightly increased pressure. The cell count was 620; Noguchi +++; Pandy +++; Ross-Jones +++. The patient was very sick and apathetic. At 3:30 the same day a lumbar puncture was performed and 15 c.c. of clear fluid withdrawn. Fifteen c.c. of serum were injected intraspinally. The child appeared bright. There was no definite paralysis, but the knee jerks were absent. It was desired to remove the child to a hospital, but there was no place to take him at the time.

August 22: At 9:30 a. m., 15 c.c. of clear fluid were withdrawn by lumbar puncture. Fifteen c.c. of immune serum were given intraspinally. The child appeared brighter. There was no definite paralysis, but the knee jerks were absent.

August 27: The child was drowsy. There was partial paralysis of the left lower extremity.

August 31: At 4 p. m. the temperature was 98. Paralysis of the left extensor groups continued. There was weakness of the same group in the right leg. Ankle and knee jerks were absent. There was slight spinal tenderness.

Comment.—Here the diagnostic puncture showing 620 cells was done about thirty hours after the onset of symptoms. Serum was not given until thirty-five hours after. The case was a very severe one. Paralysis did not appear until the seventh day. Two doses of serum were given, 30 c.c. in all.

CASE 25 A.—*History.*—C. L. P., boy, aged 10 months, of Sayville, L. I., Aug. 24, 1916, had green stools and a temperature of 102. Oil was given.

August 25: The child appeared much better and did not vomit. The temperature was 98.6.

August 26: The child was rather drowsy and irritable.

August 27: The temperature was 103.2. The fontanel did not bulge. The eyes were negative, the throat rather red. There was no rigidity of the neck. The cervical and inguinal glands were enlarged. The chest and abdomen were negative. The knee jerks were exaggerated, especially on the right side. Apparently there was some weakness of the right quadriceps and psoas. Lumbar puncture revealed clear fluid under increased pressure. The cell count was 50 at seventy-two hours.

August 29: Ten c.c. of serum were given at 11 a. m., at seventy-two hours. The temperature at this time was 103, and respirations about 80 per minute. The temperature rose in a few hours to 104, the respirations became more shallow, and at 7 a. m. it was thought that death would supervene. In a short time it was thought that the child could not swallow well. Since this time there has been a progressive improvement.

August 31: The child was reported as seemingly perfectly well.

September 1: Complete recovery had occurred. Paralysis of the pharynx was only transitory.

Comment.—This patient showed 50 cells at seventy-two hours. Ten c.c. of serum were given at seventy-eight hours. There was transient weakness of swallowing. The child was much worse after the administration of serum. The patient was breathing 80 per minute at the time the serum was given. The serum should have been withheld, but the father, a physician, insisted that it be given.

PATIENT SEEN BY DR. DRAPER

CASE 28.—*History.*—E. E. L., girl, aged 3 years, 10 months, of Oyster Bay, L. I., was suddenly seized at 10 a. m., Aug. 21, 1916, with pain in the back of the neck. She continued to play until 12 o'clock, when she gave up and began to be feverish. She became rapidly worse. At 3 p. m. her temperature was 102.6. At 7:45 p. m. it was 102.4. She was a well nourished child, and presented an acute febrile picture, with definite fine ataxic tremor on motion. The knee jerks were absent. She was apprehensive and nervous. There was no weakness. Spinal puncture revealed the fluid hazy, under normal pressure. The cell count was 2,430. Fifteen c.c. of serum were given.

August 22: At 7 a. m. the child was slightly improved. She had a fair night with six hours' sleep. The bowels had not moved and no food had been taken since the last visit. There were stiffness and tenderness of the neck and spine, and a positive Kernig sign in each leg. No paralyses or weaknesses were made out. The temperature was 102.2. Twenty c.c. of cloudy fluid were withdrawn under normal pressure. Examination of this fluid at the bedside showed it to contain 2,220 cells and no red cells. The globulin reaction was very marked. Fehling's reaction was positive.

August 22: At 9:30 p. m. the patient rather suddenly assumed an opisthotonos position. The temperature was 103. The face was quite flushed, the breathing somewhat rapid. Fifteen c.c. of serum together with 1.5 c.c. of epinephrin chlorid were given intraspinally. No cell count was made.

August 24: The temperature was about 1 degree lower than on the previous day. Opisthotonos still continued, and paralysis of the right arm with weakness of the left, with cyanosis of the lips and face and evidence that the accessory respiratory muscles are involved. Spinal puncture was performed. Fifteen c.c. of serum together with 1.5 c.c. of epinephrin were given. The cell count was 250.

August 25: At 10 a. m. the patient's condition was very poor. The temperature was high, the pulse rapid, the patient's appearance cyanotic. Two c.c. of epinephrin chlorid were administered intraspinally. The child died at 11:30.

Comment.—There was overwhelming infection. Puncture and first treatment ten hours after the onset of meningeal symptoms revealed 2,430 cells.

It is interesting to note that after two months the mother remembered, what she had failed to mention at the time of the child's sickness, that the child had been feeling poorly on the previous day. Possibly this case, then, which has been reported in the group of sudden meningeal onsets, belongs to the group of straggling courses with a very short duration.

PATIENTS SEEN BY DR. ST. LAWRENCE

CASE 41.—*History.*—K. McL., boy, aged 18 months, of Northport, L. I., Aug. 17, 1916, had slight diarrhea. His sister had the disease.

August 19: Child is in bed sleeping, with no history other than the slight diarrhea for two days. Constitutionally he seems well and was awakened for the purpose of examination and the taking of the temperature. Physical examination at 1 a. m. revealed the temperature 105; eyes, ears, nose, throat, heart, lungs and abdomen normal; neck and spine stiff and tender. The head would not flex on the chest. Suspension by the head and buttocks caused arching of the back and pain. Kernig's sign was positive in both legs. No paralyses were made out in any part of the body. The

reflexes were normal. Spinal puncture revealed clear fluid under normal pressure with a moderate globulin test. The cell count was 320. This child was well on going to bed after playing all day. Fifteen c.c. of serum were given intraspinally after drainage of the cord.

August 20: At 2:30 p. m. the child seemed better and took food fairly well. The bowels were about the same as before. The temperature had dropped to 103. The child seemed less toxic.

NOTE.—On the 18th the temperature showed a critical drop to 99, where it remained for about eight hours. On the 20th the temperature was 98. The child felt better and showed no paralysis.

August 21: At 2:30 p. m. lumbar puncture was performed and the cell count found to be 540. Fifteen c.c. of serum were given intraspinally.

August 6: A report from the boy's father stated that the boy showed a normal temperature three days after he was seen and that he had made a perfect recovery with no paralysis.

Comment.—This case is interesting because of the unusual way in which the disease was recognized. The meningeal invasion must have occurred between the previous evening and 1 a. m., when 320 cells were found. This patient received two doses of serum, 30 c.c. in all. The first treatment was not later than seven hours after meningeal invasion.

CASE 43.—*History.*—W. C., boy, aged 4 years, of Inwood, L. I., on the afternoon of Aug. 24, 1916, complained of not feeling well. He did not want to play. He had no pain. He did not vomit. The bowels moved only after medicine. The temperature was 101, the pulse 150. The pupils were unequal, and slow in reacting. The child was apathetic and hyperesthetic. The knee jerks were present, but slight. Kernig's sign was slight. The neck was stiff and painful. Lumbar puncture, at eight hours, revealed clear fluid under pressure. The cell count was 215.

August 25: The temperature was 101. The child was said to be about the same as before. The neck and back were stiff and tender with a considerable retraction of the former. There was no Kernig's sign or paralysis. The child appeared toxic and definitely of the meningeal type. Spinal puncture was performed; 15 c.c. of clear fluid were withdrawn. The cell count was 150. Fifteen c.c. of reddish serum from a cured patient received from Willard Parker were injected into the spine.

August 26: At 12:30 p. m. the temperature was 101. The child appeared to be more toxic and considerably worse than the day before. He had had two or three greenish, watery movements, which showed undigested grape and pear. He vomited once after serum injection; it was not projectile in type. Physical examination revealed the neck and back markedly retracted. Kernig's sign was marked. The lips and tongue were very dry and cracked. The child was very toxic. There was no paralysis. By spinal puncture, 15 c.c. of very cloudy fluid were obtained. There was no evidence of reddish color. The cell count was 5,600. Leukocytes were present. There were no red cells. The globulin test was +++. The differential count revealed polymorphonuclears 81 per cent., lymphocytes 19 per cent. Film stained by Gram stain revealed no organism. Culture remained sterile at forty-eight hours. Fifteen c.c. of serum were injected intraspinally.

August 27: The temperature was 100. The child was much better. There were stiffness of the neck and retraction. Kernig's sign was present, but less marked. There was no paralysis. The bowels were in better condition. The appetite was good. The cord was tapped and drained. Fifteen c.c. of clear fluid were obtained. The globulin test was +. The cell count was 580. No serum was injected.

August 29: The child was improved. The temperature was 99. The neck was slightly stiff.

August 31: The neck was slightly tender, but otherwise normal. The temperature was 98. There was no paralysis.

September 8: The general condition of the patient was good. He was up in a wheeled chair. There was slight weakness of the legs. When walking there was a slight give at the knees. Knee jerks were present.

September 15: The interossei and lumbricales of the right hand were paralyzed and there was slight clawlike contracture.

Comment.—The initial puncture in this case was made about eight hours after the onset of symptoms, and revealed 215 cells. The child was very ill. At twenty-six hours a second puncture was done, showing 150 cells. Fifteen c.c. of serum were given. Note the increase of cells to 5,600 following this procedure, and also the marked opisthotonos. After the second injection the cell count dropped to 580. This patient, as many others, became much more acutely ill following the intraspinal injection.

II. SERUM TREATMENT

Obviously no general conclusions can be drawn from a study of the tables and the foregoing serum treated cases. Each instance must be considered separately. But in the study of these cases several interesting points appear. In the first place, further excellent examples of the various types described in the first section are presented, and certain unusual events, notably the delayed paralysis (Cases 17 and 22), and the pressure symptoms after treatment (Cases 12, 29, 32, 42, 43 and 25 A). Whether or not the serum played a part in delaying the paralyses in those cases is still an open question. Of somewhat similar nature, perhaps, is the observation that in the treated group there are rather more instances of partial paralyses and transient weakness than in the untreated group. The matter of pressure effect following intraspinal injection is most important and should be specially emphasized. In a number of cases undesirable symptoms followed treatment and seemed to be the result of it. Two main types of disturbance appeared, one presenting the aggravation of symptoms of meningitis common to all therapeutic intraspinal injections and to which reference has already been made above (Cases 42 and 43 are examples). The other undesirable reaction is much more alarming, and consists of respiratory embarrassment with general collapse. The breathing becomes rapid and shallow, and often irregular (Cases 12, 25 A, 29, 32 and 36). In most instances these symptoms rapidly disappear following the release of spinal fluid by lumbar puncture; and it was later learned that they could be avoided by using small quantities of serum (from 5 to 10 c.c.) and slow injection after removal of a larger amount of spinal fluid. It is conceivable that death may be hastened in cases in which serum is given in too large doses and too rapidly, after involvement of the centers of the respiratory muscles has begun. That these occasional instances of the undesirable effects of intraspinal injection occur in the treatment of meningitis also is well known; but in that disease, as in poliomyelitis, they are the exception. By withholding immune serum from the individual suffering with poliomyelitis, the patient may be exposed to a greater and far more frequent danger than that contained in the rather rare chance of intracranial pressure disturbances.

An analysis of the treated cases shows that four cases in which weakness or paralysis was already present when the first serum treatment was given are reported in this series to show that in these instances at least there was no restraining effect on the advancing process (Cases 1, 10, 20 and 21).

Another group which seems not to have been influenced by the serum consists of those cases with low cell counts (from 50 to 150 per cubic millimeter), and an isolated facial palsy. This is a very definite type of case, is always mild, and the facial weakness almost always clears up whether treated or not.

The remainder of the series is composed of cases which represent as nearly as possible average examples of this multiform disease. There are numerous instances in which serum was given and paralysis occurred, and numerous instances in which paralysis did not occur. The only thing which differentiates many of the cases is the clinical impression at the time of treatment, and this cannot be transmitted adequately in words.

One thing seems to stand out fairly clearly—the need for early introduction of the serum. Working from the hypothesis that the serum operates by neutralizing the virus which is free in the spinal fluid, and so intercepting it on its way to the nerve tissue, we attempted to give the serum as soon after penetration of the meninges had occurred as possible. But there may be an additional therapeutic value brought about through the penetration of the serum directly into the nerve tissue, as discussed by Mott,[3] Flexner[4] and others. In the dromedary type of case the moment of meningeal involvement is often marked with amazing sharpness, and if a child has been under constant and careful observation during the first hump, and intermission, it has been possible in several instances to treat within a few hours of the onset of meningeal stage, or second hump.

In cases of the straggling type unfortunately the greatest difficulty is often found in recognizing from clinical signs the moment when the invasion of the meninges occurs. If the serum is regularly withheld until this event takes place there may well be loss of valuable time, for in this disease time is an important factor after penetration of the meninges has been completed. Consequently every effort should be focused on the detection of meningeal involvement at the earliest possible moment. In some instances the baffling phenomena of greatly increased cell count without clinical signs of meningitis demonstrates the difficulty of the problem (Cases 11, 14, 20, 21, and 24). Occasionally in the absence of the spine sign (painful anterior flexion of the spine) or negative Kernig, a marked onset of drowsiness seems to have been the signal of meningeal invasion. In a few instances loss of one ankle or knee jerk has been the only indication of disturbance of the central nervous system. But these may not mark the beginning. With this difficulty in view, the question arises whether the use of serum is not perhaps indicated before signs of central nervous system involvement appear. The occurrence of multiple cases in a family is so common that this indication becomes stronger for the treatment of a child developing fever in a family in which one member is already stricken.

When we consider these recorded facts and impressions regarding the use of immune serum, including a recognition of the dangers attendant on all subarachnoid injections, small though they be, the question arises of the degree and advisability of resorting to the serum at all. This question must ultimately be decided both on statistical grounds and on clinical impressions and observations. As regards the former, the series of cases here reported is inconclusive. As regards the second consideration it should be stated that all the men working in our special field last summer came to feel that the serum possessed definite and often striking power to prevent paralysis. But the impression was also gained that the serum was of benefit in those cases in which it was given within thirty hours from the time of appearance of signs of meningeal invasion. That the serum is of far less value after the advent of paralysis would appear to be the fact. Yet even that point is one not easily decided, and what the limit of its value may be can be determined only from a far larger series of cases.

In this connection our observations should also be compared and correlated with those of Netter,[5] whose views on the value of the serum are somewhat more positive than ours. He is definitely of the opinion that cases treated after paralysis has appeared clear up with a speed and completeness that would be impossible without the use of serum. In the final analysis of his latest series of thirty-two cases he concludes finally that there are six cured absolutely, etc.

But on reading the protocols of the cases one does not feel the justification of the conclusions. For example, Case XXX of his series presents the typical picture of profound stupor and a facial paralysis. So many examples of this rather common variety of the disease have been noted in the past few years, and have been recognized to have an unusually good prognosis, that it is somewhat difficult to credit the serum unequivocally in this particular instance.

Obviously Netter finds himself in much the same position as we do. The statistical proof rather fails, but the clinical impression that serum is of great value is a strong note in his contribution.

The notion we have formed from this small and inconclusive series is that once the meningeal invasion is established, that is, from twenty-four to thirty-six hours after the onset of clear meningeal signs, the chances of arresting the progress of the disease in the central nervous system are already seriously diminished. All this merely means that the serum, if it be employed, should be used early, which in turn means prompt diagnosis through careful watching and the lumbar puncture findings. The evolution of the disease is rapid and its course must be considered in terms of hours, not of days. Consequently any child who develops febrile symptoms without adequate and obvious cause, and then promptly recovers, or straggles along half sick, should be watched for the ensuing week with greatest care lest the sudden appearance of a meningeal invasion, insidiously striking while the child is at play, or sleeping, take the family and physician unawares and valuable time be lost. But so long as other, surer and hence better methods of treatment are not available, it is doubtful whether in individual instances we are justified in withholding the serum even at a later stage of the disease than here considered as most promising. The problem is one to be weighed pro and con in the individual case, and will doubtless to some extent be decided by circumstances and predilection, and whether or not serum is readily available.

Remembering that it is human serum we are forced to use at present, the supply must always be limited. There must be a choice, too, as regards source—the medical history of the donor and the length of time since he suffered an attack of poliomyelitis. While it is true that neutralizing bodies may still be detected several years after recovery from the acute disease, yet analogy would suggest the advisability of choosing

3. Mott: The Olive Sharper Lectures, Lancet, London, 1910, **2**, 79.
4. Flexner, Simon: The Local Specific Therapy of Infections, THE JOURNAL A. M. A., Aug. 16, 1913, 447; The Local Specific Therapy of Infections, Nov. 22, 1913, p. 1872.
5. Netter, A.: Bull. de l'Acad. de med., 1915, **74**, 403.

persons more recently affected. Netter believes the most potent serum is found in individuals whose acute attack lies between three months and four years in the past. It is, of course, always possible that one specimen of serum is less active than another; hence pooling of the supplies should be practiced when collected, as they should be, in advance and in anticipation of the occurrence of cases of epidemic poliomyelitis.

ABDOMINAL HEMORRHAGE OF OVARIAN ORIGIN

WITH REPORT OF A CASE DUE TO RUPTURE OF A SMALL FOLLICULAR CYST *

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The first thought of every surgeon who, on opening the abdomen of a woman, finds it full of blood, is that a ruptured extra-uterine gestation has been the source of the bleeding. In the great majority of cases, this surmise proves to be correct. Although the condition of "hematocele retro-uterina" had been described by Nélaton as far back as 1850, it was not until 1873 that Gallard emphasized the importance of ectopic gestation in the causation of such hemorrhages. Previous to that time, pelvic hematocele had been explained as due to such causes as rupture of varicose veins in the broad ligament, reflux of menstrual blood through the fimbriated extremities of the tubes, coitus during menstruation, etc.

At the present time gynecologists are still, and quite properly, inclined to look on the existence of free bleeding in the pelvis, whether or not it extends into the abdominal cavity proper, as prima facie evidence of an ectopic gestation. A recent case, however, has impressed me with the fact that grave abdominal hemorrhage is not by any means "pathognomonic" of extra-uterine pregnancy, and that its source is not necessarily the wall of a tubal gestation sac. In the case under discussion, the hemorrhage had its source in a ruptured follicular cyst of the right ovary. Before discussing the general subject, it may be well to detail briefly the history of this case.

REPORT OF CASE

A. M., a white girl, aged 15, single, whom I was called to see at 8 p. m., Oct. 9, 1916, through the kindness of Dr. Arthur L. Tumbleson, had been taken quite suddenly at noon on that day with violent pain in the *right* iliac fossa, nausea and some vomiting. There was no pain in the left side. When seen by Dr. Tumbleson at 7 p. m. there was definite rigidity of the right rectus, the pain was still localized in the right iliac fossa, and the patient was pale and prostrated. The temperature was 99 F. and the pulse 120. My own examination, made an hour later, confirmed that made by Dr. Tumbleson. We both felt that we were dealing with a case of acute appendicitis. As a matter of fact, the only discrepant symptom was the patient's marked pallor, suggesting the possibility of internal hemorrhage, due perhaps to ectopic pregnancy. No support for this idea could be obtained either from the patient's history or from physical examination. Menstruation had commenced at the age of 14, and had been somewhat irregular during the first year, but had recurred regularly every four weeks since then. The last period had occurred, September 30, ten days previously, and had been normal in amount and duration. There was no history of any subjective symptoms of early pregnancy. Rectal examination showed the uterus to be small and anteflexed. Nothing definite could be made out in the sides of the pelvis.

The patient was transferred to Mercy Hospital for operation. Blood examination, made just before operation, revealed a leukocytosis of 20,000, with 90 per cent. polymorphonuclears. Hemoglobin was estimated at 45 per cent. The pulse had risen to 138, temperature to 100.2 F., and shock was pronounced. There was no air hunger.

The abdomen was opened by a right rectus incision. As soon as the peritoneum was reached, the bluish shimmer through it told at once that we were dealing with an intraperitoneal hemorrhage, and we naturally thought at once of ectopic pregnancy. When the peritoneum was incised, a large quantity of liquid blood escaped. As all the patient's pain had been in the right iliac fossa, the right tube was quickly brought up into the incision. To our surprise it was normal. The left tube, on the other hand, was found to contain, at about its middle, a small dark bluish nodule measuring only about 1 cm. in diameter. This I assumed to be a tubal gestation, although its surface was absolutely smooth, without any point of rupture. Furthermore, the remainder of the tube, both proximal and distal to the nodule, appeared normal. The fimbriated end was free and there was no sign of bleeding from it, as in a tubal abortion.

Since the patient's symptoms had pointed so definitely to trouble on the right side, the right adnexa were again quickly examined, in spite of the patient's rather alarming condition. The tube, as stated, was normal in every way. The right ovary, while perfectly free from adhesions, showed on its surface a mound of somewhat ovoid form, measuring 2.5 cm. in length, and extending over most of the length of the ovary. It was evidently a simple follicular cyst. At its summit was an irregular opening, apparently a point of rupture, to which was adherent a dark blood clot. The opening and the cavity to which it led were stuffed with clots. The walls of the cyst were thin, and there was no macroscopic suggestion of lutein tissue. Owing to the condition of the patient, it was considered inadvisable to resect the cyst-bearing portion of the ovary. Two deep figure-of-8 sutures of chromic catgut controlled the entire cyst cavity. The left ovary and also, I may add, the appendix, were quite normal.

At the close of the operation, the patient was markedly shocked, so that the advisability of a transfusion was considered. Response to saline rectal infusions and stimulants was so prompt, however, that it was not resorted to. Recovery was uneventful.

COMMENT

A search of the literature indicates the great rarity of this form of abdominal hemorrhage. In a complete survey made by von Beust[1] in 1914, records are given of thirty-six cases which had been collected from the literature up to that time. Since then, only three other cases have been reported, by Lipscomb, Dansey and Browne.[2] My own case would thus seem to be the fortieth on record, although there can be little doubt that many others have either been unrecognized or else not reported. I may add that the foregoing figures do not include the cases of hemorrhage resulting from ruptured ovarian pregnancy, or that which accompanies the occasional rupture of large ovarian cysts.

The point of special interest in my case, aside from the ruptured follicular cyst on the right side, was the existence of the tiny unruptured tubal pregnancy on the left side. Although I felt sure, for the reasons noted above, that the hemorrhage could not have come from this tube, it seemed wise to invoke the aid of the microscope in the settlement of this point. In view of the well known interest of Prof. Franklin P. Mall in

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1. Von Beust: Lebensbedrohliche intraperitonealle Blutungen aus geplatzten Folliculär—und Lutein—Cysten des Ovariums, Inaug. Diss. Zurich, 1914.

2. Lipscomb, Dansey and Browne: Med. Jour. Australia, 1916, 2, 57.

the subject of extra-uterine pregnancy, I submitted the specimen to him for study, with the request that he determine, if possible, whether the bleeding might by any chance have come from the tube. In his preliminary report he said:

> We find that the enlargement in the middle third is due to a distention by a blood mass embedded in which is a chorionic sac, its villi extending out irregularly into the blood clot. Within the chorion is a partially contracted amnion separated from the chorion wall by a gelatinous magma. There is no trace left of the embryo. It is evidently rather a long standing ectopic pregnancy which did not stop the menstrual periods. It would be interesting to question the patient further as to whether or not in the past there was a delay of menses. The clinical history of a hemorrhage in this case is an interesting one, and it seems very likely that the hemorrhage occurred from the ruptured cyst in the ovary. The clot in the left tube seems to be an old one and there was no evidence of recent bleeding.

It seems to me, therefore, that the evidence is quite complete that the hemorrhage had its origin in the ruptured cyst and not in the pregnant tube.

The Coexistence of Tubal Pregnancy.—The association with a tubal pregnancy on the opposite side must be looked on as a rather remarkable coincidence. I have been able to find no explanation for such an association. While a number of cases have been recorded in which ovarian hemorrhage occurred in connection with intra-uterine pregnancy, the case here recorded appears to be the only one in which it was noted in connection with an unruptured ectopic pregnancy.

In one other case, however, that of Hedde,[3] there was, in addition to a ruptured corpus luteum cyst of the left ovary, also a ruptured tubal pregnancy on the right side. The latter was almost surely responsible, in large measure at least, for the large amount of blood found in the abdominal cavity. Hedde refers to a case reported[4] in 1848 under the caption of "Rupture of Tube and Ovary, Followed by Internal Hemorrhage and Exitus." In this patient death occurred twenty hours after the onset of pain, with symptoms of internal hemorrhage. Necropsy revealed, in addition to a ruptured right tubal pregnancy, that the left ovary was enlarged to the size of a small apple, its interior filled with blood, and its surface showed a rupture "one third a thumb breadth" in size.

Theoretically, it might be thought that pregnancy, either normal or ectopic, might exert a predisposing influence on account of the associated hyperemia. In my case, however, the tubal pregnancy was very small, and possibly, as Professor Mall suggested, old and retrogressive. Further questioning of the patient after operation, I may add, failed to throw any additional light on this possibility.

Causes of Hemorrhage from the Ovary.—The causes of abdominal hemorrhage emanating from the ovary — what might be called perforative ovarian hemorrhage — are in large measure similar to those of ovarian hemorrhage of the nonperforative type, in which the hemorrhage is confined in the ovary, giving rise to hematomas of various sizes. The causes and types of hematoma of the ovary I have discussed in another paper.[5] The principal predisposing factors, as might be expected, are conditions which bring about hyperemia of the ovary, with engorgement of its vessels. This hyperemia may be of either the active or the passive type. Practically always, as my study of hematomas has shown, the bleeding occurs from the thecal vessels of structures derived from graafian follicles. Frequently it comes from the walls of atretic follicles, but even more often from the walls of corpora lutea or corpus luteum cysts. The occurrence of free bleeding from the ovary into the abdominal cavity would thus depend largely on the location of the follicular structure involved. If it lies near the surface, it can easily be understood that the thin wall may be broken through by the blood which escapes from the engorged blood vessels in its walls, and free abdominal hemorrhage thereby results.

The Rôle of Trauma in the Causation of Ovarian Hemorrhage.—In nine cases, according to von Beust, trauma was thought to play a rôle in the causation of the hemorrhage. Neumann's patient is said to have died immediately after washing clothes. In Lockyer's case the rupture occurred during a dance, in Patruban's as the result of a misstep, and in those of Rosenberger and Jones it was the result of intrapartum compression of the ovary. Finally, mention may be made of the case reported by Marshall, in which severe abdominal hemorrhage followed rupture of a small ovarian cyst by bimanual examination. This accident is, I am convinced, a not uncommon one, although it is not always recognized. There are probably few gynecologists of large experience who have not had personal experiences of this sort. It is extremely easy to rupture a thin-walled cyst by bimanual examination, especially under anesthesia. I recall distinctly the rather startling sensation produced in a recent case by the collapse between my fingers of a small thin-walled cyst of the ovary during examination under ether preliminary to laparotomy. When the abdomen was opened, the small, flattened cyst, which had been about the size of a walnut, was readily seen. Fortunately it had caused only a small amount of bleeding, less than a tablespoonful of blood being found in the pelvis.

Source of Bleeding.—In the case herein reported the bleeding came from an atretic follicle, constituting what we clinically designate as a follicular cyst. This I feel justified in saying even without microscopic examination, which, unfortunately, was not possible. The thin walls, without a yellow layer, are reasonably good proof that it was not a corpus luteum structure, which can usually be easily recognized with the naked eye. Nor was there the slightest ground for suspecting the existence of that rara avis, an ovarian pregnancy.

Of twenty-three cases in the literature in which the source of the bleeding is mentioned, a corpus luteum or corpus luteum cyst is given in eighteen cases, and a follicular cyst or atretic follicle in five, including the one here reported.

Degree of Hemorrhage.—The amount of blood escaping into the abdominal cavity varies between rather wide limits. In some cases it is quite small, being confined altogether to the small pelvis. This, for example, was the condition in the cases of Jayle and Neumann. In that of Armin Müller, also, it is stated that only 2 tablespoonfuls of blood were lost. In much the larger number of cases, however, the amount of abdominal hemorrhage was very large, and, in quite a number, cataclysmic. This is true of the case I have herein reported. The patients of Bürger and Cohn each lost 2 liters of blood, Sudeck's patient 1.5 liters; in Puech's fatal case the patient lost 3 pints of blood, and Scanzoni's patient, who also died, is

3. Hedde: Ueber Ovarialblutungen, Inaug. Diss., Freiburg, 1913.
4. Pollard: Lancet, London, 1848.
5. Novak, Emil: Bull. Johns Hopkins Hosp., to be published.

stated to have lost 6 pounds of blood. Other fatal cases are those reported by Trousseau and Valliset.[6]

Clinical Characteristics.—There is nothing characteristic in the symptomatology of ovarian hemorrhages, and hence they are rarely diagnosed until the abdomen is opened. In the milder cases one might expect that the occurrence of menstrual disorders would assist in the diagnosis. As a rule, however, menstruation does not seem to be much disturbed. Certainly there is nothing characteristic in the menstrual histories of the cases which have been reported. In both the mild cases and those of more acute type, it would be of great interest to determine whether or not the hemorrhage occurs by predilection at any one phase of the menstrual cycle, and especially whether or not it bears any relation to the period at which ovulation is believed by many to occur, that is, on about the tenth to the fourteenth day. Unfortunately, however, few of the authors who have reported cases make mention of the menstrual dates, and not a few give no menstrual history whatever.

In the acute or cataclysmic cases the onset is sudden. Pain is often violent and is located over the affected side, although it often spreads to other parts of the abdomen. Nausea and vomiting are common symptoms. In right sided hemorrhage, therefore, it is easy to understand why these cases have usually been diagnosed as acute appendicitis. Blood examination is likely to increase the deceptiveness of the picture, for moderate leukocytosis is the rule. If the internal hemorrhage is great, the characteristic anemia and perhaps air hunger may make one doubt the existence of a simple appendicitis. The pulse is accelerated to a degree depending on the amount of bleeding and the degree of accompanying shock. As in other forms of internal hemorrhage, the temperature may be subnormal, though this is not always the case. In at least eight of the reported cases, the diagnosis of acute appendicitis is stated to have been made.

Perhaps even more frequently, hemorrhage of ovarian origin is mistaken for extra-uterine pregnancy. Here again the sudden onset, with symptoms of grave internal hemorrhage, are the misleading elements in the picture. The diagnosis of ectopic gestation was made in nine of the reported cases.

These two examples will illustrate sufficiently the difficulty — one might almost say the impossibility — of diagnosing ovarian hemorrhage with any degree of precision. The possibility of its existence, however, should always be borne in mind in cases of supposed acute appendicitis in women, especially when there are also symptoms of internal hemorrhage. It is equally important, both before and after opening the abdomen, to know that frequently the clinical picture of ruptured ectopic pregnancy is closely mimicked by hemorrhage originating in the ovary.

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6. In addition to the references already given, the following will be found of interest:
Stein: Ueber Hemorrhagien der Ovarien bei schwerer Anämie, Inaug. Diss., Halle, 1898.
Engstrom: Arch. f. Gynäk., 1907, **132**, 60.
Oehmen: Monatschr. f. Geburtsh. u. Gynäk., 1913, **38**, 283.
Tate: Am. Jour. Obst., 1905, **51**, 653.

Degrees of Feeblemindedness.—The condition of feeblemindedness varies from the most profound degree, in which there is but a glimmer of intelligence, to that in which the defect is apparent only in the highest levels of mental activity, and which is not incompatible with the ability to acquire a large store of information nor to earn a living.—Treadway, *Public Health Report,* Nov. 24, 1916.

USE OF THYMOL IN TREATMENT OF HOOKWORM DISEASE*

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During an intensive campaign for the detection and treatment of hookworm disease in Trinidad, British West Indies, under the direction of the surgeon-general of the colony, experiments were conducted for determining the efficacy of thymol when administered in capsule form with varying proportions of lactose and with sodium bicarbonate. The routine method employed in the treatment of the disease was to give each patient two treatments (the drug being administered in every instance by a trained assistant), one week apart, and then make a microscopic examination, using the centrifuge, six days after the second treatment, of a specimen of the bowel excretion to determine whether or not a cure had been effected. In making the experiments the drug was administered in each case by the same assistants, in the same manner and the same doses, and to patients living under the same conditions.

TABLE 1. — EFFECTIVENESS OF PURE THYMOL, AND THYMOL WITH VARYING PROPORTIONS OF LACTOSE

District	No. of Patients	Drugs	Patients Cured by Two Treatments No.	Per Cent.
1.	325	Pure thymol	41	12.6
2.	1,112	Thymol and lactose, equal parts	546	49.1
3.	350	Thymol and lactose, unequal parts	76	21.7

For the purposes of the first experiment, three districts were selected; the persons found by microscopic examination to have hookworm disease were treated in the first district with pure thymol and in the second and third districts with mixtures of thymol and lactose. Among the 325 patients treated with pure thymol, finely powdered, only forty-one, or 12.6 per cent., were cured by two treatments. In the second district, the 1,112 patients were treated with finely powdered thymol mixed with equal parts of lactose, and 546, or 49.1 per cent., were cured with two treatments. The 350 patients of the third district were treated with a supply of thymol already mixed with lactose and placed in capsules by the manufacturer. This thymol was not as finely powdered as that used in the first two districts, and the capsules were made up of the following proportions of the two drugs: 10 grains of thymol to 2½ grains of lactose; 5 grains of thymol to 5 grains of lactose (but not finely powdered), and 2½ grains of thymol to 1 grain of lactose. In this district only seventy-six of the 350 patients, or 21.7 per cent., were cured by two treatments. On recompounding the mixtures and adding lactose sufficient to make the proportion of the drug equal to that of the thymol, the number of cures following two treatments again rose to nearly 50 per cent.

These results, as shown in Table 1, demonstrate that thymol is much more effective in the treatment of hookworm disease when it is finely pulverized and mixed with at least an equal amount of lactose.

In the routine treatment of cases of hookworm disease with the mixture of equal parts of thymol and lac-

* The experiments described in this paper were made during a campaign conducted by the International Health Board of the Rockefeller Foundation and the Government of Trinidad.

tose, it was found that more than 30 per cent. of the patients suffered unpleasant gastric symptoms after the administration of the treatment. In the great majority of instances these after-effects consisted merely of a burning sensation and slight gastric pain, though in a few cases they were more severe and were accompanied by nausea and vomiting. These mild cases of gastric disturbance were found to be relieved by having the patients take a small amount (from 30 to 40 grains) of sodium bicarbonate dissolved in a glass of water. Sodium bicarbonate was first used in this manner in the treatment of thirty-two average cases, the soda being given at the time the thymol was administered. The result was that the number of instances of noticeable gastric disturbance after medication was greatly reduced, being present in only four, or about 12 per cent., of the cases; and on reexamination after two treatments it was found that seventeen, or 53.1 per cent., of the patients were cured. This would seem to indicate that the sodium bicarbonate, in addition to preventing the gastric disturbances caused by the thymol, also makes the thymol more effective, since the average number of cures after two treatments with the mixture of thymol and lactose, in more than 5,000 cases, was about 48 per cent.

An equal part of sodium bicarbonate was then mixed with thymol and used in treating the patients in the

TABLE 2.—EFFECTIVENESS OF THYMOL-SODA AND THYMOL-LACTOSE

	Drugs			
	1. Thymol-Soda		2. Thymol-Lactose	
Persons cured by:	No.	%	No.	%
Two treatments	69	51	66	43
Four treatments	44	83	51	76
Six treatments	17	96	31	96
Seven treatments	6	100	6	100
Total	136		154	

first of two districts, while the usual mixture of lactose and thymol was employed in the second district. In the first district of 136 patients, sixty-nine, or 51 per cent., were cured by two treatments, and 113, or 83 per cent., by four treatments; while in the second district of 154 patients, sixty-six, or 43 per cent., were cured by two treatments, and 119, or 76 per cent., by four treatments. This shows a greater effectiveness on the part of the sodium bicarbonate mixture of 8 per cent. at the end of two treatments and of 7 per cent. at the end of four treatments.

In the first district, in which the thymol and sodium bicarbonate were used, the population was composed almost entirely of East Indian coolies and the percentage of infection was high, being 95.2 per cent. of the entire population. In the second district the percentage of infection was lower, being 82.5 per cent., while the population was made up of about equal numbers of negroes and East Indians. The degree of infection is usually more severe and the individual cases more difficult to cure in districts having high percentages of infection, the large proportion of infected persons and the absence of sanitary conditions in such districts always tending to produce a constant source of infection. Then, again, in districts composed of East Indians, because of their insanitary mode of living, there are always large numbers of heavily infected cases.

Table 2 gives in detail the results obtained in the two districts.

The experiments have hardly been extensive enough to justify a definite conclusion as to the relative merits of the sodium bicarbonate and the lactose mixtures, but so far as thymol mixtures are concerned, the experiments show the superiority of thymol and sodium bicarbonate in treating hookworm disease. Sodium bicarbonate is much less expensive than lactose, and its use means quite a saving in large intensive campaigns, such as are being conducted in many of the tropical countries.

AN EPIDEMIC RESULTING FROM THE CONTAMINATION OF ICE CREAM BY A TYPHOID CARRIER

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Twenty-nine persons attended a country school picnic at Helm, Calif., May 13, 1916. That evening, many of those in attendance were taken with nausea, vomiting and diarrhea, suggestive of an acute intestinal intoxication or infection. These symptoms were of about two days' duration; with two exceptions, however, all of those thus affected developed typhoid fever in about eight days. As acute intestinal disturbances often precede an epidemic of water-borne typhoid, it will be noted that this food-borne epidemic was similarly preceded by antetyphoidal acute intestinal symptoms.

The sick were members of ranchers' families living miles from the nearest physician. Every home in the small farming community had one or more inmates desperately ill with typhoid, and practically every rancher loaded his sick on farm wagons and carried the family to the nearest town. On the outskirts the families camped in a field, tents were erected, and the local medical men and nurses established an outdoor hospital for the sick, who were arriving daily from the deserted ranches. Twenty-three persons came down with the disease, and three of these died, a mortality of 13 per cent. One died as a result of intestinal perforation, and the remaining two from extreme intoxication. The blood of twenty patients was tested, and all gave positive Widal reactions.

At the request of the local health officers, the California State Board of Health, through the Bureau of Communicable Diseases, made an investigation to determine the source of the epidemic.

It was found that the school picnic was the only function attended by all those who were ill, and that the time elapsing between that event and the onset of the disease ranged from five to twelve days, giving an average incubation period of eight days.

The articles of food served were pickles, sandwiches of chicken and minced ham, homemade sausage, potato salad, mayonnaise dressing, muffins, cake and ice cream.

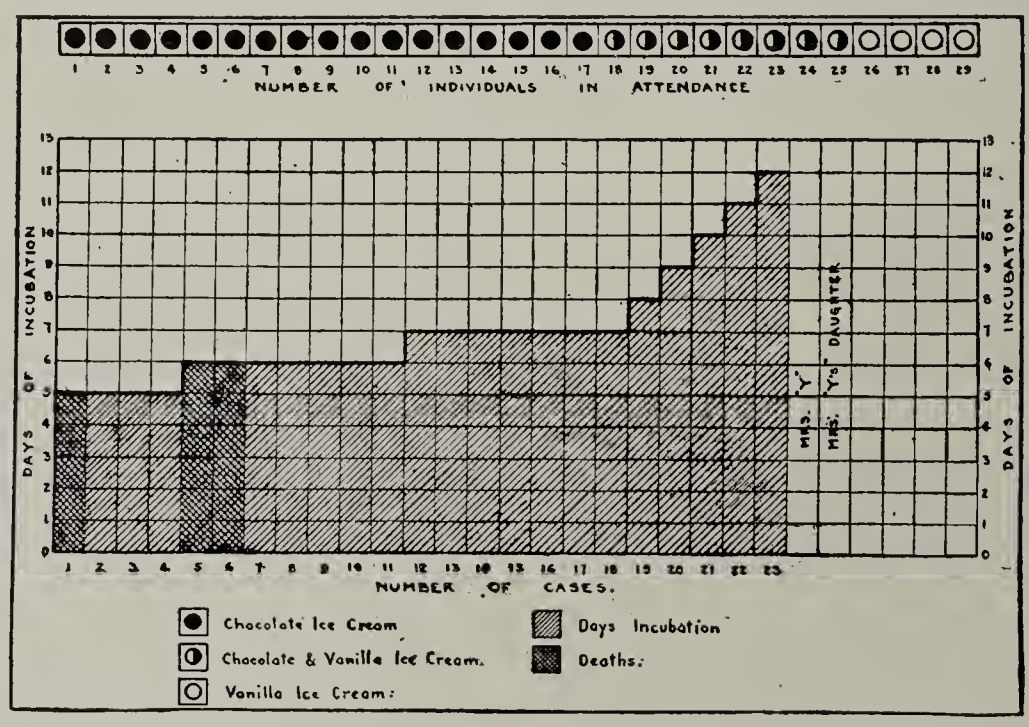
In tracing the source of the infection it was found that only one of these articles of food had been partaken of by all in attendance: the ice cream. Of this there had been two kinds, vanilla and chocolate. Chocolate had proved the more popular; four late comers found only three portions of this ice cream, and the fourth member had vanilla only. This boy did not become ill at all; on the other hand, every one who had eaten of the chocolate ice cream — even those eating nothing else — developed first the intestinal intoxication and subsequently typhoid fever. In fact, one unfortunate who ate four dishes was seriously ill from

the onset, and the case terminated fatally. There were two exceptions: although Mrs. Y., the maker of the chocolate ice cream, and her daughter ate the ice cream and suffered from the nausea, vomiting and diarrhea, they did not develop typhoid fever.

It became evident that the chocolate ice cream was the source of the infection, as:

1. Those not partaking of it did not become ill.
2. Those partaking of it, but of no other food, were taken ill.
3. Those eating chocolate ice cream were taken with acute intestinal symptoms indicating that the conditions under which it had been produced were favorable to bacterial multiplication.
4. Those eating the largest amount of chocolate ice cream were the most seriously ill, both with acute symptoms of intestinal intoxication and with typhoid fever, while those who ate but sparingly were only slightly ill.

From the accompanying chart it will be noted that twenty-nine persons attended the picnic; seventeen ate chocolate ice cream and eight had chocolate and vanilla, making a total of twenty-five who partook of the chocolate ice cream. Twenty-three of these developed typhoid fever, only Mrs. Y. and her daughter escaping infection. It will be noted that the majority of the incubation periods were of short duration, the average being eight days, and that the three fatal cases were of five and six day incubations.



Number in attendance, number of cases, incubation period and fatalities.

As the chart indicates, six ate a mixture of the chocolate and vanilla, and the same number show the longest incubation periods; on the other hand, eighteen ate chocolate only, and eighteen had comparatively short incubation periods, suggesting that the larger the portion of chocolate ice cream eaten the greater the infection, resulting in a shorter incubation.

Mrs. Y. prepared the chocolate ice cream. The cream was not obtained by mechanical separation and used immediately, but by skimming the milk of the preceding day. Ground chocolate was stirred into a mixture of milk, eggs and sugar. This combination, after being heated, then cooled, and added to the cream which had been whipped, was left in the freezer — without being iced — from 6:30 in the morning until 1 o'clock, when it was frozen. The method used in preparing this ice cream offered opportunity for contamination, and in addition the temperature was favorable for bacterial multiplication.

IDENTIFICATION OF THE CARRIER BY LABORATORY EXAMINATION

Specimens of stool were secured from all the members of Mrs. Y.'s family as well as all those in the family of Mrs. L., who made the vanilla ice cream. Of all the stools examined, the typhoid bacillus was isolated from but one specimen — that of Mrs. Y. Morphologically, culturally and serologically, this isolated strain was typical of the typhoid organism.

On questioning, the following typhoid history was elicited: Mrs. Y. had had typhoid fever seventeen years ago while living in Kansas. Of her immediate family, the son had typhoid fever, and the daughter, in whom there is no history of typhoid, was given antityphoid vaccine two years ago. During the last five years, six district school teachers had boarded at the home of Mrs. Y., who cooked for the household; while living here four of these teachers developed typhoid.

The blood of Mrs. Y. gave only a fair Widal reaction. In a dilution of 1:50 after an exposure of one hour, although there was clumping, there were numerous free organisms which were motile. As explanatory of this inconclusive Widal reaction it may be pointed out that this biologic phenomenon is brought about by a parenteral digestion of typhoid bacilli. As in typhoid carriers, the organisms grow practically outside the body, it is obvious that the Widal reaction would not be more evident in typhoid carriers, after a lapse of years, than in those who became free from the organism after recovery. It follows, therefore, that the reaction is not a reliable determining factor in the identification of typhoid carriers; in fact, even as an auxiliary means of identification, the Widal reaction seems of questionable value, as is also the absence of a typhoid history. The consideration of the Widal findings and the absence in two cases of a typhoid history in three California typhoid carriers support these views.

Mrs. Y. had typhoid seventeen years ago; her Widal was fair.

Mrs. X.,[1] in whom there is no history of typhoid, gave a negative reaction; on the other hand, Mrs. V.,[2] in whom there is no history of typhoid, gave a high power agglutinating serum.

Since the typhoid bacillus was isolated from the stool of Mrs. Y., six specimens of her stool have been examined at intervals of from three to six weeks. Typhoid organisms have been isolated from all specimens. Several of these have yielded on litmus-lactose-agar plates as high as 30 per cent. typhoid colonies, each subsequently being identified as typhoid both culturally and serologically.

Such specimens of stool are sent to the laboratory in a solution of 20 per cent. glycerin in physiologic sodium chlorid solution. An amount of stool not

1. Sawyer, W. A.: Ninety-Three Persons Infected by a Typhoid Carrier at a Public Dinner, THE JOURNAL A. M. A., Oct. 31, 1914, p. 1537.
2. Cumming, J. G.: Typhoid Epidemic at Maricopa and Taft, Month. Bull., California State Board of Health, September, 1916, p. 148.

larger than a split pea is added to a 25 c.c. container of the glycerin solution. The contents should then be thoroughly shaken so as to make a homogeneous suspension. If a large amount of the stool is added the glycerin does not accomplish the purpose for which it is used — that of inhibiting the overgrowth of colon bacilli.

In this laboratory the routine procedure for the identification of suspected typhoid specimens is: (1) to plate the specimens on litmus-lactose-agar; (2) to transfer all suspicious typhoid colonies to Russell's double sugar medium; (3) to transplant from all Russell tubes which give the characteristic surface growth and color changes to the various sugar broths, and (4) if the sugar reactions are characteristic for typhoid, to determine the final identification of the organism by the microscopic agglutination.

The California State Board of Health desires to keep in touch with all typhoid carriers, not only for the purpose of directing their daily pursuits along lines which will not endanger the public health, but also for the purpose of making investigations of the carrier problem. An agreement to the following effect, therefore, is entered into with all identified carriers resident in the state:

I have this day been informed that my excreta contain typhoid bacilli and that, unless unusual precautions are taken, persons will contract the infection from me. Realizing this danger I agree to observe the precautions stated below, and request that I be permitted to remain in free communication with other persons.

1. I will take no part in the preparation or handling of food which will be consumed by persons outside of my immediate family, and I will not participate in the management of a boarding house, restaurant, food store, or in any other occupation involving the preparation or handling of food.

2. I will not dispose of my excretions in a toilet to which flies have access without first exposing such excretions for thirty minutes to either a 5 per cent. dilution of liquor formaldehydi or 5 per cent. phenol (carbolic acid).

3. I will notify the local health officer of any cases of typhoid among the persons with whom I come in contact.

4. I will inform the local health officer of any contemplated change of residence so that he can notify the state board of health and obtain its approval.

5. I will submit specimens for examination when requested by the state board of health.

6. I will fill out the following report blank when submitted to me semiannually, and return the same to the California State Board of Health:

"I have, during the last six months, complied to the best of my knowledge with the five separate agreements entered into between myself and the California State Board of Health. Precautions involved in these separate agreements are for the purpose of preventing typhoid infection."

The typhoid history of Mrs. Y. demonstrates the inefficacy, from the standpoint of community health, of treating a case of typhoid without seeking the source of the infection. It is seventeen years since she herself had typhoid; there are many isolated cases of the disease reported among those with whom she came in contact; finally, this epidemic, traced indubitably to her, occurred. Had the first case, years ago, for which she may have been responsible, been traced to its source, the subsequent cases, the economic loss to the community, and the three deaths could have been avoided.

Heredity.—The qualities and achievements of nations are due less to governments than to grandmothers.—E. G. Conklin, *Yale Review.*

THE ISOLATION OF THE BACILLUS TYPHI-EXANTHEMATICI FROM THE BODY LOUSE*

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The rôle played by the body louse in the transmission of typhus fever was first demonstrated by Nicolle and his co-workers[1] in 1909, and independently and at about the same time by the American investigators, Anderson and Goldberger,[2] and Ricketts and Wilder.[3] Since then this has been thoroughly confirmed and definitely established. Although other insects have been investigated and have been proved free of the virus, it is still impossible to say at present whether or not the louse is the only carrier of the infection.

Working on this basis, a number of observers have reported what they regarded as the infectious element found in the louse. Ricketts and Wilder,[4] in 1910, stated that "polar staining organisms have been found occasionally in the feces and intestinal contents of 'normal lice,' whereas they are present almost constantly, and often in large numbers, in similar material from 'infected' lice." They describe the organism as a "short bacillus — hardly two micromillimeters in length [estimated] and their diameter at about one-third this figure. With Giemsa's stain polar bodies may be seen." Their morphology is "roughly of those which belong to the hemorrhagic septicemia group."

Later, in 1913, Hegler and von Prowazek[5] also found in a typhus-infected louse, in smear preparations stained by Giemsa's method, small structures of coccoid nature (also in "diploform"). No other details are given, but it is logical to assume that these observers saw the identical organisms first described by Ricketts and Wilder.

In 1914, Sergent, Foley and Vialatte[6] reported that in thousands of lice fed on healthy persons or non-typhus patients no organisms were found. But in typhus-infected lice, they noted small bacilli, from 1.2 to 2.5 microns in length and from 0.5 to 0.8 micron in breadth and whose ends stained more intensely (Giemsa's stain). They were coccoid in form, often paired, and sometimes in chains. They were more numerous in the bloody fluid of the digestive tract than in smears made from crushing the organs of the insect. In the early stages of typhus fever, the bacilli were less numerous but progressively increased in numbers with the course of the disease. The observation of these workers becomes of still greater importance when the fact is taken into consideration that they were able to produce typhus fever in monkeys by the injection of what they regarded as typhus-infected lice.

* From the Pathological Laboratory, Mount Sinai Hospital.
* Work done under the tenure of a George Blumenthal, Jr., fellowship in pathology.
* During the course of the work, one of the authors (Dr. Carlos E. Husk) became infected with typhus fever and died.

1. Nicolle, Comte and Conseil: Compt. rend. Acad. d. sc., 1909, **149**, 486.
2. Anderson and Goldberger: Collected Studies on Typhus, Bull. 86, Hyg. Lab., U. S. P. H. S., 1912.
3. Ricketts, H. T., and Wilder, R. M.: The Typhus Fever of Mexico (Tarbadillo), THE JOURNAL A. M. A., Feb. 5, 1910, p. 463; The Etiology of the Typhus Fever (Tarbadillo) of Mexico City, April 23, 1910, p. 1373.
4. Ricketts and Wilder: (Footnote 3, second reference).
5. Hegler and von Prowazek: Berl. klin. Wchnschr., 1913, **50**, 2035.
6. Sergent, Foley and Vialatte: Compt. rend. Soc. de biol., 1914, **77**, 101.

During the past year further confirmation of these findings was reported by da Rocha-Lima,[7] Töpfer,[8] Töpfer and Schüssler,[9] Otto,[10] and Baehr and Plotz.[11]

Töpfer and Schüssler observed that in 401 lice which had fed on thirty-five typhus patients bacteria were regularly seen. They were noted in lice which fed on the patient only during the course of the fever — in lice feeding on the patient after the defervescence, there were none to be found. Likewise none were found in 101 lice which had fed on nineteen patients with other diseases. In regard to these observations, it is important to note that these workers were also able to produce typhus fever in guinea-pigs by the injection of lice which harbored these bacteria. The reaction was identical with that induced by the injection of blood from a patient with typhus fever. The organism was found in the intestinal tract of the louse, but unfortunately these investigators were unable to cultivate it. This is due to the fact that the proper anaerobic methods were not utilized. They regard this bacterium as being identical with that described by Prowazek, da Rocha-Lima, and Sergent, Foley and Vialatte.

Töpfer, likewise, in an examination of 2,000 lice, found this bacterium only in typhus-infected lice, never in others. Otto quite recently has found these organisms in typhus-infected lice, in which they proliferate in the epithelial cells of the intestinal canal, thus confirming da Rocha-Lima. Although he is uncertain as to their exact nature, he maintains that the finding of these bacteria in a number of lice is adequate for a diagnosis of typhus fever. Plotz in his studies on typhus fever in the Balkans, and Baehr similarly in Russia, noted the appearance of these bacilli in infected body lice. Some were gram-negative; others were gram-positive. We shall discuss later the significance of this variation to the Gram stain.

An extensive study was made by da Rocha-Lima regarding the occurrence of these micro-organisms in the infected body lice. In his earlier communications, he is in doubt as to whether they are bacteria or protozoa. Although they have the form of bacteria, they take a reddish coloration with Giemsa's stain (usually taken by protozoa), and therefore he prefers to give them the noncommital name of *Rickettsia prowazeki.* In his last communication, he revises his earlier opinion and feels more certain of its bacterial nature and states that it is probably a bacillus. The name he suggests now is the *Bacillus prowazeki.*

A critical review of da Rocha-Lima's work brings out interesting and confirmatory facts relative to the typhus bacillus as the cause of typhus fever.

This investigator has found in a great number of typhus-infected lice the minute bacillary organisms with polar bodies which he believes are the same seen by Ricketts and Wilder, Prowazek, and Sergent, Foley and Vialatte. They were not found in 120 normal lice which were also studied in serial sections. These organisms he regards as of possible etiologic significance for the following reasons: First, the organisms penetrate the epithelial cells of the digestive tract of the louse, and by multiplying enormously produce marked characteristic changes in the cells. Such changes have been found exclusively in typhus lice. Second, only typhus blood possesses the ability to produce infection in the lice with these organisms. Many hundreds of lice fed on typhus convalescents, healthy individuals and persons suffering from other diseases were never similarly infected. Third, there is an absolute parallelism between the virulence of the lice (for guinea-pigs) and the presence of these organisms in the bodies of the lice.

Da Rocha-Lima, discussing the possible identity between his bacillus and the *Bacillus typhi-exanthematici,* states that "of all organisms that have been brought forth as the possible etiologic agent in typhus fever, the Plotz bacillus deserves the greatest consideration." The reasons for his opinion relevant to the dissimilarity between the two organisms, however, are: First, although they resemble each other, yet there are slight differences in morphology. He has been unable to grow the organism, and his comparison is made by means of a photograph of the typhus bacillus and of bacilli which were grown on artificial mediums for many months. The picture represents an old strain, and it is somewhat inaccurate in that the organisms appear much plumper and larger than those we are accustomed to see in young cultures. Again, old strains show such a degree of degeneration that exact morphologic comparison becomes impossible. Second, da Rocha-Lima states that his organism is gram-negative and the typhus bacillus is gram-positive. It has been previously reported[12] that the typhus bacillus may be gram-negative in the first subcultures of louse cultures or in smears made directly from typhus-infected lice (Baehr and Plotz[11]). These are the only points of differentiation which are offered by da Rocha-Lima. These differences, as we have shown, do not exist, and the organism described by this observer corresponds, in our opinion, to the *Bacillus typhi-exanthematici.*

Up to the time of the expedition (consisting of the authors) for the study of typhus fever in Mexico, all cultural work on lice proved fruitless, and the correlations of all of the foregoing investigations were based on purely morphologic data. One of the results of the Mexican expedition was the finding of the same organism in infected lice, growing it under anaerobic conditions and proving it to be the identical bacillus which Plotz reported as the etiologic agent in typhus fever, namely, the *Bacillus typhi-exanthematici.*[13]

The experiments on typhus-infected lice may be grouped into two classes: first, the production of typhus fever by the injection of infected lice; second, the isolation of the typhus bacillus from such lice. Some of the experiments are incomplete on account of the sudden termination of the work in Mexico, but from most of them definite conclusions may be drawn.

1. THE PRODUCTION OF TYPHUS FEVER IN GUINEA-PIGS BY THE INJECTION OF INFECTED LICE[14]

The production of typhus fever in monkeys by the injection, subcutaneously, or by the bites of typhus-infected body lice was accomplished by Anderson and Goldberger, Nicolle and his co-workers, Ricketts and

7. Da Rocha-Lima: Arch. f. Schiffs- u. Tropen-Hyg., 1916, **20,** 17; Berl. klin. Wchnschr., 1916, p. 778; München. med. Wchnschr., 1916, **63,** 1381; Deutsch. med. Wchnschr., 1916, **42,,** 1353.

8. Töpfer: Tr. Kongr. f. Inn. Med. Warsaw, 1916, p. 139; Berl. klin. Wchnschr., 1916, p. 323.

9. Töpfer and Schüssler: Deutsch. med. Wchnschr., 1916, **42,** 1157.

10. Otto: Med. Klin., 1916, **12,** 1143.

11. Baehr and Plotz: Jour. Infect. Dis., 1917, **20,** 201.

12. Olitsky, Denzer and Husk: Jour. Infect. Dis., 1916, **19,** 811. Baehr and Plotz: Jour. Infect. Dis., 1917, **20,** 201.

13. The literature of the investigations made by the German authors quoted above was inaccessible to us until about ten months after our own studies were made. Hence we regard their observations as more or less confirming our own reports.

14. These experiments, as well as those relating to the cultures of typhus-infected lice, are merely outlined here. Full details may be found in an article by the authors in the Journal of Infectious Diseases, 1916, **19,** 811.

Wilder, and others. The number of lice used by these observers varied from thirty-seven to over 100. Usually no fever or other manifestations of the disease were produced, except the development of an immunity to a subsequent inoculation of typhus fever virus.

Sergent, Foley and Vialatte and quite recently da Rocha-Lima have been able to produce typhus fever in guinea-pigs by the intraperitoneal injection of emulsions of typhus-infected lice. Furthermore, the former named workers first demonstrated the infectivity of nits from such lice for guinea-pigs.

In Mexico, it was our purpose to produce typhus fever in guinea-pigs by the intraperitoneal injection of infected lice so that the nature of the reaction could be studied bacteriologically.

For this purpose, lice which were feeding on typhus patients were collected in a Stender jar containing a piece of sterilized cheese-cloth. They were ground up in a sterile mortar with about 4 c.c. of saline solution until a homogeneous suspension resulted, and this was injected intraperitoneally into guinea-pigs.

One guinea-pig was injected with the emulsion of thirty lice taken from a patient in the thirteenth day of his illness, or one day before the crisis. On the ninth day after the injection the animal experienced a sudden drop in temperature followed by a rise to 104.4 F. Anderson, in an exhaustive study, determined that the incubation period of the typhus virus in guinea-pigs is in most cases from seven to ten days. This corresponds to our experience with over 500 animals with the disease (guinea-pigs and monkeys). This animal was then exsanguinated and its defibrinated blood injected into three other guinea-pigs, but unfortunately the work was then interrupted and the transmission of the virus could not be followed.[15] The necropsy on the original guinea-pig, however, showed the typical lesions of typhus fever in this animal. These were originally pointed out by Baehr, and have been since thoroughly confirmed: there is no obvious lesion in any structure except the spleen, which is enlarged and congested, with its malpighian bodies prominent.

The spleen of this animal was emulsified in saline solution and cultivated anaerobically. After five days, twelve colonies of the typhus bacillus appeared in one of the culture tubes.

Another guinea-pig was injected with sixty-five lice taken from a patient three days after the crisis of the disease. It has been determined that lice become infectious from four to five days from the time of their feeding on infected blood. These lice were therefore obviously infectious. At the end of ten days (corresponding to the incubation period of virulent typhus blood), the animal suddenly developed a rise of temperature of about 3 degrees. Although this animal could not be studied further, the presumption is great that it was developing typhus fever.

A guinea-pig injected similarly with the emulsion of forty lice removed from a person with a very mild case of endemic (New York) typhus fever showed no such reactions. In this case, cultures from the lice showed no growth of the typhus bacilli; in the other instances in which reactions were obtained, cultures from the lice in each case showed numerous colonies of the *Bacillus typhi-exanthematici*. At this point it may be stated that anaerobic cultures made with normal guinea-pig spleens in identically the same way as in the typhus lice-infected guinea-pigs showed no such organisms.

To conclude this phase of the work, we may state that the transmission of typhus fever to guinea-pigs by the injection of typhus-infected lice has been accomplished and the typhus bacillus has been recovered from the spleen of a reacting animal.

2. THE ISOLATION OF THE BACILLUS TYPHI-EXANTHEMATICI FROM TYPHUS-INFECTED BODY LICE

Having proved that the lice which were regarded as being typhus-infected were capable of producing typhus fever in guinea-pigs and that from such guinea-pigs the typhus bacillus could be recovered, the culture of typhus lice was undertaken.

Although it appears at first thought that such cultures would be hopelessly contaminated, yet this is far from being the case. This point is to be emphasized: When the intestinal contents of lice which were not virulent for guinea-pigs were cultivated, few contaminating organisms (mostly *Micrococcus albus*) and no typhus bacilli were obtained. When the intestinal contents of typhus-infected lice, which were virulent for guinea-pigs, were cultivated, often pure cultures of the typhus bacillus resulted.

Cultures were made in one of two ways: In one method, the insect was seized between two sterile forceps, one grasping the thorax and the other the lower end of the abdomen. When these forceps were pulled apart, the intestinal contents were liberated and were gathered in a loop and inoculated into the medium. This is the method of choice, since in noninfected lice the cultures often remain sterile, while in typhus-infected lice pure cultures of the typhus organism may be recovered. The other method was to macerate the lice to be cultured in a sterile mortar and inoculate the emulsion into the medium.

The medium used consisted of 0.5 or 2 per cent. glucose agar to which one-third the volume of rich ascitic fluid is added.[16] The medium and the inoculated material were thoroughly mixed by being poured from one tube into another, after which the tubes were allowed to solidify in the upright position, and when solid were covered over with fluid agar.

Our work in Mexico was unfortunately interrupted, but in the short time of our stay, we were able to observe six series of experiments on cultures with typhus-infected lice:

Series 1 comprised five lice taken from a patient on the twelfth day of his disease. After four days of incubation, numerous colonies of typhus bacilli appeared. All, however, were gram-negative.

Series 2 comprised three lice taken from the same patient one day later (or a day before the crisis). In this instance pains were taken to include the feces of the lice as they were passed on the sterilized cheese-cloth. After seven days' incubation the culture tubes were riddled with numerous pin-point colonies of typhus bacilli. These were gram-negative, and remained gram-negative even in the first subculture.

Series 3 comprised two lice taken from the clothing of a patient on the twelfth day of illness. After eleven and twelve days' incubation, three and four colonies, respectively, appeared. Most of these organisms in the original colonies were gram-negative; a few gram-positive; in later subcultures they were all gram-positive.

15. The expedition was interrupted by the unsettled political conditions in Mexico, which necessitated the departure of the authors. As a result, this and other experiments could not be followed to their termination.

16. For the details in regard to the method of culture, the acidity of the medium, the kind of ascitic fluid necessary, etc., all of which are absolutely essential for a proper culture, the reader is referred to an article by Baehr and Plotz in the Journal of Infectious Diseases, 1917, **20**, 201.

Series 4 comprised six lice removed from a patient in the twelfth day of his illness. Three of these lice showed positive cultures: Louse 1 showed one colony of typhus bacilli after three days' incubation; Louse 2 showed eight colonies after similar incubation, and Louse 3 showed four colonies after nine days' incubation. The organisms in the case of Louse 1 were gram-positive; those of Louse 2 and Louse 3 gram-negative, most of the bacilli becoming gram-positive in the first and second subculture, respectively.

Series 5 comprised five lice taken from a patient at a period corresponding to one day before the crisis. At the same time a guinea-pig was injected with lice from the same patient. The guinea-pig showed evidences of having been infected with typhus fever; the culture showed growths of the typhus bacillus after four days' incubation. These organisms were gram-negative in the original colony.

Series 6 comprised four lice taken from a patient four days after the crisis. After six days' incubation, the culture showed one colony containing gram-negative organisms, another colony containing partly gram-positive organisms. After two subcultures these were definitely gram-positive.

Cultures from four of these series were studied in New York and were proved identical with endemic and epidemic strains of the typhus bacillus.

Thus six series of lice from five different patients were cultivated. The number of lice in each series varied from two to six. The period of the disease when the lice were removed varied from the twelfth day of illness to the fourth day after the crisis. From practically all these lice, the *Bacillus typhi-exanthematici* was isolated, sometimes in pure culture, in numbers varying from two colonies to an innumerable number of colonies. In all the experiments made, these lice were proved infectious.

In an additional series of lice removed from a person with a very mild case of endemic (New York) typhus fever, the culture was negative. The lice at the same time were injected into a guinea-pig without producing a reaction.

A loopful of the organisms from an original colony in one of the louse cultures was emulsified in physiologic sodium chlorid solution and injected intraperitoneally into a guinea-pig. Twenty-four hours later there was a considerable drop in temperature and on the third day the animal died. On necropsy, the typical lesions which are incident to typhus fever in this animal, namely, the enlarged spleen with its malpighian bodies prominent, and all the other viscera apparently normal, were found. The spleen of this guinea-pig was removed for culture. After four days' incubation, five typical colonies of the typhus bacillus appeared.

To summarize this phase of the work, we may state that we have been able to isolate the typhus bacillus from typhus-infected lice, and that in its earliest stage of growth such organisms are pathogenic for guinea-pigs.

THE VARIABILITY OF THE BACILLUS TYPHI-EXANTHEMATICI TO GRAM'S STAIN

It will be noted from the forgoing series of cultures of typhus-infected lice that these organisms are usually gram-negative in the original colonies but that on subculture they become definitely gram-positive. Pure gram-negative forms may persist from the original colony through two subcultures.[17] Independently da Rocha-Lima, as well as Plotz in the Balkans and Baehr in Russia, have observed in typhus-infected lice these organisms decolorized by Gram's method.

17. The gram-negative forms may be seen as well in an occasional very old culture, but in these instances the decolorization is due to degeneration forms.

In the routine examination of blood cultures taken on typhus patients, one is also impressed by the constancy with which one meets gram-negative organisms in the original colonies. Sometimes they may contain uniformly gram-negative, but more often they consist of partly gram-negative and partly gram-positive, organisms. In the blood culture studies recently made by Baehr and Plotz[11] in the Balkans and Russia, the occurrence in the original colonies of gram-negative forms was frequently noted. Our experience agreed with theirs, namely, we have noted that these gram-negative forms become gram-positive on subculture.

In comparing this variability to the Gram stain to that described in other organisms, we find that the literature offers several analogies.

It has been pointed out that the typhus bacillus in growing on glucose serum medium precipitates by the production of acids some constituents in the serum, the result of which is a clouding of the medium (the precipitation phenomenon of Libman[18]). A glucose serum agar medium is employed both in the original cultures and in the subcultures. Winslow[19] has found in regard to the *Coccaceae* that "there was a suggestive correlation between acid production and reaction to the Gram stain, the most actively fermenting forms being usually gram-positive."

The effect of the medium (or the environment of bacteria) on its reaction to Gram's stain is further noted in the case of the *Bacillus pyocyaneus,* which is gram-positive in the very youngest generation. Also Cedercrentz[20] noted that gram-negative bacilli after suspension in albumin became gram-positive. In regard to the poliomyelitis organism of Flexner and Noguchi, early cultures show pink forms, while in later cultures (especially if peptone is used in the medium), the "peptone and possibly other constituents of the bouillon render the micro-organisms somewhat larger as well as enable them to retain more firmly the Gram stain."[21]

These theoretical considerations are offered as suggestions for further investigations. However, one factor should be noted: the relationship between decolorization by Gram's method and the virulence of the organism. In the very early stages of growth the organism is often virulent—at these stages it is often gram-negative.

CONCLUSIONS

Since 1910, many observers in different parts of the world have reported the finding of an organism in typhus-infected lice. This organism they believe to have a causal relationship to typhus fever. Owing to the fact that improper methods have been used, culture of this organism was impossible. In Mexico, we have been able to grow this bacterium and to show that morphologically, culturally and serologically it is identical with the *Bacillus typhi-exanthematici.*

18. Libman: Zentralbl. f. Bakteriol., 1900, Part I, **28,** 293; Jour. Med. Research, 1901, **6,** 84.
19. Winslow and Winslow: The Systematic Relationships of the Coccaceae, New York, 1908, p. 95.
20. Cedercrentz: Arch. f. Dermat. u. Syph., 1908, **93,** 355.
21. Flexner and Noguchi: Jour. Exper. Med., 1913, **18,** 461.

Cost of Eye Injuries.—According to the findings made by the field secretary of the National Committee for the Prevention of Blindness after a survey of Minnesota, eye injuries cost the employers of the state nearly $50,000 a year and this does not include medical expenses or economic loss. The stone quarries of the state, especially those of St. Cloud, are criticized because of the failure of the managers to supply men with goggles or other protecting devices.

KÉRATODERMIE BLENNORRHAGIQUE

WITH A REPORT OF TWO CASES

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The first American case of this interesting disorder was reported by Simpson[1] in 1912. Since that time only two additional cases have been recorded in this country — one by Roark,[2] and the other by Haase.[3] In marked contrast to the seeming rarity of kératodermie blennorrhagique in America, several new cases have been reported in other parts of the world during the past five years. Among those who have described recent cases of this disease are Gougerot and Meaux Saint-Marc,[4] Swift,[5] Hodara,[6] Brault,[7] Haslund,[8] Jensen,[9] Selenew,[10] Sobotka,[11] Williams,[12] Lange,[13] Gibbs,[14] and Buschke and Michael.[15] Additional cases reported before 1912 should be credited to Rost,[16] Arning and Meyer Delius,[17] and Robin and Fiessinger.[18]

We shall limit ourselves to a discussion of kératodermie blennorrhagique, and not attempt to include the erythematous, urticarial, purpuric and other skin manifestations occurring in gonorrhea.

Buschke[19] states that he saw a typical instance of kératodermie blennorrhagique which occurred independently of a gonorrheal infection. His patient gave a history of gonorrhea seven years previously. There was some swelling of the right knee, owing to an increased amount of fluid. The skin over the knee was reddened and hot to the touch. Swelling and redness were present about the left internal malleolus. The left shoulder was the seat of pain on motion. A soft infiltrate was found in the urethra 14 cm. from the meatus urinarius. The prostate was enlarged and somewhat painful. The skin eruption was typical of kératodermie blennorrhagique, there being a profusion of large rupioid lesions as well as smaller horny papules on the scalp, back and limbs. In our opinion both the skin lesions and the arthritis in this case were probably due to an old gonorrheal focus, possibly in the prostate, as we do not believe that the disease occurs independently of such a focus in some part of the body.



Fig. 1.—Lesions in Case 1.

The patient seen by Robin and Fiessinger[18] is of unusual interest in that he presented characteristic lesions on the hands, with but very slight involvement of the feet.

Gougerot and Meaux Saint-Marc's[4] patient was treated internally with hexamethylenamin in 0.75 gm. doses. Within fifteen days the eruption had almost entirely cleared up with this treatment alone.

Sobotka[11] has given a painstaking description of the lesions observed in his case, which was remarkable not only for the extensive joint involvement, but also for the generalized cutaneous manifestations. Only the upper arms, right forearm and the breasts were free from skin lesions.

REPORT OF CASES

CASE 1.—*History.*—A man, aged 25, American, clerk, entered Cook County Hospital, Oct. 1, 1913, complaining of painful urination and a urethral discharge of three days' duration, as well as stiffness of the phalangeal joints of both hands, the result of previous arthritis. He had suffered from four previous attacks of gonorrhea, the first one in 1906 lasting eight months. The second gonorrhea began in November, 1908, and continued for ten months. Gonorrheal arthritis, affecting both feet, set in three weeks after the onset of that attack and persisted for about eight months. The third gonorrheal urethritis appeared in 1911, and although of brief duration, was accompanied by "rheumatism," involving the lower legs and feet. In 1912 the patient had a fourth attack

1. Simpson, F. E.: Kératodermie Blennorrhagique, THE JOURNAL A. M. A., Aug. 24, 1912, pp. 607-612.
2. Roark: Blennorrhagic Keratosis, THE JOURNAL A. M. A., Dec. 7, 1912, pp. 2039-2040.
3. Haase: Keratosis Blennorrhagica, Jour. Cutan. Dis., 1916, **34**, 819-825.
4. Gougerot and Meaux Saint-Marc: Keratose blennorrhagique disséminée, guérison, Ann. d. mal. vén., 1912, **7**, No. 11.
5. Swift: Case of Keratodermia Blennorrhagica, Australasian Med. Gaz., Nov. 30, 1912.
6. Hodara: Ein Fall von Gono-Kokamie und generalisiertem gonorrhoischem Exanthem, Dermat. Wchnschr., 1912, **55**, 397-401.
7. Brault: Keratose blennorrhagique chez un indigène, Bull. Soc. franç. de dermat. et de syph., Feb. 6, 1913, p. 146.
8. Haslund: Et tilfaelde af generalisieret Gonokokinfektion med Keratoser, Ugesk. f. Læger, 1913, **75**, 325-330.
9. Jensen: Kutane Manifestationer ved Gonorre, Hospitalstidende, 1913, **6**, 534.
10. Selenew: Muskelatrophie, Muskel-rheumatismus, Arthritis, Keratosis der Fusssohlen bei einem gonorrhoischen patienten, Ztschr. f. Urol., 1913, **7**, 477-481.
11. Sobotka: Pustulos-hyperkeratotisches Exanthem bei gonorrhoischer Allgemeinerkrankung, Dermat. Wchnschr., 1913, **56**, 181.
12. Williams: Keratodermia Blennorrhagica, Brit. Med. Jour., 1914, **2**, 627-629.
13. Lange: Ein Fall von Hyperkeratosis gonorrhoica, Deutsch. med. Wchnschr., 1914, **40**, 495.
14. Gibbs: A Case of Keratodermia Blennorrhagica, Brit. Jour. Dermat., 1914, **26**, 433.
15. Buschke and Michael: Zur Kenntnis der Hyperkeratotischvesikulosen Exanthem bei Gonorrhoe, Arch. f. Dermat. u. Syph., 1914, **120**, 348-375.
16. Rost: Seltene Komplikationen der Gonorrhoe, hyperkeratotische Exantheme und universelle ankylosierende Arthritis, Dermat. Ztschr., 1911, **18**, 3.
17. Arning and Meyer Delius: Beitrag zur Klinik der gonorrhoischen Hyperkeratosen, Arch. f. Dermat. u. Syph., 1911, **108**, 56-72.
18. Robin and Fiessinger: Keratose blenorrhagique des mains, Bull. Soc. méd. d. hôp. de Paris, Feb. 17, 1911, p. 141.
19. Buschke: Ueber universell symmetrische entzündliche Hyperkeratosen auf uro-septischer und arthritischer Basis, Arch. f. Dermat. u. Syph., 1912, **113**, 223-239.

of gonorrhea. Seven days after its onset, gonorrheal arthritis appeared. It began in the hands and gradually spread until almost all of the joints were involved, lasting altogether about four months. Ten days after the onset of the arthritis, numerous pea-sized horny growths appeared on the



Fig. 2.—Lesions in Case 2.

soles and backs of both feet. At about this time a marked bilateral conjunctivitis developed. During his "rheumatic" attack the patient was in Bellevue Hospital, New York, but later went to Hot Springs, Ark., where he finally recovered.

The attack of gonorrhea for which he came under our care was his fifth. Examination of the patient showed him to be normal, save for a urethral discharge containing gonococci, slight flexion of the fingers of both hands, due to a former joint trouble, and a tendency to "chilblain" circulation. The three glass urine test showed the first two glasses to be cloudy.

Nine days after the admission of the patient to the Cook County Hospital, "rheumatism" appeared in both feet. Eight days later numerous pea-sized keratotic lesions appeared on the soles, the lower third of both legs, the backs of hands, the glans penis and the corona glandis.

The lesions were symmetrically distributed over the palms and backs of both hands, glans penis, anterior surfaces of lower third of both legs and on the soles. Two principal types were to be seen, and since they were most characteristic as found on the soles, we shall content ourselves with a description of the cutaneous manifestations as observed in those regions.

On the anterior portions of each sole were a few more or less discrete horny papules, in addition to a number of similar lesions which had fused to form small plaques. The individual papules averaged about 5 mm. in diameter. They were reddish brown, and each was surmounted by a closely adherent horny crust. A narrow reddish collar-like zone surrounded each lesion. When the horny cap was removed, the underlying surface was found to be pinkish and the site of a slight amount of infiltration. These lesions were much flatter than those on the rest of the body, rising only about 1 mm. above the surrounding skin. The flexor surfaces and lateral aspects of the toes were also affected by lesions of the cornlike variety. These were most numerous on the inner surfaces of the left great toe. The toe nails were thickened, especially those of the right fourth and left third toes.

The posterior portions of each sole were covered by lesions which differed markedly from those already observed. Most of them corresponded to the rupial type. They were larger and lacked the central elevation which was present in the horny papules. Their crusts were of the oyster-shell type, and darker than those of the other lesions. These rupioid lesions were so closely aggregated as to form a veritable horny plate, especially marked on the left sole, beginning near the inward curve of the plantar arch and being particularly accentuated over the heel. Some of these lesions attained a diameter of from 1 to 1.5 cm. Most of them were elevated peripherally, some even 0.5 cm., forming a sort of wall surrounding a central depression. The ensemble gave one the impression of a relief map on which a miniature mountain range had been depicted. Scattered among these larger lesions were a few of the cornlike papules to which we have already referred.

In addition, over the ball of the left foot were half a dozen dark reddish, circular, scaling macules, evidently the remains of former lesions.

Four days after admission to the hospital a severe bilateral conjunctivitis appeared. No pus was present, nor was the gonococcus found. Within one week the conjunctivae had again become normal.

Treatment.—The patient was treated with gonococcus vaccine, 50 million hypodermically every third day, under which his "rheumatism" improved. In addition to the vaccine treatment, the patient's gonorrhea was treated with injections of protargol, 0.5 per cent. three times daily, and later with potassium permanganate irrigations daily. Hexamethylenamin, 5 grains three times a day, and afterward potassium citrate, 15 grains thrice daily, were given. Oil of santal, 5 minims, was also given after meals, but soon discontinued

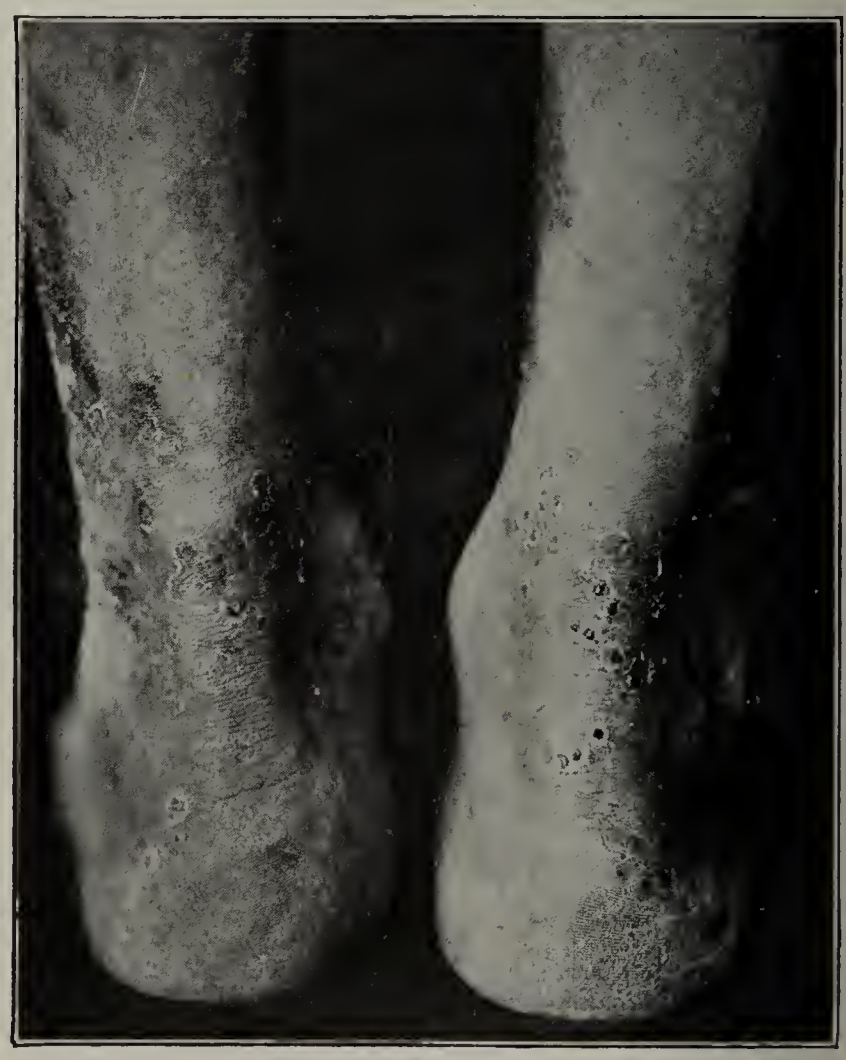


Fig. 3.—Lesions in Case 2.

because of nausea. "Calamine lotion" was applied to the feet daily. The conjunctivitis was treated with 20 per cent. argyrol solution. These details are mentioned because it has been suggested by certain writers that kératodermie blennorrhagique might be due to the treatment administered for gonorrhea, an idea that is abundantly disproved by a considera-

tion of all the evidence. The cutaneous manifestations improved rapidly while this treatment was being carried out, and in five weeks had almost entirely disappeared, leaving reddish scaling macules to mark the sites of the former lesions. The patient was discharged from the hospital, Jan. 5, 1914, much improved, but still complaining of stiffness in the joints which had been affected.

CASE 2.—*History.*—A man, aged 43, American, cook, who entered Cook County Hospital, May 31, 1916, had suffered from several previous attacks of gonorrhea, the first one

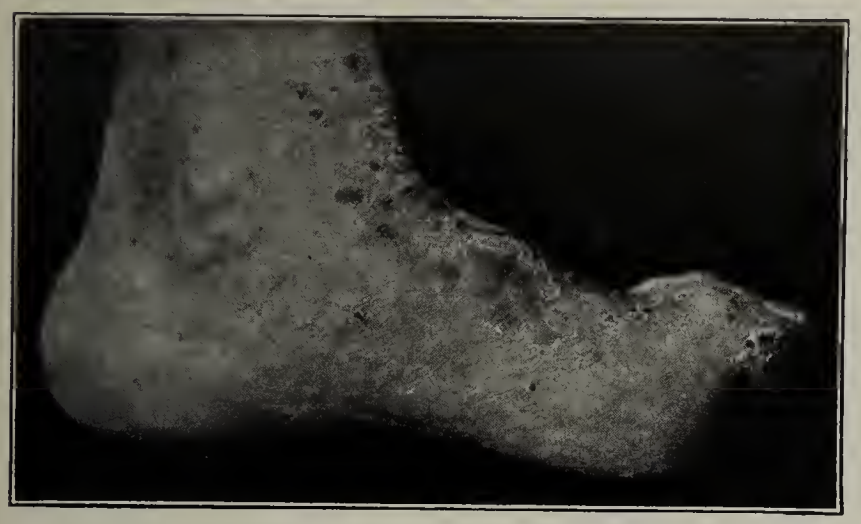


Fig. 4.—Lesions in Case 2.

beginning in July, 1896. About four weeks later, gonorrheal arthritis appeared. It affected both ankles and feet, as well as the right thumb, and lasted for about one year. The patient stated that he had also had gonorrhea in 1904 and 1908, but that the attacks were of comparatively short duration and unaccompanied by joint involvement. He also stated that he had contracted syphilis in 1898. His present illness began, May 14, 1916, with painful micturition and a purulent urethral discharge about one week after exposure. Two weeks later the right eye began to burn and itch, and became very red. Two days afterward the left eye was similarly affected. On examination both conjunctivae were found to be markedly injected. Considerable photophobia was present. A slight purulent discharge was also observed. Both corneas were clear, and the pupils were negative. Gonococci were found in a smear from the urethral discharge. The heart and lungs were normal, as were also the abdominal organs. The extremities were negative save for some pain and slight deformity, with stiffness about the feet, ankles and right thumb, which had been previously attacked by gonorrheal rheumatism.

Six days after the admission of the patient to the hospital, a papular eruption appeared on the backs of both feet, about the malleoli and on the soles. A few lesions were seen on the fingers, especially along the sides of both index fingers. Soon thereafter a few scattered lesions appeared on the upper abdomen, lower chest and left side of the trunk.

The head, face, back, arms, forearms and upper chest were free from skin lesions. Scattered over the lower chest, upper abdomen and left side of the trunk were about twelve lesions. They were well defined, circular, flat topped, and each was covered by a thin, dirty, grayish, adherent crust. This crust imparted a hornlike sensation to the finger when it was palpated. On its removal a smooth, slightly infiltrated, moist, reddish surface was exposed to view. When these crusts were more closely examined they proved to be moist, and hence were not due to a true hyperkeratosis, but rather to a deficient cornification or parakeratosis. No central umbilication or elevation was noted. Each lesion was entirely covered by its crust, the whole being a reddish brown. Several of these lesions on the trunk bore a marked resemblance to small rupial syphilids. They averaged from 3 to 5 mm. in diameter. The larger ones attained an elevation of 3 mm. above the surrounding skin, with which their sides formed acute angles.

Along the lateral aspects of the index fingers were a few lesions. They were smaller than those already described, measuring from 2 to 3 mm. in diameter. A surrounding reddish zone marked each one off sharply from the adjacent integument. Their tops were formed by small horny crusts. These lesions were elevated centrally, and are best described as acuminate. The palms were not thickened; neither was there involvement of the finger nails.

The genitals, buttocks, thighs and lower legs down to a short distance above the malleoli were free from lesions. Below that point numerous symmetrical lesions were present, especially over the right Achilles tendon, on the soles and backs of both feet, and on the superior and internal surfaces of the left great toe. The majority of these were horny papules. On the backs of both feet were a number of papules not exceeding 2 mm. in diameter. They were most numerous over the flexor tendons, especially about the metatarsophalangeal junctions. These lesions were brownish, hard and well defined. Each one was capped by a dry, horny crust, which adhered firmly to it. On the inner surface of the left great toe were a number of closely aggregated lesions appearing like a miniature mountain range. They were dark red, conelike, and about 3 mm. in diameter. Two of a similar sort were noted along the internal border of the same foot. Over both Achilles tendons, especially the right one, were a number of conelike lesions, some of which were centrally depressed. They had a tendency to linear arrangement in threes, which was unusual. As to size, they corresponded closely to those already described on the backs of the feet.

The most characteristic lesions were found on the soles, being more numerous on the left side. They were circular, reddish brown papules, each one covered with a closely adherent crust. Each lesion possessed a surrounding zone of inflammation about 2 mm. in width. These cornlike papules were about 3 to 4 mm. in diameter, and as regards form, bore a striking resemblance to upholstery tacks which

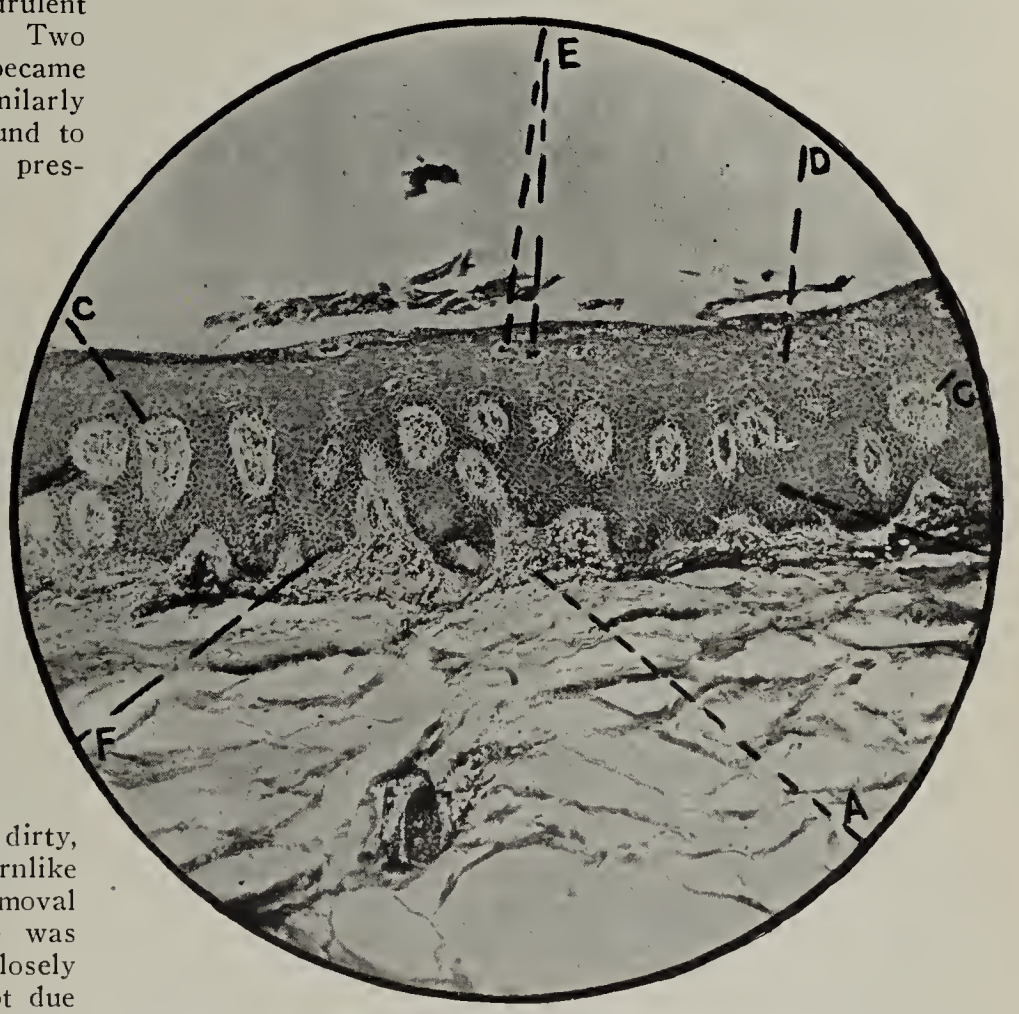


Fig. 5.—Microscopic appearance of lesion, × 60: *A*, infiltrate in papilla and subpapillary layer; *B*, thickened epidermis (acanthosis); *C*, edematous papillae; *D*, markedly edematous epidermis; *E*, pustules in epidermis; *F*, normal basal layer.

had been set into the skin. They showed only a slight tendency to grouping, and the hill and valley appearance was entirely lacking. A few were more yellowish and resembled drops of wax, to which Vidal compared them. Most of these

lesions were to be found on the anterior portions of the soles, especially about the region of the metatarsal bones. Thickening of the soles was not present in this case. The flexor surfaces of the toes were free. The toe nails were not affected.

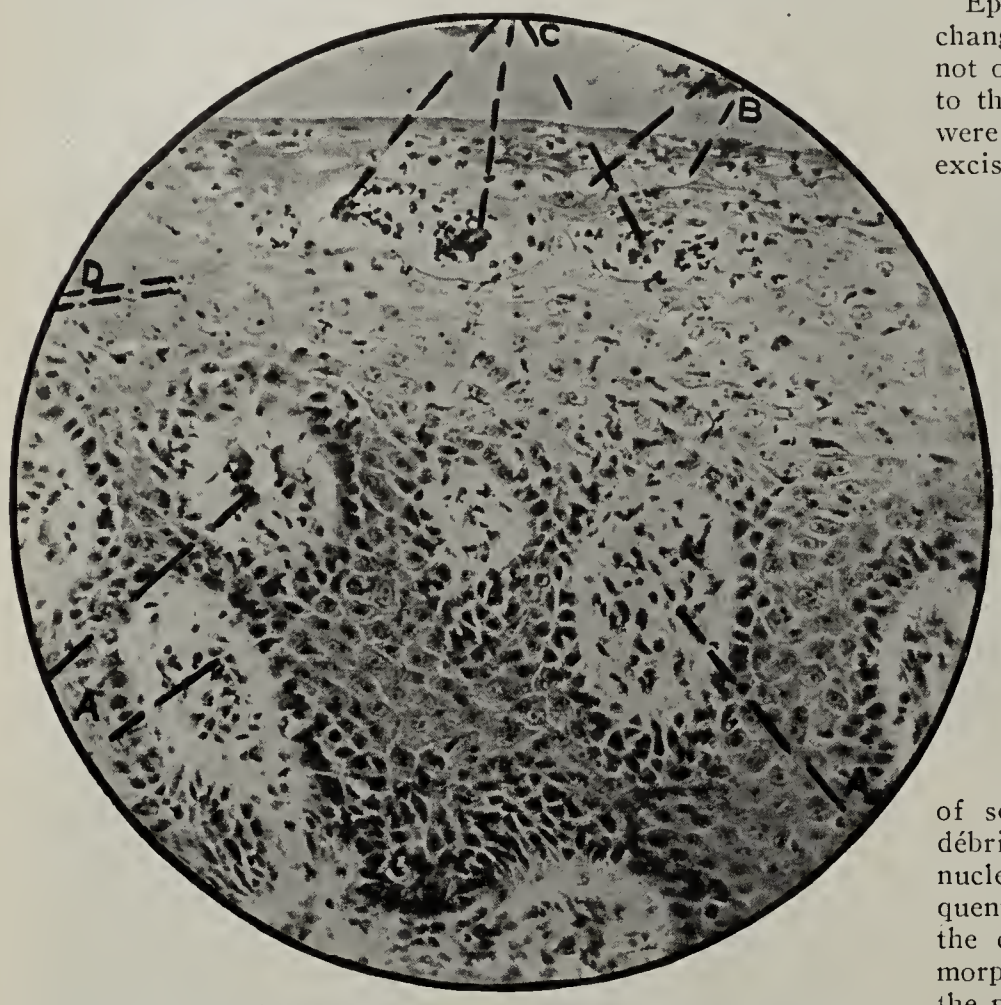


Fig. 6.—From same section, showing center of Figure 1, × 230: *A*, edematous papillae; *B*, vesicles; *C*, pustules; *D*, polymorphonuclear leukocytes in epidermis.

No lesions were present on the visible mucous membranes. All of the lesions in both cases began as small, brownish, cornlike crusts, feeling to the palpating finger much like small tacks embedded in the skin. No initial vesicular or pustular stage was noted clinically. The vesicles and pustules present were found only on microscopic examination. As the lesions disappeared, they left behind reddish macules which scaled slightly. No subjective symptoms were present, save a slight itching at times.

The patient lost considerable weight and strength during his stay in the hospital. In August he developed a mitral insufficiency accompanied by edema of the lower limbs and dyspnea. At that time his eyes were normal. Gonococci had not been found in the smears from the eyes. He developed an acute iritis, June 19, 1916. About that time the feet, ankles and right thumb became stiff and sensitive to pressure. The thumb took on the "radish-like" form which Fournier has described as occurring in gonorrheal rheumatism. In this case the eruption was treated with Lassar's paste. Four injections of typhoid vaccine were given intravenously with the hope of influencing the arthritis, some beneficial effect being apparently produced.

Aug. 31, 1916, the patient was discharged from the hospital. On that date his eyes were normal, but the arthritis and heart condition were still present, although not so marked as to confine him to bed.

Microscopic Report.—For microscopic study, several cutaneous lesions were removed from both patients. As the findings were practically identical, we shall limit ourselves to a description of the microscopic appearances seen in the second case.

Our biopsy included one large lesion and a smaller one as well from the external plantar surface of the right foot. They were typical lesions, each being covered by a cornlike cap. The fragment of skin was fixed in alcohol and embedded in paraffin. Most of the sections were stained with hematoxylin and eosin, although polychrome methylene blue and glycerin-ether mixture were employed in coloring a few. Satisfactory sections of the horny cap were not obtained, owing to its extreme brittleness.

Epidermis: This was the seat of the most characteristic changes. It was increased in thickness (acanthosis), owing not only to a proliferation of the prickle-cell layer, but also to the presence of marked edema in its upper portion. We were able to ascertain that the horny crusts which capped the excised lesions were due to a mixed hyperkeratosis and parakeratosis, the latter predominating. The so-called transitional layers were markedly affected, the upper layer or stratum lucidum being absent, and the lower layer (stratum granulosum) being present only here and there in a rudimentary form. The granular layer cells which remained kept their customary lozenge-like form, but each nucleus was situated in the midst of a clear space instead of being closely surrounded by the deeply staining keratohyaline granules. Besides the evidence of deficient cornification as shown by the presence of nuclei in the horny layer and the abnormal granular layer, we found numerous leukocytes in these locations. They were chiefly polymorphonuclear neutrophils. The presence of numerous tiny cavities in the upper portion of the prickle-cell layer also attracted the attention. Since they were surrounded by distorted and flattened cells, which show the results of spongiosis or edema of the epidermis, we knew them to be vesicles. Their contents consisted of serum and cells of several sorts—polymorphonuclears, lymphocytes and the débris of epidermal cells. Among these an occasional multinucleated cell called to mind the balloon cells so frequently found in the vesicles of herpes zoster. Certain of the cavities described above contained a number of polymorphonuclear leukocytes, and hence were pustules. Most of the pustules and vesicles were to be found in the upper portion of the epidermis just below the point at which the stratum granulosum is normally situated. The existing edema was intercellular and intracellular as well. Quite a few of the

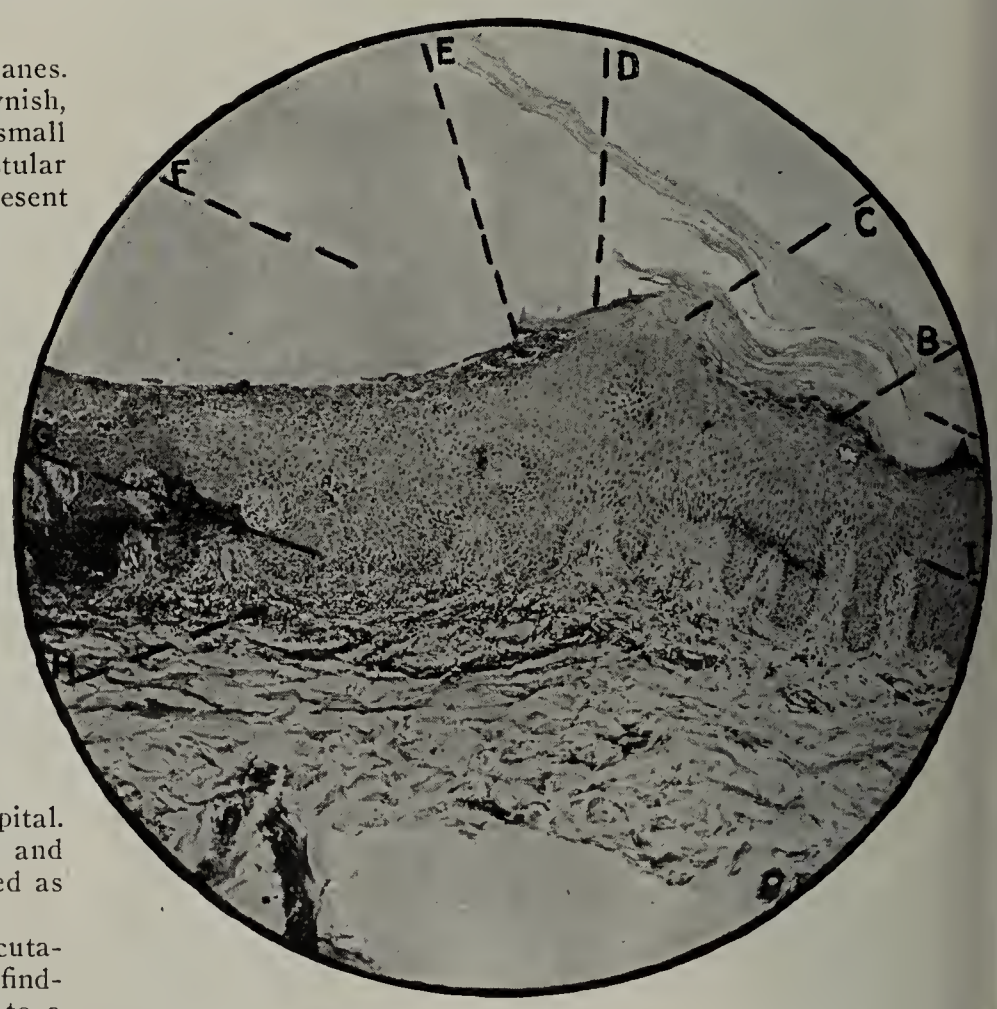


Fig. 7.—From same section, showing edge of Figure 5 with adjacent normal skin, × 60: *A*, thickened stratum corneum; *B*, normal granular layer; *C*, rudimentary granular layer; *D*, parakeratosis; *E*, pustules, and also many polymorphonuclear leukocytes in epidermis; *F*, space occupied by horny cap; *G*, thickened interpapillary process; *H*, round-cell infiltrate; *I*, normal epidermis.

prickle cells showed the latter form to a marked degree, some even suggesting the *alteration cavitaire* of Leloir. In some of the sections a large number of the cells were seen to have lost their prickles. Those adjacent to the stratum germinativum were more nearly normal. Throughout the entire section many leukocytes were found in the spaces between the epidermal cells. The germinal layer was only slightly affected, and as a rule offered its usual well defined wavy boundary between epidermis and derma. Occasionally it merged into the underlying inflammatory infiltrate. Here and there a marked edema of certain papillae flattened out the basal-layer cells; elsewhere their cylindric contour was retained.

Derma: The papillae were swollen and edematous. Their vessels were dilated and surrounded by an infiltrate composed of polymorphonuclear leukocytes, connective tissue and round cells. Only a few plasma cells could be found. Farther down, in the subpapillary layer, we found a denser infiltrate similar in its composition to that of the papillae. This infiltrate was not distinctly perivascular, but was more or less evenly distributed. Some of the sweat gland glomeruli were surrounded by a sheath of round cells. The collagen and elastin were replaced in spots by the infiltrate. Several large blood vessels, which were situated just above the subcutaneous tissue and evidently belonged to the subdermic plexus, showed a marked proliferation of their walls and a perivascular sheath of round cells.



Fig. 8.—From same section but showing another field, × 110: *A*, round-cell infiltrate; *B*, pustules; *C*, parakeratosis.

COMMENT

The most striking pathologic features of kératodermie blennorrhagique may be summarized as follows:

1. Marked edema resulting in vesiculation and later pustule formation.
2. Infiltration of leukocytes in both derma and epidermis.
3. Parakeratosis associated with hyperkeratosis, resulting in the formation of the horny cap on each lesion.

These findings agree in the main with those of Chauffard and Froin, Turnbull, Sobotka,[11] Buschke[19] and Baermann, all of whom have made extensive pathologic studies of cases of this unusual disorder. We would particularly emphasize the importance of vesicle and pustule formation, as well as the presence of parakeratosis in the horny cap.

With reference to the pathogenesis, it is interesting to note that in a patient with gonorrheal urethritis, Scholtz[20] found gonococci in subcutaneous abscesses which were associated with cutaneous lesions of urticarial and erythema nodosum type.

In a patient with acute gonorrhea who soon after its onset showed a generalized erythema-multiforme-like eruption, Hodara[6] found numerous gonococci in blood smears. He also was able to grow them, but could not find the organisms in excised cutaneous lesions.

20. Scholtz: Beiträge zur Biologie des Gonococcus, Arch. f. Dermat. u. Syph., 1899, **49**, 1.

Wadsack's[21] case is even more interesting as bearing on the pathogenesis. His patient was a man, aged 39, suffering a second time from gonorrhea. Five weeks after the onset, metastatic conjunctivitis and multiple arthritis appeared. Soon thereafter an eruption appeared which was much like a papular syphilid, but of a brighter color. It was most marked on the palms and soles, being also symmetrically present over the back and hypogastrium. The face, arms, legs and mouth were free. The lesions were linseed-sized papules. When the overlying scale was removed, a pinkish surface was exposed. Following their removal the scales were soon renewed. In one of these lesions gram-negative diplococci were found on microscopic examination. So far as we are aware, after a thorough review of the literature this is the only case of kératodermie blennorrhagique in which these organisms have been found.

In view of these findings it seems not improbable that the gonococcus itself may find its way to the skin through the circulation and thus act as the direct cause of the keratotic crusts characteristic of the disease.

59 East Madison Street
—32 North State Street.

21. Wadsack: Verhandl. d. Charité Gesellsch., May 10, 1906.

Puerperal Mortality.—According to a bulletin of the Children's Bureau, 15,000 mothers die each year in the United States from causes incident to maternity. This means that more women between 15 and 45 die from these causes than from any other except tuberculosis, though the deaths are largely preventable. While the death rates of such diseases as tuberculosis, typhoid fever, diphtheria, croup and certain other preventable diseases have fallen since 1900, the available figures for the registration area show no decrease in the number of deaths on account of childbirth. Two causes are assigned by the experts of the bureau for the present condition. One is that the hazards of childbirth have either been ignored or are accepted as unavoidable, and the second fundamental cause is the difficulty of securing adequate prenatal care and postpartum management. Even in the cities where there are many hospitals and qualified physicians, the proportion of women receiving hospital and qualified medical care in childbirth is small. In the rural districts physicians and hospitals are fewer or are harder to reach, and confinements frequently take place with no one present but the husband or neighboring women. Attention is called in the bulletin to the maternal and child welfare work as developed in New Zealand and in Canada, and a unit plan for a rural county in this country is suggested. This includes a rural nursing service centering at the county seat, with nurses trained to recognize dangerous symptoms in prospective mothers; an accessible county center of information about personal hygiene for such women; a cottage hospital, or beds in an accessible general hospital, and skilled attendance for each mother in the county.

New Instruments and Suggestions

THE USE OF RADIUM IN CANCER OF THE PROSTATE AND BLADDER

A PRESENTATION OF NEW INSTRUMENTS AND NEW METHODS OF USE *

Hugh Hampton Young, M.D., Baltimore

In 1913, Pasteau and DeGrais reported a few cases of cancer of the prostate and bladder in which truly striking results had been obtained by the use of radium introduced into the urethra through an ordinary catheter (Fig. 1). This led me,

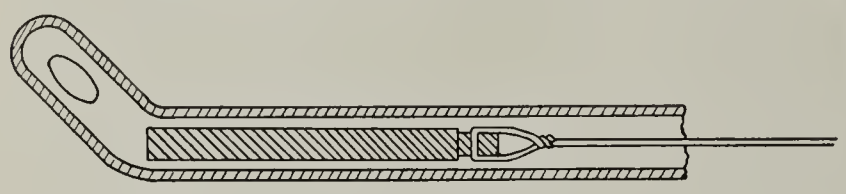


Fig. 1.—Catheter method of Pasteau and DeGrais for applying radium in cancer of bladder and prostate.

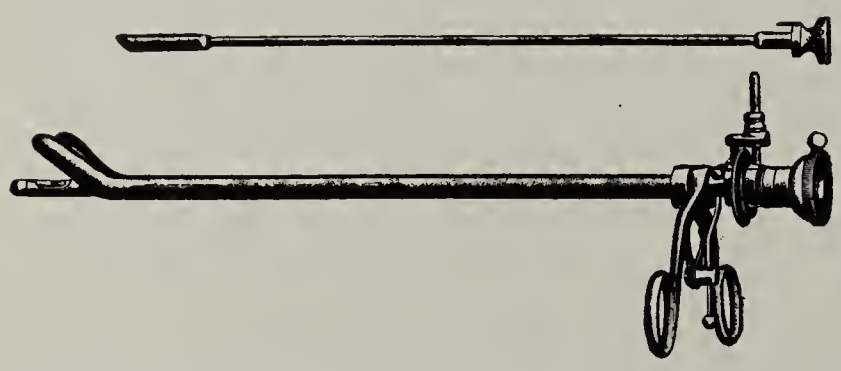


Fig. 2.—Author's cystoscopic rongeur for obtaining sections of vesical tumors for microscopic study.

in 1914, to procure some radium and to try it in certain selected cases. It soon became evident that for accurate work much more exact methods and special instruments would be necessary, and in the machine shop of the Brady Institute I set about to design and construct instruments to meet the varying needs in vesical and prostatic cancer.

The accompanying illustrations show the different models so well that little description is necessary. The small, straight cystoscope which is used in my cystoscopic rongeur (Fig. 2)

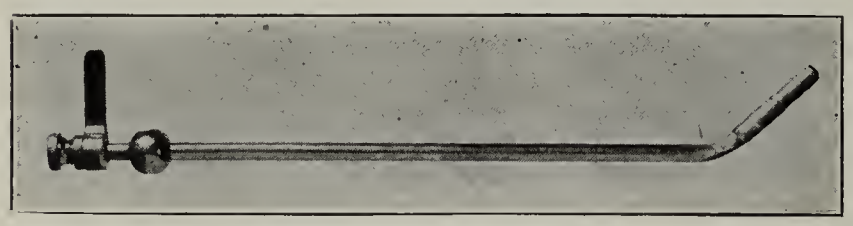


Fig. 3.—Author's Cystoscopic Radium Instrument 1 carrying a tube of radium in fenestrated platinum capsule in beak; closed with obturator.



Fig. 4.—Instrument 1 with straight cystoscope introduced.

was used as a basis around which to construct the various radium instruments.

Radium Instrument 1 (Figs. 3 and 4) carries the radium in its beak. The slender glass tube containing the radium is enclosed in a platinum capsule which slips easily into the open tubular end of the beak of the instrument and is held there by friction. The instrument is passed through the urethra with an obturator (Fig. 3) which is then withdrawn, the bladder washed out and the cystoscope introduced (Fig. 4), making it possible to locate the region to be treated (Fig. 5 *a*)



Fig. 5. (*a*) Observation of tumor through cystoscope. (*b*) Application of radium capsule against tumor.

and to apply the capsule containing radium directly on it (Fig. 5 *b*). When in the proper position the instrument is held fixed by the mechanical hand attached to the cystoscopic table shown in operation in Figure 6. This instrument and



Fig. 6.—"Mechanical hand" or clamp holding radium instrument in position desired.

accurate methods of use were demonstrated to several medical societies in 1915.

Radium Instrument 1 has proved satisfactory for applications to the neck of the bladder, trigon and certain portions

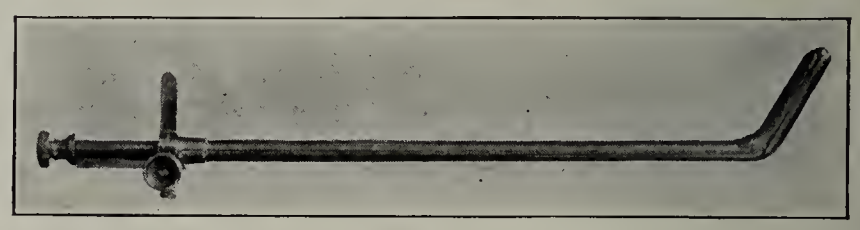


Fig. 7.—Author's Cystoscopic Radium Instrument 2 closed (radium in beak) with obturator.

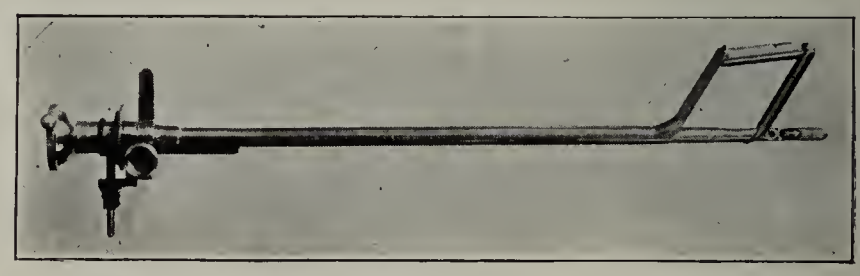


Fig. 8.—Instrument 2 opened ready for use in bladder.

of the lateral and posterior walls. It is usually easy to see satisfactorily with the cystoscope and to place the radium directly on the lesion to be treated.

For tumors well out on the lateral walls of the bladder or on the upper part of the anterior wall this instrument is not

* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

satisfactory, as the end and not the length of the radium tube is presented to the tumor. On this account another instrument was necessary, and to meet this need I have devised a second instrument.

As shown in Figure 7, Radium Instrument 2 carries the capsule of radium within the beak, which is made up of two hollow halves which, when separated by an external operating mechanism, carry the radium out to a position parallel to the shaft and about 2.5 cm. distant from it, as shown in Figure 8, in which it is in position to be placed against tumors quite remote from the middle of the bladder, as shown in Figure 9. This instrument has proved satisfactory in many such cases.

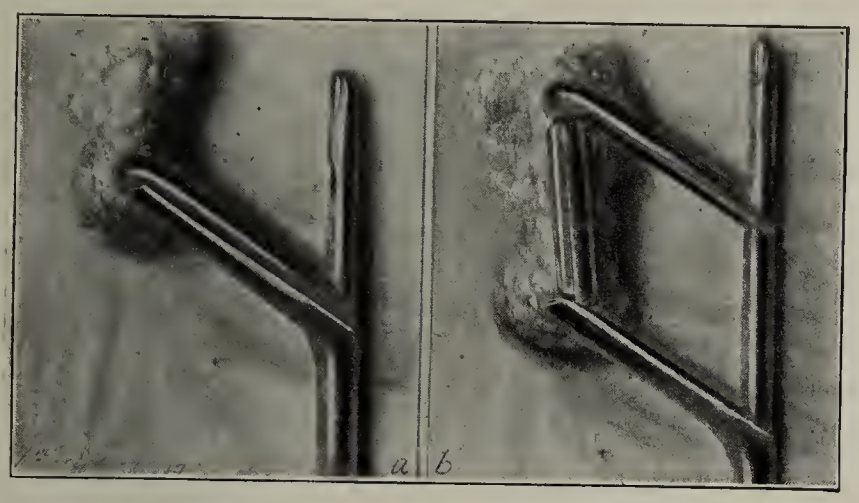


Fig. 9.—Instrument 2 in use: (*a*) inspection of tumor; (*b*) application of radium.

For tumors on the posterior wall of the bladder, still another instrument was desirable in order to place the radium broadside against them, as both instruments (1 and 2) here presented only the end of the radium tube to the posterior wall, and a third instrument was therefore designed, as shown in Figure 10.

As seen here, the beak carrying the radium revolves about its center (Fig. 11), being operated by two wires in the shaft and a screw outside. Figures 12 and 13 show the radium carried crosswise the shaft in position to be applied, under cystoscopic direction, to tumors on the posterior wall.

With these three instruments it is possible to place the radium flat (lengthwise) against a tumor in any part of the

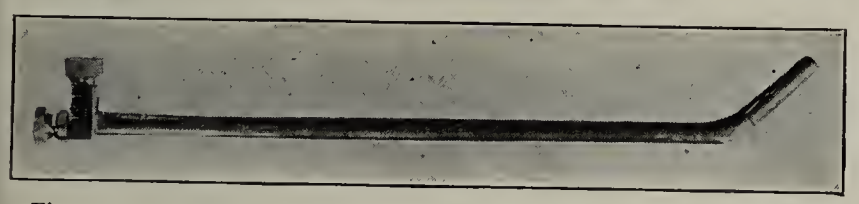


Fig. 10.—Author's Cystoscopic Radium Instrument 3 closed, with obturator.

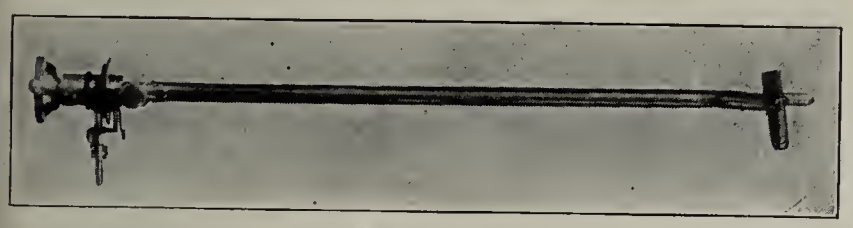


Fig. 11.—Instrument 3: beak with radium revolved for application to posterior wall.

bladder, and to inspect it through the cystoscope from time to time, during the application. A capsule with a fenestra along one side is usually employed in vesical tumors so that the radium may be placed unscreened directly against the neoplasm, but screened from the rest of the bladder. By this means we have been able to secure all the action of both beta and gamma rays, and at the same time have avoided burning the bladder in surrounding regions, thus making much longer treatments quite possible.

The duration and frequency of the treatments vary according to the case, the tolerance of the individual and the size of the tumor. The instrument is held in the desired position by the mechanical arm, described before, and the treatment continues an hour or more if possible. Intensive treatments are desirable, and in order to shorten the applications in sensitive cases several hundred milligrams of radium in a high



Fig. 12.—Instrument 3 in use against tumor on posterior wall of bladder.

percentage of purity are required to secure the best results. The treatments are made every two or three days, if possible, and a different site on the surface of the tumor attacked each time. We have seen many large tumors respond rapidly, but sometimes a few fulgurations may be helpful in causing

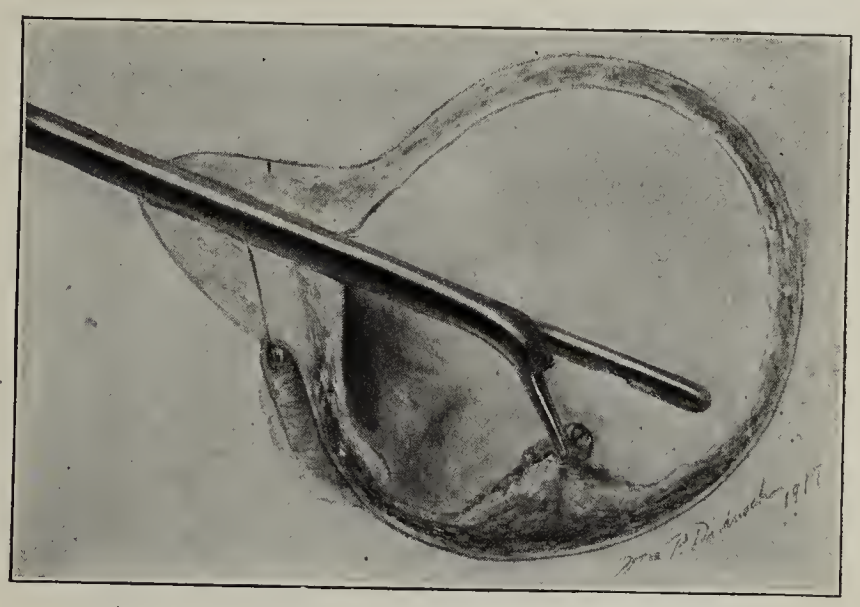


Fig. 13.—Sectional view, showing use of Instrument 3.

large tumor masses to slough away quickly, so that the base can be reached for direct radium applications (Fig. 14).

Later, with Dr. William Frontz, I shall report at length on the results obtained, some of which have been quite remarkable.

In cancer of the prostate, Instrument 1 (Fig. 3) has proved satisfactory, not only for intravesical but also for intra-



Fig. 14.—Application of radium to base of tumor destroyed by fulguration: (*a*) observation; (*b*) application.

urethral and rectal applications of radium. In the urethra and rectum the cystoscope is not necessary. I usually employ a nontubular instrument (Fig. 15); but a finger in the rectum tells definitely when the beak of the instrument carrying the

radium capsule is in the desired place, and the mechanical arm holds it there (Fig. 16).

In carrying out these treatments I make use of charts (Figs. 17, 18, 19, 20). As shown here, the size and extent of the cancers of the prostate, seminal vesicles and bladder are indicated in outline and the location of the treatments are given with the date and the number of milligram-hours affixed, thus showing everything graphically on one sheet. By this means the position of successive radium applications is varied from day to day so as to avoid overlapping and consequent burning, particularly when normal urethral or rectal mucosa intervenes between radium and tumor, as in cases of prostatic cancer.

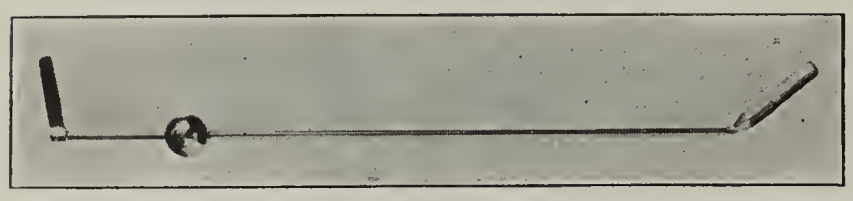


Fig. 15.—Rectal radium carrier, applied under direction of index finger in rectum, and held in place by mechanical hand or clamp.

By thus applying the radium at a different place each time it has been possible to accomplish as many as twenty-five transrectal treatments (each of one hour's duration) in cases of cancer of the prostate and seminal vesicles without producing any rectal burn or even marked irritation. Heretofore transrectal radium treatments of cancer of the prostate have been considered inapplicable on account of the vulnerability of the rectal mucosa. The methods here described make it possible to eliminate these complications, and greatly increase the ability for intensive treatment. With the instrument here described the radium (screened by a platinum capsule) can be applied, with the direction of a gloved finger in the rectum, accurately to almost any desired point of the carcinomatous prostate or seminal vesicles, and held there for an hour or more. Not infrequently a region above the seminal vesicle along the lateral wall of the pelvis and adjacent to the sacro-iliac synchondrosis is reached in order to pass well above the upper limits of the disease, as shown in Figure 20, and treat the lymphatics or glands of this region.

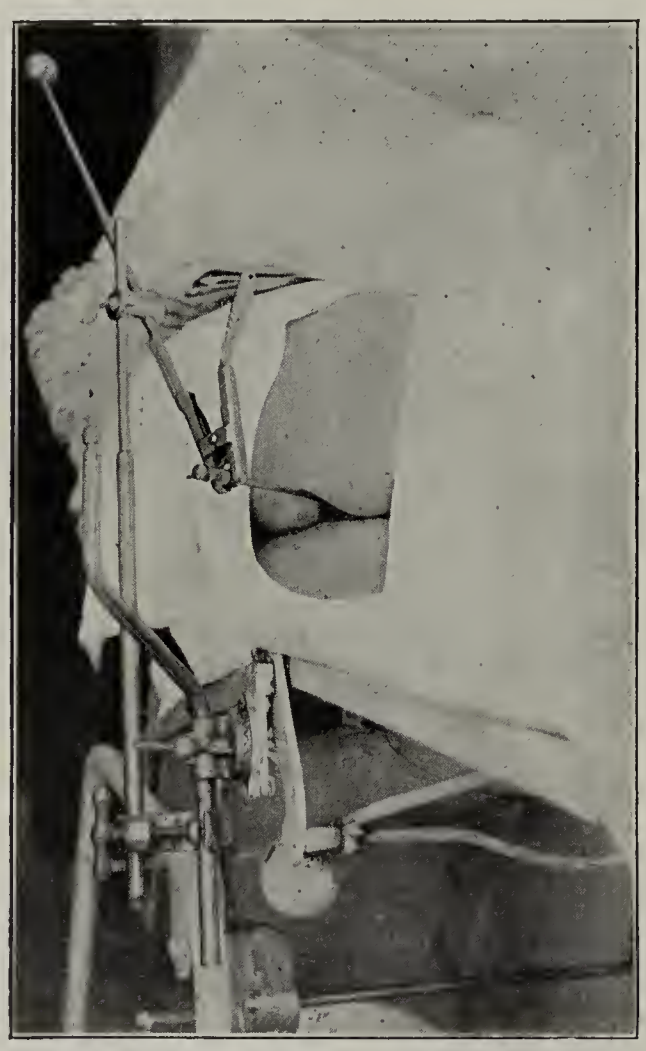


Fig. 16.—Mechanical hand in use in treating cancer of seminal vesicles and prostate through rectum.

The urethral and vesical mucosae have proved very tolerant to transurethral and transvesical treatments of cancer of the prostate and seminal vesicles. Not infrequently from 200 to 300 milligram-hours at one seance have been borne by the urethra or bladder without burn or evident irritation. The deep urethra affords three nonoverlapping positions for transurethral radiation, and each of these may be again used without fear in two weeks or more. Four or five transvesical positions are available for treatment of the seminal vesicle, and at the prostatic orifice the beak of the instrument may be turned in various directions against as many different enlarged lobes as may be present.

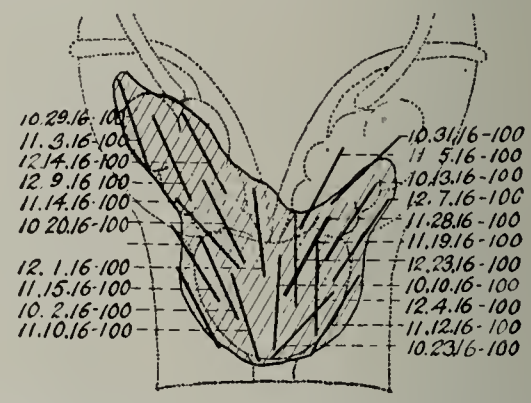


Fig. 17.—A case of cancer of the prostate and left seminal vesicle (right vesicle slightly involved). The radium treatments, each representing 100 milligram-hours, are shown, and the date of each is recorded.

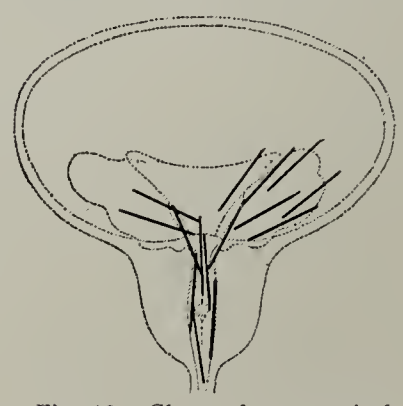


Fig. 18.—Chart of transvesical and transurethral treatments in case shown in Figure 17. Each line represents 100 milligram-hours.

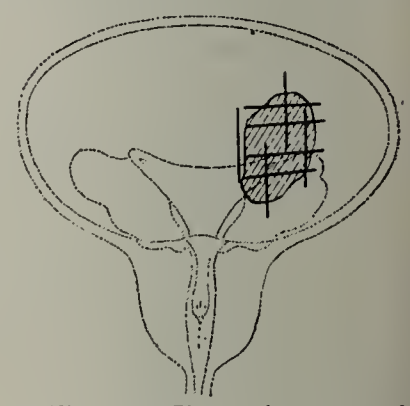


Fig. 19.—Chart of a case of tumor of bladder (involving left ureter) showing radium treatments given with Instruments 1 and 2.

I began this radium work timidly and cautiously, as I was fearful of injury caused by burns from short urethral or rectal treatments. The methods described above were evolved slowly, step by step, after we had demonstrated that by exact methods it was possible to place the radium where we willed and to change its location sufficiently often to avoid injury of normal intervening adjacent or remote structures. By these means far greater localized treatment, made directly

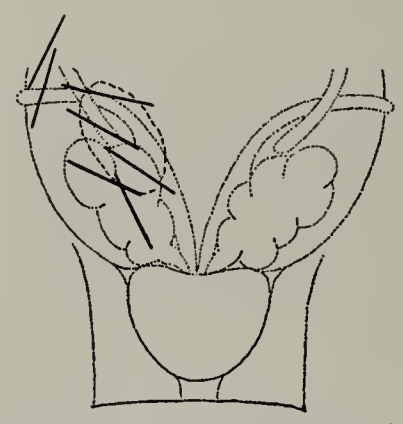


Fig. 20.—Chart of transrectal treatments in case of tumor of bladder (Figure 19). The higher applications are intended for possible glands along the pelvic wall.

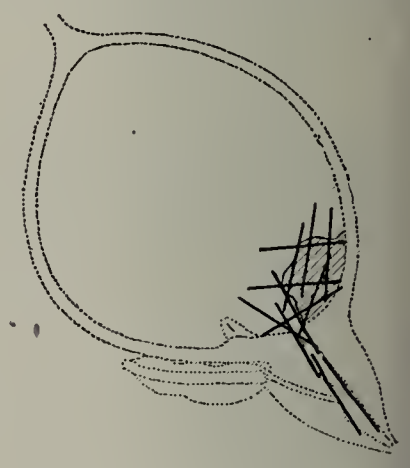


Fig. 21.—Chart of treatments given tumor of anterior wall of bladder near prostate.

on the neoplasm or through an insignificant layer of intervening mucous membrane, has become possible. I have also used radium in prostatic hypertrophy cases in which the patient was too desperately sick to be operated on.

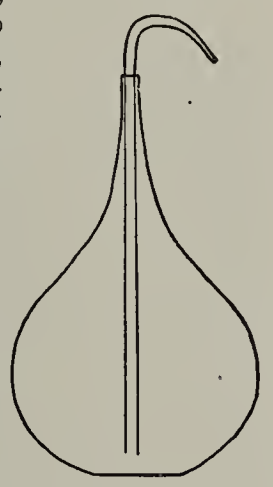
This article is not intended to speak of ultimate results, but we may safely say here that truly astonishing results have been obtained in some cases: disappearance of obstruction, shrinkage and great softening of certain cancers of the prostate, and extensive retrogressive changes in inoperable cancers of the bladder. Fairly large amounts of radium, in high concentration, are desirable in order to make the treatments, amounting to 200 or more milligram-hours, of as short duration as possible. This is particularly true of cancers of the bladder, in which the patient is often intolerant of long treatments.

These methods have opened up a new and fertile field of therapeutics in a class of urologic cases which have heretofore been almost beyond relief. While we do not as yet know all the possibilities of cure, we do know that much relief can be afforded.

A CONVENIENT OIL DROPPER

LAURA LEONARD GILMAN, B.A., MADISON, WIS.
Assistant Bacteriologist, State Laboratory of Hygiene

A dropper for immersion oil, which will be found to be an asset in a busy laboratory, can be made easily and inexpensively from an ordinary rubber ear and ulcer syringe and a bit of glass tubing. The glass tubing, which should be just large enough to pass through the orifice of the syringe, should be bent as shown in the accompanying drawing, and should be long enough to reach almost to the bottom of the bulb. The bent delivery end is to be drawn out so that its lumen is large enough to admit only a fine platinum needle.



Convenient oil dropper.

This oil dropper puts accurate delivery of the oil and the size of the drop under the control of the user. It does not spill its contents when tipped over, nor does its exterior become covered with sticky oil drippings. It requires only one hand to operate. It delivers uniformly whether full or nearly empty, and if it is originally filled with good fresh oil, the lumen of the glass tube will not become caked with dried oil, even after months of service.

For those who use an oil immersion lens frequently, this device will save a great deal of inconvenience and delay.

A NEW INCISION FOR THE RADICAL RESECTION OF TUBERCULOUS GLANDS OF THE NECK

W. E. MCILVAINE, M.D., HAMMONTON, N. J.

I have termed this the "T incision." It consists of a horizontal portion and a vertical portion, as its name indicates.

The horizontal portion practically coincides with Dowd's upper incision. It is begun about 1 inch below the lobe of the ear and runs forward toward the median line of the neck parallel with the ramus of the inferior maxillary bone and in one of the furrows of the skin. This is represented in the illustration by the line *A-B*.

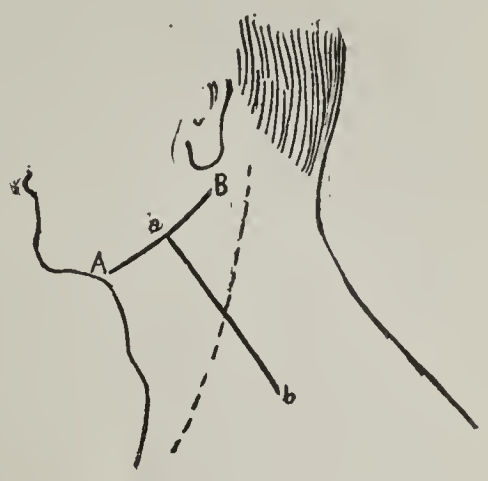
From the middle of this incision begins the vertical portion, which runs downward and slightly backward toward the junction of the middle and outer thirds of the clavicle, *a-b*.

This incision is particularly advantageous in extensive tuberculous or malignant disease of the cervical glands.

Through the horizontal portion may be removed the superficial collar of glands or any deeper glands in the submaxillary triangle. It may be extended backward to the hair line to facilitate the removal of the retro-auricular glands, or prolonged forward to remove the submental glands.

The vertical portion of the incision permits the excision of the substernomastoid chain of glands. It crosses the sternocleidomastoid muscle at about the middle, and both edges of the muscle can be easily freed and lifted out of the way. Through the lower end of the incision it is an easy matter to remove the supraclavicular glands.

If such an extensive excision as this were contemplated with the Dowd incisions, at least two separate incisions would be necessary, which would not offer so much freedom to the surgeon as would the incision just described. The anatomic incision does not give free access to the submaxillary triangle or the posterior triangle.



Incision for radical resection of tuberculous glands of the neck: *A-B*, horizontal segment of T incision, *a-b*, vertical segment; the broken line represents the anatomic incision.

I close this wound with plain catgut subcuticular stitches. It is drained for from twenty-four to thirty-six hours. The wound heals rapidly and leaves only a linear cicatrix. The upper horizontal segment is not conspicuous because it lies in a furrow of the skin. The lower vertical portion is covered by the collar.

408 Bellevue Avenue.

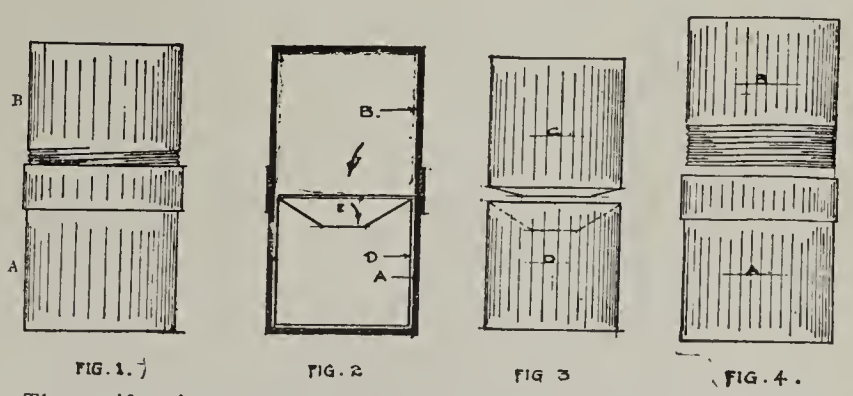
THE ANTIFORMIN SPUTUM CUP

M. J. FINE, M.D., NEWARK, N. J.
Chief Clinical Assistant, Newark Tuberculosis Bureau; Visiting Physician, Newark Tuberculosis Sanatorium at Verona, N. J.

All bacteriologists are familiar with the antiformin method of examination for tubercle bacilli. Antiformin is an alkaline antiseptic which dissolves the mucin and freezes the tubercle bacilli so that they can be sedimented.

For a more expeditious use of the antiformin process, I have devised a special sputum cup, which should prove of particular benefit to private laboratories and to general practitioners sufficiently interested in tuberculosis to desire to make their own examinations of suspected sputum. This cup and the antiformin solution are given to the patient with proper instructions how to admix the sputum with the antiformin. The essential principles operative are the insolubility of tubercle bacilli in the antiformin, and the filtering of the homogeneous mass through an exceedingly fine filter, on which as a residue the tubercle bacilli are found clumped together abundantly.

The cup consists of two metal receptacles, *A* and *B*, which may be screwed together tightly without any leakage of contents. The outward aspect of the cup is represented by Figure 1. Fitting snugly into the lower receptacle is a metal container, *D*, constructed on the same principle as that of an unspillable inkwell, made of tin and properly soldered, and in the upper receptacle is a similar container, *C*; this container is corked, and holds the antiformin solution. A fine



The antiformin sputum cup: Fig. 1, the sputum cup with the receptacles, containers and mixture as sent to the patient; Fig. 2, the action of the antiformin and filtrative; Fig. 3, the containers in the sputum cup; Fig. 4, the receptacles and the screw thread for adjustment.

metal filter, consisting of two circular pieces of finely meshed metal copper gauze between which is a layer of filter paper, fits snugly over the container, *D*, so that when the outer receptacles are screwed together the filter is firmly set.

The patient, according to instructions given him, inverts the sputum cup; takes out the antiformin container, *C*, and expectorates into the upper receptacle, *B*; when this is one-fourth full, he uncorks the container, *C*; pours its contents into the sputum; screws the cup together; throws away the container, *C*; inverts the cup, and sends it to the physician by parcel post, or retains the cup for twelve hours before bringing it to the physician's office.

Figure 2 represents the antiformin mixture passing downward into receptacle *D*. The antiformin dissolves the organic matter in the sputum and all other bacteria except the tubercle bacilli; the filter acts as a trap for the untouched bacilli enmeshed in the waxy insoluble material surrounding them; the shaking incident to the journey from patient to laboratory helps somewhat in the more rapid solution. The result is a residue on the filter which, when washed with sterile water to free it of antiformin, can at once be used as a smear, and stained with the usual Ziehl and Neelsen carbolfuchsin, which will reveal the presence or absence of tubercle bacilli.

The advantages of the antiformin sputum cup are the rapid application of the antiformin method and the expeditious determination of the nature of the suspected sputum. (When the specimen is received by the physician, the antiformin has already acted on the sputum for twelve hours or more). It obviates the necessity of recourse to any further time consuming investigation. The cup is compact in form, is easily sterilized by boiling, and the instructions to the patient can easily be followed out.

This cup has been of great practical use to me, and I hope it will meet the approval of all those who are devoted to this interesting field of medicine. I do not doubt that the cup can be materially improved.

145 South Orange Avenue.

PARAFFIN-COVERED BANDAGES*

Torald Sollmann, M.D., Cleveland

The use of paraffined bandages has been suggested by Fisher.[1] He dips the bandage into melted paraffin, and applies this directly to the wound as a nonimpregnable dressing. In principle, this is somewhat analogous to the paraffin films, although it differs in some essential respects.

Another use of paraffin in connection with bandaging occurred to me while working with the paraffin films, as reported in a previous paper: the painting of the surface of the finished dressing in situ with melted paraffin. The results were very promising. The bandage is stiffened so as to form a support, which in some cases may take the place of a splint, or even of a cast. It is weaker and somewhat more pliable, but very much lighter. It may also serve the purpose of fixing a bandage so that it does not slide on itself, and of protecting the surface of the bandage against moisture and dirt.

The bandage is prepared very simply by painting the outer layers of the ordinary bandage with melted paraffin. It is also feasible to paint the surface of the cotton directly, without application of any bandage. This, however, does not give as good a mold as the paraffin bandage.

The paraffin bandages can of course be easily removed by cutting them with scissors. Paraffin may also take the place of adhesive plaster, etc., for sealing the end of a bandage. The melted paraffin is simply painted over the edge after the bandage is in place. Another use is for painting the edge of the bandage where it is especially liable to become frayed or soiled, as at the wrist. A strip of melted paraffin may also be painted along one side of the bandage to keep the laps from sliding on each other.

* From the Pharmacologic Laboratory of the Western Reserve University, School of Medicine.

1. Fisher, H. E.: Nonadhering Surgical Gauze, The Journal A. M. A., March 25, 1916, p. 939.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1043*)

TREATMENT OF CHRONIC NEPHRITIS

The therapy of chronic nephritis really involves the control of the disease and the management of the patient suffering with it. The title presupposes that we are not discussing an accidental albuminuria with or without casts, a lordotic (orthostatic) albuminuria, localized nephritis, or a kidney disturbance arising from a so-called surgical lesion, the cause of which must be treated before the management of the nephritis can be considered.

When the case has been diagnosed as one of chronic nephritis, its character and the probable prevailing type of lesion should be ascertained. If the nephritis has resulted from an acute infection, if it has become chronic in a young person, and if, judging from the amount of albumin, casts and edema, it is apparently a parenchymatous form of inflammation, the prognosis is unfavorable. If there are eye lesions, the prognosis is still more serious. If there is severe anemia, severe indigestion, and signs of chronic myocarditis, the prognosis is unsatisfactory. If the nephritis has apparently developed on a cardiac lesion, the prognosis may not be unfavorable, but a considerable although slow improvement may be expected. If the amount of urine is large and of low specific gravity, if there is only a limited amount of edema, if the patient is elderly, and, from the general heart tone, one concludes that the prevailing pathologic condition in the kidneys is of the interstitial variety, there is reasonable hope for a temporary cessation, or a retardation in the progress of the disease. True Bright's disease is cardiovascular-renal disease, the prognosis of which depends on the efficiency of the heart and the condition of the blood vessels. From the condition of the patient may be surmised, but not positively diagnosed, whether this disease will eventually culminate in death resulting from uremia, angina pectoris, sudden cardiac dilatation, or rupture of a blood vessel in the brain.

All positive causes for the chronic nephritis must be investigated, the probable causes, if possible, removed, and anything in the patient's life or situation that would aggravate the condition should be changed. Physical strain, an injurious position of the body, accidental or maintained at work, a faulty bed, abdominal ptosis — everything which tends to interfere with the kidney circulation should be corrected. Chronic localized infections should be sought and removed, such as infections of the gallbladder, of a gum, of a tonsil or of a sinus connected with the upper air passages. It is possible that the urinary symptoms — whether albumin or casts — may be the remnants of an acute or subacute infection of the kidneys which has not yet cleared up; if this is probable, rest, careful diet and warmth, or a change of climate, may bring about entire recovery. Repeated tests of function will show the excretory ability of the kidneys, and may aid in establishing the cause of the nephritis.

All removable causes and irritants having been abolished, the treatment of chronic nephritis becomes (1) control of the diet, and (2) of the clothing; (3) care of the skin; (4) hydrotherapeutic measures; (5) exercise; (6) care of the bowels, and (7) necessary medication.

CONTROL OF THE DIET

1. Although the diet in nephritis has just been discussed, some repetition and elaboration is pardonable on account of its importance. It may be advisable in the form of chronic nephritis in which the parenchymatous apparently predominates to eliminate meat entirely from the diet, at least temporarily, and to reduce the protein intake to the least amount which will sustain strength and prevent anemia. Scientifically, repeated function tests, repeated study of the twenty-four hour urine excretion on a known diet, and the blood tests for nonprotein nitrogen will indicate the best diet for the patient. It should be such as will not cause gastro-intestinal indigestion. If meat is to be allowed, red meat may be eaten as well as white in small quantities once a day. It should be remembered that fish, chicken and fowl come under the heading of meat. All beef extracts, beef teas and meat soups should be prohibited. Rich nucleoproteins should be restricted, if not prohibited; this includes liver, sweetbreads, shad roe, etc. If the blood pressure is not high, the patient may be allowed coffee and tea. On his digestion depends the amount of starch he may have; also whether the milk he drinks shall be skimmed or not. If meat is not allowed, the patient should eat more eggs, beans, peas, oatmeal gruel, bread, nuts and cheese.

The amount of water taken must be regulated according to the edema and the patient's need of water. If the specific gravity of the urine is low, as occurs in interstitial nephritis, he requires plenty of water to eliminate the salts. If edema is extensive, the amount of water and salt used must be reduced.

A patient on a meat-free diet should receive a small amount of iron daily. If this salt-free diet is long continued, he will probably need a small amount of dilute hydrochloric acid, not more than 5 drops, two or three times a day, after meals, according to the character of his food — a pure starch meal would not require hydrochloric acid.

The patient should be frequently weighed, and the hemoglobin reading frequently taken. If he is losing weight and edema is not reduced, the food is not sufficient. If the hemoglobin index is diminishing and there is actual loss of red corpuscles, his protein is insufficient, and he is not receiving, or at least metabolizing, a sufficient amount of iron. If the albumin excretion is large, he may lose weight and become anemic in spite of a proper diet. Such a patient should rest for a time. An increase in weight does not necessarily mean that the patient is improving, as this may indicate an increase of edema, perhaps of the concealed or internal variety.

Great fatigue on the least exertion may be an evidence that the patient's food is insufficient, that his heart is failing, or that he is toxic. Analysis of the blood pressure and the character of the heart action will show whether the heart is at fault or whether the blood pressure is too high and is causing dyspnea and fatigue. The hydrotherapeutic measures, sweating procedures, physical exercise or purging may be too severe, and should be modified. A blood test may show that he is retaining nitrogen. Under any circumstances, such fatigue, especially if associated with muscle cramps and generally increased nervousness, should be carefully investigated. Uremia may be impending.

Game meat should be avoided; fish and shellfish should not be eaten unless strictly fresh. While cheese is one of the best protein nutriments for a meatless diet, in certain instances it causes indigestion and should be avoided. All spices and highly seasoned sauces and dressings, canned foods and asparagus should be prohibited. Potatoes, turnips, parsnips, carrots, peas, beans, string beans, spinach, cabbage, cauliflower, watercress and celery may be eaten. In a meatless diet the protein nutriment is obtained from eggs, bread, milk, oatmeal, peas, beans and perhaps cheese. Nuts, thoroughly comminuted and swallowed as milky pulp, may be freely eaten if not difficult to digest. The amount of cereal, bread and potatoes which will be of profit to the system depends on the weight of the patient. He should not be allowed to gain weight, and surplus weight should be reduced if possible. When an obese person suffers from chronic nephritis, the most careful arrangement of diet and exercise is necessary to reduce the weight, to sustain the circulation, and to cause the kidneys the least possible irritation. If the patient is not obese, it is desirable that a moderate amount of sugar should be allowed. Fruits should usually be included in the diet unless contraindicated by the activity of the bowels and by the causing of gas or hyperacidity. Vinegar and pickles are usually injurious; on the other hand, dilute hydrochloric acid may at times be needed to aid digestion, as indicated by gastric indigestion and a heavily coated tongue.

In radically changing the ordinary diet of the patient with chronic nephritis, care must be exercised not to place too great a task on the various organs of the body. Many a patient who is suffering from chronic nephritis will thrive much better on a modified mixed diet, including meat, than on a heavy starch and vegetable protein diet.

The state of the blood pressure indicates whether or not the drinking of coffee and tea may be allowed. If the systolic blood pressure is above 160, or the diastolic above 105, all caffein should be avoided; otherwise an ordinary amount of tea and coffee need not be prohibited. Alcohol should be prohibited entirely, unless the patient is well advanced in years and has been accustomed to it, when a small amount may do no special harm. When there is evidence of congestion or disturbance of the liver, or when there is much intestinal indigestion, alcohol should always be prohibited.

A man accustomed to tobacco may use it moderately, unless the blood pressure is excessively high. In a habitual smoker who has stopped smoking, an irregular heart may be steadied by a return to the moderate use of tobacco. When an immoderate use of tobacco is forbidden a high blood pressure patient, the circulation should be studied and the amount of tobacco allowed found to be moderate in his particular case. If he can give it up entirely without circulatory debility, or if it can be reduced in amount gradually to total abstinence, without weakening the heart, this should be done.

(*To be continued*)

Medicine and Mystery.—Medicine has cast off the veil of mystery which once covered her face and walks among men uncovered and unashamed. The days of "divine healers," Indian medicine fakers, and of Mrs. Winslow and Lydia Pinkham, are passing away. Some may say that these statements are contradicted by the wide prevalence of Christian Science, osteopathy and other cults. These are only the vagaries which have taken form in the delirium-racked brain of a fast dying superstition.—V. C. Vaughan, M.D., *Science*, Dec. 8, 1916.

Special Article

THE MEDICAL OFFICER OF THE ARMY

I

THE ADMINISTRATION OF THE MEDICAL DEPARTMENT*

The Medical Department of the Army is divided into the Medical Corps, the Medical Reserve Corps (after June 1, 1917, the Medical Officers Reserve Corps), Nurse Corps, Dental Corps, Veterinary Corps, and the enlisted men of the Hospital Corps.

MEDICAL CORPS

The Medical Corps consists of commissioned medical officers; in June, 1916, there were 443 officers in this corps; since that time 150 more have been added, making a total of 593. The new Defense Act (1916) provides for a total number of 1,550, making necessary approximately 1,000 additional men. There is therefore an urgent demand for men to fill these permanent positions. The need is particularly apparent when it is considered that in round numbers 100 medical officers are required for every division of 20,000 men for service with the division itself, and without allowing for any hospitals in the rear.. The ratio of rank, that is, the relative number of officers in each grade in the Medical Corps, is: colonel, 3.16 per cent.; lieutenant colonel, 5.42 per cent.; major, 23.7 per cent.; captains and lieutenants, 67.72 per cent. In other words, of each 100 officers there shall be the indicated number in each grade. If 1,550 officers are created as by the new Defense Act mentioned, there will be about 49 colonels, 84 lieutenant colonels, 367 majors and 1,050 captains and lieutenants.

MEDICAL RESERVE CORPS

The Medical Reserve Corps was organized, April 23, 1908, to furnish temporary medical officers for service with the army in time of war. The number of these officers in June, 1916, was 1,767 on the inactive list and 146 on the active list. Because of the shortage in officers of the regular corps, a number of the Reserve Corps officers have been on permanent duty for some time. But even were the total number ordered into active duty it would not be nearly sufficient for the needs of the army in time of war. The Medical Reserve Corps consists of three grades: lieutenants, captains and majors. On entrance into the service in time of war, the officers retain the same grade that they held while on inactive duty. An officer assigned to active duty on arrival at his first station is subjected to a critical physical examination. Following this examination, the board recommends whether or not the officers shall be continued on active duty.

During the recent concentration on the Mexican border, many officers of the Reserve Corps were sent to serve with the troops. Their service, which extended from one to three months, was valuable and gave them much needed instruction. In time of war these officers can be counted on as thoroughly familiar with the basic principles underlying their work.

CONTRACT SURGEONS

Prior to the formation of the Reserve Corps, 1908, contract surgeons, who contracted with the government for their services at $150 per month, were assigned to duty in places in which there was an insufficient number of regular medical officers to accomplish the necessary work. This service was found unsatisfactory not only for the government but also for the individual physicians employed, as the contract surgeon has no rights from a military standpoint. He could not even require a salute from a private soldier.

DENTAL CORPS

The Dental Corps is of comparatively recent organization, March 3, 1911. In June, 1916, it consisted of forty regular dental surgeons and thirty-five acting dental surgeons. The corps was rather loosely organized at first, but at present is complete. The new Defense Act provides for the following grades: first lieutenant on entrance and after eight years with an examination, promotion to captaincy and after twenty-four years a majority. The law provides that there shall not be more than fifteen majors in the regular service. Of course if the army is increased, the number of dental surgeons will be correspondingly increased. The service has been greatly developed recently, and the dental surgeons have given excellent service not only in caring for the teeth of the soldiers but also in oral surgery and in the development of Roentgen-ray work in the study of infections of the alveolar processes.

NURSE CORPS

The Nurse Corps was organized in 1901 following the experience of the Spanish-American War. During that war, volunteer nurses were depended on to a great extent. They had not been satisfactorily examined, and the service was not wholly satisfactory. The Nurse Corps consists of a superintendent of nurses, chief nurses, nurses, and reserve nurses. At present there are 150 head nurses and nurses. Nurses enter the service after a mental and physical examination, and are appointed for a period of three years. At the end of that time they may be discharged or reappointed, depending on their service and their wishes. The pay of a nurse is $50 a month, with $5 extra a month in the second enlistment period and $10 extra a month in the third period. Chief nurses receive $30 more per month and the yearly increases. In addition to the pay, a nurse receives her food and quarters, and her uniforms are laundered at the government's expense. The enrolled nurses of the American National Red Cross Nursing Service constitute the reserve of the Army Nurse Corps. The service in military hospitals is similar to the service in civil hospitals as far as the work of the nurse goes. There are, however, minor differences. This was appreciated at the time of the recent concentration on the Mexican border, and a large number of Red Cross nurses were sent down to the border to receive their training in the medical department.

SANITARY TROOPS

The soldiers, or the sanitary troops, as they are called, are an important part of the department. They are employed for the care of the wounded and their transportation to dressing stations, field hospitals and other hospitals in the rear. The service in hospitals at the front is also in their hands. The strength of the sanitary troops was increased by the Defense Act, and is at present 5 per cent. of the enlisted strength of the army. There are now between 5,000 and 6,000 men in the corps. This means that 25,000 sanitary troops will be needed for an army of 500,000 men. The enlistments in the medical department have been

* A list of references to previous articles and books on military problems appears in this issue under Medical Mobilization and the War.

about as rapid as those in the line of the army. The grades in this branch are: private, $18 a month; corporal, $22 a month; sergeant, $36 a month; first class sergeant, $50 a month; hospital sergeant, $65 a month, and master hospital sergeant, $75 a month. The last two grades were added by the recent act of Congress. This pay is only a basis of calculation, for every soldier gets an increase of pay for every enlistment period. In addition he receives his food, clothing, quarters and medical service free of charge. For a soldier of the rank of first class sergeant or upward, quarters are provided for his family, and his family can purchase food from the hospital mess at cost. A number of officers in the line of the army have come from the enlisted strength of the medical department.

DUTIES OF THE MEDICAL OFFICERS

The duties of a medical officer from a professional standpoint are similar to the work of the professional man in civil life. Opportunity is allowed for the development of specialties, and every officer showing an aptitude in any particular branch of medicine receives prompt encouragement to develop it. In peace, this professional service is at different army posts or army general hospitals. Each military station has a large, well equipped hospital with facilities for the proper care of the sick and disabled. The service is similar to that of civil hospitals, including a surgical service, a medical service, an eye, ear, nose and throat department, and a well equipped laboratory. Instruments and other apparatus are furnished by the government. There is an up-to-date library at every hospital; recent medical literature is added as soon as published. This work, in time of war or in active field service, is of the same character except that the service is carried on with more difficulty when the improvisation of equipment, etc., is required.

SANITARY CONTROL

One of the most important duties of a medical officer in peace and in war is the careful control of the sanitary conditions of the garrison or camp. A medical officer acts only in an advisory capacity. When he finds sanitary defects on his inspection, he reports them to the commanding officer with recommendations as to how these defects can be remedied. The commanding officer then decides whether or not he will follow the advice of his sanitary inspector. As a rule this advice is promptly followed, for the commanding officer has also received instruction in sanitary matters and can intelligently judge whether or not the recommendation is a good one. Sanitary inspection work in time of peace is similar to the work of the health department of cities and towns of the country, with the exception that the recommendations of the sanitary officer are more often followed. In time of war or in active field service this work becomes of great importance. Preventive medicine receives the greatest attention, and every endeavor must be used to prevent the occurrence of disease among the troops. A word of warning, though, must be given. No carping criticisms of conditions in camp should be indulged in. Every recommendation should be weighed carefully and its relative importance considered before it is presented to the commander of the camp or garrison.

RECRUITING

In addition to these duties, the Medical Department also does the recruiting work for the army. There are a large number of line officers on this duty, but they act only as advertising agents to obtain candidates for the army. These candidates are sent to the different recruiting depots, New York, Columbus, Ohio, St. Louis, Denver, San Antonio, Texas, and San Francisco. On arrival at these recruiting depots the recruit is carefully examined by medical officers, and, if accepted, is sworn in by a medical officer. He is then placed in a recruit company at the depot and receives his preliminary training. It must be emphasized that this work is of prime importance. It is necessary that no defectives be allowed to enter the service. It is of much more importance to obtain a small number of men physically effective than a large number of men who are liable to spend much time in the hospital and receive a pension on their discharge from the service.

INSTRUCTION

At every garrison, classes are conducted for the instruction of line officers in the duties of their profession. This instruction also includes a course in personal and camp hygiene which is conducted by a medical officer detailed for the purpose. The medical department also instructs soldiers in personal hygiene and in the subject of venereal disease, not only from the moral but also from the physical standpoint. At the army service schools at Leavenworth, Kan., to which officers are sent to receive an education in the higher command, some of the classes are conducted by a medical officer of the army. Instruction is given in hygiene, sanitation and sanitary tactics. By the latter is meant the work of the removal and care of the wounded on battlefield. A field service school for medical officers exists to which medical officers of the rank of major are sent yearly for instruction. This instruction is in sanitary tactics almost exclusively. Medical officers are also on duty with the militia as sanitary inspector instructors. These officers not only inspect the sanitary units of the various states but also outline instruction required for both the medical officers and enlisted men.

DIVISION SURGEON

The army of the United States in time of war is organized into divisions of about 20,000 men. On the staff of the division commander is a medical officer of the rank of lieutenant colonel, who is the division surgeon. He has complete control of the work of the medical department in that division and is responsible to the division commander for the effective handling of his department. Under him is a sanitary inspector of the rank of lieutenant colonel, who not only makes sanitary inspections of the command but also inspects the personnel and equipment of the various sanitary units to see that they are thoroughly ready for service at all times.

SANITARY INSPECTOR

A new departure in sanitary inspection that may be mentioned here was recently inaugurated by the War Department. This division inspector may be authorized by the division commander to correct sanitary defects without reference to higher authority — in other words, when defects are noted, to see that they are corrected immediately without the delay incident to the so-called "red tape" of the service. This plan was worked during the concentration on the border, and was found very satisfactory. No friction was incurred, and the work was expedited greatly.

(To be continued)

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SATURDAY, APRIL 21, 1917

OFFER YOUR SERVICES

We are printing this week forms of application for appointment in the Medical Corps of the Army, and also for appointment in the Medical Officers Reserve Corps of the Army. These are identical with the official blanks. This gives each physician the opportunity TO ACT AT ONCE. The first blank — that for appointment in the Medical Corps, U. S. Army — will be used by those who apply for appointment in the regular Medical Corps, that is, for permanent service. These men must be under thirty-two years of age, and must have had one year in a hospital. If one is careful, one can remove the blank wanted without mutilating it. When the blank is filled out it should be sent to "The Surgeon-General, U. S. Army, Washington, D. C."

THE EFFECTS OF HIGH EXPLOSIVES

The introduction of high explosives into modern warfare has opened a new field in military medicine. Shells varying from several pounds to a ton in weight, filled with high explosives, not only cause enormous fatalities, but also make mental and physical wrecks of some who survive. The explosion shatters the shell into fragments which are thrown at high speed in every direction; in addition, the blast or the concussion may kill even at a considerable distance without the individual being touched by either shell or débris. Soldiers may be thrown out of the trenches or hurled yards into the air simply by the concussion. They may be buried by earth or trench débris. When the injured are brought to the ambulance, or casualty clearing stations, they are frequently dazed or unconscious and lie for hours or days in a lethargy, and may have few or no marks of traumatism, apart from superficial bruises. They are suffering from "shell shock." Later various symptoms may develop. These may be headache, backache, vasomotor disturbances and vertigo; not infrequently there are amnesia, speech defects (mutism, aphonia, stammering, etc.), sensory disturbances (hyperesthesia and anesthesia) and diminution or loss of sight and hearing. The latter is an important result of shell concussion.

So many of the soldiers returned with permanently injured hearing, some totally deaf, that the Medical Research Committee of the British War Office concluded to have a careful investigation made of the subject. Dr. J. Gordon Wilson,[1] who has given considerable study to inner ear troubles and who has published several reports of his investigations, was requested to make a report on injuries to the ear due to high explosives. His studies were to include the etiology, pathology and treatment. Ample opportunity was given to him to investigate these cases, not only in England, but also in France, where he spent two months at the front in order to study the cases in the early stages.

Dr. Wilson objects to the term "shell shock deafness." He prefers the term "shell concussion deafness" or the phrase "deafness due to high explosives." This preliminary report is based on examination of over eighty cases of nerve deafness due to high explosives and as many more supposed cases of deafness wrongly presumed to be due to the same cause. The study was carried on at the West Cliff Military Hospital, England. Patients admitted as suffering from "nerve deafness due to shell concussion" were divided into three groups: 1. Those with nerve deafness, the term "nerve deafness" being used in its wide sense of interruption of the auditory path. 2. Those who had had nerve deafness of varying degree and who had still the fixed idea that they could not hear; to this group belong those patients who yield to suggestion or recover hearing rapidly, often completely, after excitement or intense stimulation. 3. Malingerers, some of whom undoubtedly had shell concussion which affected the hearing, but recovered; others were malingerers pure and simple.

The present report is concerned with Group 1, which Dr. Wilson divides into: (*a*) Cases of nerve deafness associated with damage to the conducting mechanism of the external ear. (*b*) Cases of nerve deafness without any visible or demonstrable lesion in the conducting mechanism when they come under observation; this does not preclude the occurrence of a demonstrable lesion following the concussion; in fact, the history of many of these cases shows that this did occur. (*c*) Cases of nerve deafness in which there has been destruction of the cochlea and of the semicircular canals or their nerves. In each of the first two groups the loss may be partial or total; the third always causes total loss.

The symptoms associated with loss of hearing from high explosives fall within that group of nerve diseases called "traumatic neuroses." In many cases there is a recognizable physical trauma in the head or elsewhere received during a period of mental excite-

1. Wilson, J. Gordon: Brit. Med. Jour., March 17, 1917, p. 353.

ment. The symptoms are varied and complex. There are present, Wilson says, exaggeration of tendon reflexes, tremors, vasomotor disturbances, sweatings, lethargy, sleeplessness and headache. There are unsteady equilibrium with vertigo, and a concentric narrowing of the field of vision. In many cases, fields of anesthesia are present. In two cases of total deafness there were complete anesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other there were anesthesia on one half of the body and hyperesthesia on the other. Speaking generally, there are here included some symptoms which are frequently grouped under the term "hysteria" and others under the term "neurasthenia."

After giving the history of several cases selected more to show the variety rather than to emphasize the results, he discusses the hypothesis on which the treatment is based. The treatment, which is directed to stimulate the auditory pathway, on the whole is satisfactory.

Dr. Wilson's results may be briefly summarized as follows:

1. The normal stimulus (musical notes or the voice) is an adequate stimulus for the nerve and is the best stimulus. Electricity is contraindicated, and is liable to do harm since it easily produces vertigo.

2. Summation of stimuli plays an important part in the recovery of perception of sound. It is essential to differentiate vibrations from musical notes.

3. In shell concussion deafness there is diminution of perception and of duration of hearing along the whole series of forks, both through bone and through air. This diminution may be so great as totally to abolish perception of sound. It corresponds and exists *pari passu* with concentric limitation of the fields of vision. Often the two improve together. Frequently the field of vision is more retracted on the side having the greater deficiency of hearing.

4. If the conducting mechanism is damaged or destroyed, complete recovery cannot be expected. A trauma to the ear is frequently demonstrable.

5. The prognosis is good as a rule — at least for partial recovery.

6. As the deafness diminishes, there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. A word may have to be repeated two or three times before the patient gets it; or if asked to repeat two or three numbers consecutively, he will repeat the last one; he knows there were others, but he did not get them.

The full explanation of the effects of high explosives on the central nervous system is not to be had at present. It is, however, just to recognize that these men have been injured in warfare and entitled to the honorable badge[2] which the wounded wear. It is easy to class these patients as hysterics or neurasthenics and pass on; but humanity demands more than this. "The thousands who suffer from these distressing symptoms deserve that medical science direct attention to their treatment. Rational treatment demands information; and rational treatment, not haphazard empiricism, ought to be given to those suffering from these distressing symptoms." [3]

2. Soldiers wounded by the enemy wear a short, narrow strip of gold braid on the sleeve.

THE DUTY OF THE ORGANIZED MEDICAL PROFESSION

THE JOURNAL desires to emphasize again that the organized profession can easily assume the burden — it should not be called a burden, however — of supplying the Army and the Navy with a sufficient number of medical officers even for a force of 2,000,000 men, if such a force should be mobilized. But to do this it will be necessary for the state and county societies to realize their obligation in the matter. Every county society, no matter how small, should call its members together to discuss the subject. This ought to be done very soon. If it is done in the right way, it will make it possible to present to the Surgeons-General of the Army and of the Navy a list of available men, with all the necessary data regarding each. In the smaller counties where there is a limited number of physicians, it should be mutually determined how many men can be spared without too greatly reducing the supply of physicians in the locality and then who should volunteer their services. Naturally the result of such meetings should be reported to the secretary of the state association, who, in turn, should report to the Surgeon-General of the Army or to the secretary of the American Medical Association, as finally may be agreed on. In arranging for these meetings, one or two of the members should be selected to study up the matter so as to be prepared to outline to the assembly what is needed, especially as regards the physical and professional qualifications of the medical officer. THE JOURNAL has already published a large amount of literature on this subject, and it presents this week a suggestive list of books, pamphlets and official publications, as well as references to articles on the subject which have appeared in THE JOURNAL. It will be easy for those interested to secure the literature required.

Officers of the constituent state associations should consider the advisability of calling together the House of Delegates to discuss the matter, especially as it may affect their state. As will be noticed elsewhere in this issue, this has already been done by Michigan. The whole state would be more likely to be represented in the House of Delegates than in a meeting of the general body; in the latter case the attendance probably would be limited to those in the immediate locality. If delegates are called together, each county secretary

3. Wilson, J. Gordon: Brit. Med. Jour., March 17, 1917, p. 355.

should see to it that at least one delegate from his county attends the meeting.

We appeal to the officers of the various constituent state and component county societies of the American Medical Association to realize the importance of this matter, and to appreciate the responsibility that rests on the organized profession to supply the nation with the necessary number of qualified medical officers. There is no reason for hysteria in this matter; there is need for calm, judicious action, so that the medical profession may in a tangible, practical way show that it is prepared to do its part.

HIGH COST OF LIVING AND HOSPITAL EXPENDITURES

An expert estimate, made by the national department of labor, of the changes in the cost of commodities indicates that if a dollar's worth of food bought in 1907 weighed 10 pounds it would weigh today only a trifle more than 7 pounds. This increase in cost has been particularly marked within the past few months. So far as this is compensated for by a proportionate increase in wages or salaries of persons, or by an augmented income arising from enlarged endowments or collections in the case of institutions, there may be no reduction in the purchasing power of the funds available. There are always, however, certain groups of interests in the community which do not share an increment in income commensurate with the advance in operating expenses and the cost of living. In such circumstances the problem of intelligent economy is brought prominently into the foreground of necessity.

Public hospitals, as a rule, derive their income for operation from sources that do not adjust themselves promptly to altered costs. Situations like the present which increase charges for food and labor may actually lead to retrenchment on the part of contributors to philanthropic purposes. Furthermore, even when institutional incomes are not materially affected by hard times, the budgets are usually made up and provided for long in advance of the expenditures actually contemplated; and all too often the margin for possible advance in costs is too small to permit operation of the plant on the scale proposed. It is not unworthy for institutions that aspire to do the greatest possible good to expand their efforts so as to make the last penny count. A far-sighted business man has more than once saved the day for an overzealous board of managers by introducing a margin of safety into the budget of expenditures.

How an unexpected threat of inadequate appropriation for projected hospital work can be met has recently been told by Dr. Fowler,[1] superintendent of the Louisville City Hospital. This institution has no income other than an annual appropriation made by the city government, the sum being based on earlier operating expenses. At the end of October it was found that, owing to advanced prices, the expenditures were exceeding the allowance by $2,000 a month. A few details of the consequent schemes for retrenchment are of immediate interest to physicians quite as much as to managers of institutions. The surgical department was required to exercise the utmost economy in the use of surgical dressings, gauze, cotton, plaster, catgut and alcohol. The cooperation of the entire staff was urged to cut down the number of hospital days of patients, allowing them to leave as soon as possible, and utilizing the cooperation of the district nurses' social service department to this end. The use of only well established drugs was emphasized. Great economies were introduced, without detriment to the patients, in the use of gauze and dressings; and every material which was not permanently damaged by use was returned to stock for employment in one of the many ways in which textiles can be utilized. The laundry expenses were cut down one-fourth by intelligent cooperation and emancipation from routine rules in the use of linens. Unnecessary waste of soap, soda and bluing was averted with a simultaneous saving of hot water; 150 pounds of soap a month were spared in this way. To these were added savings in the steward's department and economies in the pharmacy and even in the laboratory, where the crime of waste has been emphasized and all required products prepared on the spot as far as possible.

This gives, in briefest outline, an indication of how an increase in prices approximating 30 per cent. may be met, to a great extent at least. But there is a further wholesome lesson in the situation. It teaches to what extent the indifference and lavishness acquired in days of overflowing generosity may lead to habits of unnecessary extravagance. There is no occasion for unjustifiable procedures in any field of human endeavor, least of all in philanthropic enterprises. Hardships sometimes institute beneficent reforms.

1. Fowler, J. W.: Solving the Problem of the High Cost of Living in the Hospital, Mod. Hosp., 1917, 8, 90. The statements above are taken from this article.

A RESTRICTED DIET

The expression "restricted diet" has acquired new significance as the result of recent studies in nutrition. Formerly these words directed attention to some obvious deficiency in the food supply, such as a deficit in calories or a low content of protein. A growing recognition of the importance of suitable inorganic salts, of the now undeniable need of water-soluble and fat-soluble unidentified dietary factors — the vitamins — and of an appropriate kind as well as amount of protein makes the problem of furnishing a truly unrestricted diet less simple than it appeared a few years ago. Seemingly slight deficiencies in the diet may render the milk secreted by the consumer of the inadequate food unsuited for the nourishment of the young.[1]

1. The Relation of the Mother to Some Dietary Factors in Milk, editorial, The Journal A. M. A., March 10, 1917, p. 782.

The nursing mother affected with beriberi is liable to produce milk which, though apparently of normal gross chemical composition, is deficient in some unidentified component to the extent of provoking infantile beriberi in her suckling young.

Such facts need to be emphasized over and over again at a time when the physician as well as the layman still hesitates to modify his inherited conceptions, and adheres strictly to the older views of diet. Nature has given us few single sources of adequate nutrition like milk. The long used cereal grains, like corn and wheat, might seem to have much to commend them as appropriate foods. Yet it is now known that young animals cannot grow properly when confined to the maize kernel as the sole source of nutriment. The reason for this has become clear.[2] The proteins of the maize kernel contain all the amino acids essential for growth, but the proportions of certain of them are such that they are not utilizable to a high degree as the sole source of protein. The inorganic content of the corn kernel is not of a character suitable for the promotion of growth. It has been found necessary to make salt additions to rations deriving their inorganic contents principally from this source, regardless of the nature of the other purified food ingredients added, before growth can take place. The fat-soluble dietary factor also is not sufficiently abundant in unfortified maize rations. But when the maize kernel is supplemented by the addition of suitable protein, inorganic salts and butter fat or other sources of the fat-soluble vitamin, normal nutrition becomes possible. The water-soluble unidentified dietary factor or vitamin is present, therefore, in sufficient abundance.

Wheat, likewise, has its shortcomings as a sole source of nutrients.[3] Rations restricted to wheat, even when apparently "balanced" in the older sense of supplying sufficient protein, calories and mineral matter, have invariably failed to produce viable young in any of the species on which the tests have been made. The damage may not be clearly apparent until the progeny is examined; hence the importance of a thorough mastery of the questions at issue by comprehensive investigations on the experimental animals.

The fact that neither wheat proteins alone nor corn proteins alone can satisfy nutritive needs, even in the midst of a liberal supply of all other known diet constituents, demonstrates anew that the proteins are by no means of equivalent values as sources of nitrogen. Furthermore, it is becoming evident that none of the cereal grains contain in the usually ingested portions sufficient of the fat-soluble vitamin which milk fat and egg yolk carry to meet the demands of a growing animal. Highly purified foods like starch, sucrose or table fats, on the other hand, contain none of the water-soluble as yet unidentified dietary factor, such as is recognized in relation to the cure of beriberi. The latter type of vitamin must be sought elsewhere in naturally occurring food materials.

Some of the features of the newer studies have long been appreciated; many of them are decidedly novel. McCollum has presented the situation as follows:

> If an animal can grow to maturity, reproduce, and rear young on a monotonous diet of purified protein, carbohydrate, butter fat and salt mixture, to which a little water or alcoholic extract of a grain is added, it is evident that all the complexes essential for complete nutrition are present in the mixture. There is abundant experience to prove that the protein of the ration may be a phosphorus-containing one, such as casein from milk, or it may be a phosphorus-free protein, as albumin of egg. The young animal can draw all the phosphorus needed from simple inorganic phosphates, which are furnished in the salt mixture added to its food. In the course of many trials I have never seen growth enhanced by the addition of organic phosphorus compounds.

With the recognition of heretofore unappreciated and indispensable factors to be taken into consideration, it may now happen that what was once considered a liberal diet may prove to be an unexpectedly restricted one in the present-day sense.

2. McCollum, E. V.; Simmonds, N., and Pitz, W.: Dietary Deficiencies of the Maize Kernel, Jour. Biol. Chem., 1916, **28**, 153.
3. McCollum, E. V.; Simmonds, N., and Pitz, W.: The Effects of Feeding the Proteins of the Wheat Kernel at Different Planes of Intake, Jour. Biol. Chem., 1916, **28**, 211.

Current Comment

THE WAR AND MEDICAL RESEARCH

"Who is going to care about a streptococcus six months from now?" said a well-known pathologist. War is declared; men's minds are on preparedness, on the food supply, on soldiers and on the wounded. Attention has shifted from the ordinary problems of life to the great topic. And so, too, the attention of research workers will shift from those phases of medical research which concern the cultural characteristics of micro-organisms, the intricate anatomy of the lower forms of life, the molecular arrangement of unknown minor constituents of the urine, to the broad problem of putting as many men as possible at the front, keeping them there and getting them back again as quickly as possible when the exigencies of war cause their temporary removal to the hospital. Research abroad is now concerned with the effects of shrapnel on the body, with the ability to inoculate the soldier against the many epidemic diseases that confront him, with the control of tetanus and with the control of tuberculosis, which is extensive among the soldiers of France. Whole wards are filled with patients suffering from nephritis; with cases of insufficiency of the heart attributed to the terrible strain of forced marches; entire hospitals are devoted to soldiers suffering from shell shock; to wounds of the brain or similar war injuries. The individual is lost in the mass. And thus the focus of medical research shifts in war time. Laboratory and research workers leave their laboratories to devote themselves to problems which concern not the disabilities of individual men, but the disabilities of groups of thousands of men.

WAR AND HEALTH

The enthusiasm for useful service of some sort, which has been awakened among all ages and classes of our population, and in all walks of life, is not to be without advantages in the domain of both personal and public hygiene. War, with its indeterminable emergencies, its unusual vicissitudes, and its specialized demands in the most diverse directions, has often forced attention to innumerable problems that pertain to health. The elimination of the ravages of disease among active troops has redounded to the credit of modern sanitation and prophylaxis. Military hygiene has set as its goal the attainment and conservation of health in the great body of fighting forces. There is much to be accomplished in the direction of eradicating unnecessary physical inferiority or deterioration associated with disease in all armies and navies. For some of the difficulties that present themselves an effective immediate solution is not in sight. In other cases, notably such as are represented by the incidence of typhoid fever and other infections among troops, the lessons of science are being applied with success. In any event, the world war has pointed to many defects which need remedies. It is a wholesome task to apply the contributions of the past when the opportunity arises; but there should be no hesitancy on the part of science to admit its shortcomings at all times and to feel them as a stimulus to further endeavor. This deserves to be emphasized, because in some quarters the admission of the need of investigation is looked on as an indication of the poverty of science and its indifference to practical applications. The conservation of health and the development of physical fitness are a soldier's first duty. Marksmanship, military tactics, drill and cooperation avail comparatively little when energy, strength and perfection of bodily training are neglected or lacking. This has been demonstrated again and again among "unseasoned" troops. Hence it is that so much attention is properly being concentrated on the establishment of health and vigor among groups of men in training everywhere. Athletic exercises compete with gun drills for recognition in the routine of a future soldier. The unexpected adjunct to this is the widespread movement to apply the same principle of health conservation among those who cannot be expected to join the active fighting units. In many cities and towns the "home guards," composed of men beyond the usual military age, are already engaging in suitable physical exercises with the express purpose of rendering themselves more capable of the service which a sound body can best contribute. If the maintenance of vigor is a desideratum among the middle aged sedentary type of our citizens at all times, it becomes a positive duty in a crisis in which the highest cooperation of each individual is likely to be enlisted. Only a few months ago it might have been unusual to see any considerable number of business men of an age beyond 50 engaged actively in the pursuit of health as a patriotic duty. Today groups of such persons may be seen in more than one city cheerfully joining in a morning tramp to promote vigor, or responding to some special prescription of systematic exercise dictated by a medical examination under semiofficial auspices. Boy scouts and other young persons are similarly inspired. The war has brought an unprecedented desire on the part of many to attain *mens sana in corpore sano*. The obedience to a patriotic impulse is almost certain to bring unexpected hygienic rewards.

A REFINEMENT OF SPUTUM EXAMINATION

Different areas of the urinary tract are covered with epithelial linings of cells differing considerably in form. Skilful microscopic examination may enable the expert to differentiate or distinguish the structures from varying localities, such as the renal tissue, the pelvis of the kidney, the urethra, the bladder and other places. In pathologic conditions, as is well known, the number of cells from special regions may become greatly augmented, so that the disturbance of function is readily detected by the examination of the urinary sediment. Similarly the cavities and channels which communicate with the mouth are lined with epithelial cells often of quite unlike morphologic character. Otani,[1] of the Kitasato Institute for Infectious Diseases, Tokyo, states that the mouth and pharynx are lined with polygonal flat epithelial cells, and the vocal cords covered with them, while the nasal cavities, larynx, trachea and bronchi are lined with ciliated cylindric epithelial cells. The bronchioles and bronchi are lined with cuboidal cells, while the alveoli are lined with polygonal cells which, unlike those of the other organs, have no nuclei. If inflammation occurs in any of these organs, the cells are expectorated with the mucus. The sputum must therefore contain the epithelial cells of the affected organ. The characteristic forms may, however, disappear during chronic inflammation. In tuberculosis of the larynx, the ciliated epithelial cells lining this cavity, according to Otani, are supplanted by a new growth of polygonal flat epithelial cells like those of the mouth. The new type then appears in the sputum of laryngeal tuberculosis. In sputum from the lungs, round or elliptical epithelial cells, much larger than pus cells, are often present. It might seem difficult, therefore, to identify the origin of unexpected or modified forms. But Otani maintains that the saprophytes play an important part in determining the source of sputum. He states that in spite of the fact that various kinds of cocci, bacilli, spirochetes and spirilla are found in the nasal and mouth cavities and in the larynx and pharynx, the sputum from the trachea and lungs is always free from these nonpathogenic micro-organisms. The sputum from these organs contains only the agent of the prevailing disease, such as *Bacillus tuberculosis* or *Diplococcus pneumoniae*. In cases of mixed infections, one or two species of bacteria are found. Sputum from the lungs will become mixed with pharyngeal products in its passage to the mouth. It might accordingly seem that a separation of secretion from definite localities would become impossible because of this inevitable contamination. It has been shown,[1] however, that by careful

1. Otani, M.: The Significance of the Epithelial Cells and Saprophytes in Sputum, Jour. Exper. Med., 1917, **25**, 333.

treatment and washing of the material in isotonic salt solution it becomes free of extraneous elements, such as polygonal epithelial cells, which may have come into contact with it. Saliva is dissolved, and reliable observations may be made on the residues. Microscopic examination of suitable washed sputum indicates its source. Sputum from below the vocal cords is clear of saprophytes. Erythrocytes and the bacilli present may indicate the site of the lesion, as in pulmonary hemorrhage. Tubercle bacilli may be found in laryngeal sputum in cases of laryngeal affection when there are no subjective symptoms. The possible importance of the new suggestions in the routine of diagnostic examinations at once becomes apparent.

THE HEREDITARY ABSENCE OF PHALANGES

The more unusual abnormalities of development and structure in the human body were formerly often classified as "medical curiosities" without any particular reference to their origin or biologic significance. Modern studies in heredity have done much to lend a new interest to the unusual manifestations of form and function in living beings. Careful investigations of the phenomena of inheritance have shown that they are in many instances more or less amenable to scientific treatment. Characters may be transmitted in dormant form so that they do not appear in each generation; but when they crop out unexpectedly it often happens that a study of the pedigrees involved will readily disclose the supposedly new manifestation as a natural inheritance from earlier progenitors. Thus anomalies or defects may actually "run in families" instead of being the fortuitous expression of an inexplicable outburst of nature. Hypophalangism, or the congenital absence of one or more phalanges and the corresponding soft parts from a digit, is a rare deformity in man. One, two or three phalanges may be lacking, and sometimes the hypophalangism occurs in association with polydactylism. Supernumerary or syndactylic digits are apt to be retarded or stunted in development, and injuries may now and then arrest the subsequent development of a digit. Such conditions, however, are not to be included among the instances of true hypophalangism. Cragg and Drinkwater[1] have lately described an inherited hypophalangism of this sort which has persisted through five generations. The defect consists of an entire absence of the distal phalanges from each digit except the thumb and great toe, and an extremely abortive condition of the middle phalanx in the same digits. This is a far more imperfect development than is represented in the likewise rare brachydactyly caused by an abnormal shortness or abortive condition of the middle phalanges or metacarpal bones, the distal phalanges always being well developed. In the new cases the finger nail is absent, and the thumb abnormality is of a different type from that in the fingers, and is affected independently. The distal bone is double. The condition is bilaterally symmetrical, and the inheritance is not strictly mendelian as to all its features. In this family there are twenty-five abnormal and only seventeen normal persons descended from affected parents, so that the incidence of the defect is greater than one would expect. Brachydactylous families usually exhibit a shortness of stature; this is not observed in the newly described subjects of hypophalangism. The male members are mostly engaged in farm work, the female in domestic service. They find their hands no marked detriment except in looks. The remarkable persistence of a serious physical defect of this sort through so many generations cannot fail to awaken silent reflections on the more unsuspected yet equally significant hereditary transmission of mental as well as other abnormalities which have a more serious import for the well-being of the race.

1. Cragg, E., and Drinkwater, H.: Hereditary Absence of Phalanges Through Five Generations, Jour. Genetics, 1916, **6**, 81.

ABROGATE THE PATENT ON SALVARSAN

THE JOURNAL has already commented on the difficulty in securing salvarsan, on the moral and ethical question as to whether or not it is justifiable for one person to control the output of a drug necessary to public health. This week we publish an account of the action of the St. Louis and Chicago medical societies, which are calling on the medical profession to appeal to their senators and congressmen to abrogate this patent. THE JOURNAL believes that this patent should be abrogated, not alone because the patentees have not supplied the demand, not alone because they have dictated to the medical profession who should have the drug and how much a physician might have, not alone because of the war with Germany, not alone because of the special needs of the government at this time for the control of venereal diseases, not alone because, as some claim, the patent at Washington does not correctly describe the product, but also because the people who are supplying this product are charging prices that are exorbitant compared to the price at which others in this country can supply it. The fact is that the salvarsan one can obtain today costs $4.50 per ampule of 0.6 gram, whereas the same dose of arsenobenzol — a preparation identical with if not better than salvarsan — costs $2.00 at retail, and as Dr. Schamberg says: "If we are permitted to continue marketing the same drug after the war, we can sell it at $1.00 or less per tube." To abrogate this patent would be doing an injury to no one. Certainly the patentees of salvarsan have already reaped their harvest — and a pretty rich one. The supply of salvarsan at a reasonable price in proportion to its actual cost of production is in the interest of the health of the entire population of the country, whereas to let matters rest as they are, is to the benefit of one man. While we are emphasizing here the cost, there is after all a greater question, and that is the supply necessary to help control the ravages of one of the most serious diseases which afflict humanity today. It is the duty of Congress to abrogate the patent on this preparation and, incidentally, on all medicinal preparations of importance.

Increase in Life Duration.—According to Dr. John N. Hurty, state health commissioner of Indiana, the average duration of life in Indiana has increased from 36.3 years in 1900 to 45.7 years in 1915.

Medical Mobilization and the War

GENERAL MEDICAL BOARD

Report of the Medical School Committee

At its meeting Sunday, April 15, this committee of the General Medical Board of the Advisory Commission of the Council of National Defense considered the plan of keeping the medical schools of the country in continuous operation as an emergency war measure. The committee consists of Drs. Arthur Dean Bevan, Thomas W. Huntington, Edward Martin, Charles H. Beck, Winford Smith and Joseph Marshall Flint, chairman.

If this plan is to succeed in the purpose for which it is proposed, namely, to produce a greater number of adequately trained men, that is, men with hospital experience, it is essential that its application be universal to enable hospitals to adjust themselves immediately to the changed conditions. This follows because hospitals and medical schools obviously are mutually dependent on the accustomed rhythm of the academic year for their demand and supply of men. It immediately developed that, on account of climatic conditions and the adoption of the Italian plan by certain medical schools, the inauguration of this scheme of continuous instruction could not be universal. The previous recommendations of the Hospital and Medical School Committee already adopted by the board to the effect that the staffs of these institutions should be reduced to the minimum necessary for routine work would make it practically impossible for them to adjust themselves to so radical a measure without danger of disorganization—the one thing the board feels it essential to prevent.

On the other hand, there can be no objection to a partial experimental adoption of the plan by those schools which are in a position to carry it out with a view to its wider adoption if necessary. The following conclusions were submitted for approval:

Voted that in the opinion of the Medical Board of the Council of National Defense, the present emergency does not justify it in advocating any universal change in the present scheme of adequate education of medical students. It is, however, in accord with a plan by which such medical schools as may be able can adopt an intensive course and operate continuously to graduate students earlier by the elimination of the usual vacation. It is the sense of this board, however, that the period of actual instruction should not be shortened to any degree.

As this plan of continuous operation has already been adopted by some medical schools, together with other urgent war measures such as the Italian plan, it is obvious that some modification of the rules governing the state boards of licensure becomes immediately necessary. The present crisis undoubtedly will develop other situations demanding similar decisions. It was not deemed wise, therefore, to ask the state boards to act on specific recommendations at this time, but rather to seek the power to cooperate with the medical board of the council and the medical schools in meeting any emergencies. With the idea of securing their cooperation not only for future unforeseen contingencies, but also for the specific problems presented in the continuous teaching plan, the so-called Italian plan—where medical students are taken to the front with Red Cross teaching units, and the possible use of medical students as hospital interns, the following recommendation was submitted:

Voted that the Medical Board of the Council of National Defense requests the State Boards of Licensure or Registration to take such action as may be necessary to enable them to cooperate with it and the Medical Schools in modifying temporarily their rules of procedure to the extent which may be made necessary by the present national crisis.

It was recommended that the board forward for the immediate consideration of the state boards of licensure the following questions for decision:

(1) Recognition of the Continuous Teaching Plan as an equivalent of the usual four year course in Medicine.

(2) Recognition of work done by a student with a Red Cross Teaching Unit according to the Italian Plan as the equivalent of the work usually done in the School and Hospital at home.

(3) Recognition of substitute work as interne in teaching hospitals as an equivalent of equal amount of work in the fourth year of the Medical School.

Standardization of Medical Supplies

A week of activity on the part of the Medical Section of the Council of National Defense culminated in a meeting in Washington, D. C., April 15, of 150 of the leading manufacturers of medical and surgical supplies, called together by Dr. Franklin H. Martin of the Advisory Commission. The object of the meeting was to secure the cooperation of all manufacturers of medical and surgical supplies in producing an adequate supply of needed articles as well as the standardization of those articles. Addresses were made by Mr. Frank A. Scott, chairman of the General Munitions Board, and Dr. F. F. Simpson, chief of the Medical Section. Conferences were held with the manufacturers by Colonel Fisher, Colonel Snyder and Colonel Darnall of the army, by Surgeons Murphy and Richards of the navy and by Assistant Surgeon-General Rucker of the Public Health Service. The manufacturers appointed committees to make a survey of the material on hand and the present resources as well as for the concentration and increase of production. A list of necessary staple articles which can be reproduced in abundance is being made out. The General Munitions Board will determine the order in which all contracts are to be filled. If the capacity of existing plants is not sufficient, other plants will temporarily produce such articles as may be needed. A large number of manufacturers have tendered their plants to the government. On Wednesday and Thursday of last week, the Committee on Standardization of Medical and Surgical Supplies and Equipments met in Washington and appointed subcommittees on special lines. The members of the committee are: Col. Jefferson R. Kean, Lieut.-Col. Carl R. Darnall, Surg. T. W. Richards (secretary); Surg. Joseph W. Murphy, Asst. Surg.-Gen. W. C. Rucker, Dr. George W. Crile, Cleveland; Dr. Harvey Cushing, Boston; Dr. Charles L. Gibson, New York; Dr. Richard H. Harte, Philadelphia; Dr. Henry S. Plummer, Rochester, Minn., and Dr. Frank F. Simpson, Pittsburgh, chairman.

The subcommittees appointed are as follows:

Surgery.—Dr. J. M. T. Finney, Baltimore, Md.; Dr. Charles H. Mayo, Rochester, Minn.; Dr. A. J. Ochsner, Chicago, Ill.; Dr. Rudolph Matas, New Orleans, La.; Dr. Richard H. Harte, Philadelphia, Pa.

Orthopedic Surgery.—Dr. Robert B. Osgood, Boston, Mass.; Dr. David Silver, Pittsburgh, Pa.; Dr. Joel E. Goldthwait, Boston, Mass.

Gynecology.—Dr. John G. Clark, Philadelphia, Pa.; Dr. William P. Graves, Boston, Mass.; Dr. Howard C. Taylor, New York, N. Y.

Eye.—Dr. Geo. E. DeSchweinitz, Philadelphia, Pa.; Dr. William H. Wilmer, Washington, D. C.; Dr. Edward B. Heckel, Pittsburgh, Pa.

Nose and Throat.—Dr. Chevalier Jackson, Pittsburgh, Pa.; Dr. W. B. Mason, Washington, D. C.

Genito-Urinary.—Dr. Hugh H. Young, Baltimore, Md.; Dr. W. F. Braasch, Rochester, Minn.; Dr. Frank Hagner, Washington, D. C.

Obstetrics.—Dr. J. Whitridge Williams, Baltimore, Md.; Dr. Barton C. Hirst, Philadelphia, Pa.; Dr. Palmer Findley, Omaha, Neb.

Roentgen-Ray.—Dr. G. C. Johnson, Pittsburgh, Pa.; Dr. Arthur C. Christy, Washington, D. C.; Dr. Arthur W. Goodspeed, Philadelphia.

Internal Medicine.—Dr. W. S. Thayer, Baltimore, Md.; Dr. Frank Billings, Chicago, Ill.; Dr. Hobart A. Hare, Philadelphia, Pa.

Neurology.—Dr. C. Loomis Dana, New York, N. Y.; Dr. Hugh T. Patrick, Chicago, Ill.; Dr. Daniel J. McCarthy, Philadelphia, Pa.

Dermatology.—Dr. Howard Fox, New York, N. Y.; Dr. Howard Morrow, San Francisco, Calif.

Contagious Diseases.—Dr. Richard P. Strong, Boston, Mass.; Dr. M. J. Rosenau, Boston, Mass.; Dr. Haven Emerson, New York, N. Y.

General Pathology.—Dr. William H. Welch, Baltimore, Md.; Dr. Simon Flexner, New York, N. Y.; Dr. Victor C. Vaughan, Ann Arbor, Mich.

Surgical Pathology.—Dr. Louis B. Wilson, Rochester, Minn.

Hospital Administration.—Dr. Winford H. Smith, Baltimore, Md.; Dr. Frederic A. Washburn, Boston, Mass.; Dr. B. W. Caldwell, Pittsburgh, Pa.; Dr. Warren L. Babcock, Detroit, Mich.; Dr. S. S. Goldwater, New York City.

Nursing.—Miss Anna Maxwell, New York, N. Y.; Miss Jane A. Delano, Washington, D. C.

Physiology.—Dr. W. B. Cannon, Boston, Mass.

Dentistry.—Dr. E. C. Kirk, Philadelphia, Pa.; Dr. Eugene Smith, Boston, Mass.

Chemistry.—Mr. Earl B. Phelps, Washington, D. C.

Pharmacy.—Dr. Reid Hunt, Boston, Mass.

New Appointments in Utah.—Drs. Guy J. van Scoyoc and R. T. Gellison, Salt Lake City, have been commissioned as lieutenants in the Medical Corps of the Utah National Guard.

Address to Omaha Physicians.—Col. John M. Banister, M. C., U. S. Army (retired), delivered an address before the Omaha-Douglas County Medical Association, April 3, on "Medical Needs of our Military Service in Case of War."

Dental Department a Hospital.—During continuance of the war, the new buildings of the Evans Dental Department, University of Pennsylvania, are to be converted into a 200 bed hospital for the active men of the army and navy.

Base Hospital for Toledo.—At the meeting of the Toledo (Ohio) Academy of Medicine, March 2, it was voted to establish a base hospital in Toledo. The Commerce Club of Toledo has pledged $30,000 for the establishment and maintenance of this hospital.

Field Hospital Returns Home.—The First Ohio Field Hospital, under the command of Major Frank W. Hendley, Cincinnati, returned home, March 28, after service on the southern frontier. A smoker was given to the company in the rooms of the Cincinnati Academy of Medicine, April 2.

Medical Dressings Needed in Europe.—The National Surgical Dressings Committee of America has made an urgent request for additional help. Between October 16 and December 16, the committee sent to France, England, Italy, Belgium, Serbia and Roumania a total of 1,265,609 dressings.

Lectures on Military Medicine.—The executive committee of the staff of St. Luke's Hospital, Cleveland, has made arrangements for Dr. Samuel W. Kelley to give a series of lectures on military medicine and surgery in the Carnegie East Building of St. Luke's Hospital on Monday and Wednesday evenings, beginning April 11.

Base Hospital for Columbus.—At a meeting of the directors of the Columbus (Ohio) Red Cross Chapter and the Chamber of Commerce, March 28, steps were taken to organize a base hospital unit for Columbus. The instruction work is in the hands of Dr. Charles S. Means, who is assisted by Drs. John W. Means, Edwin A. Hamilton and Florus F. Lawrence.

Johns Hopkins Hospital Plans Move to United States Service.—The Johns Hopkins Hospital is planning to eliminate all employees, physicians or others, who are not in sympathy with the government. No such cases have yet come to the attention of the management. All the physicians of the hospital have volunteered their services in the field if necessary.

Shortage of Medical Men in England.—The Earl of Derby, in moving for a second reading of the bill to review military exemptions, said "We have lost more than 400 doctors, killed or wounded, in the battle of the Somme alone, and at the present, we are, I won't say critically, but lamentably, short of medical men and I am afraid we will continue so in the immediate future."

Bill to Require Military Training.—A bill was introduced in the Pennsylvania Senate, April 3, by Senator Crow of Fayette County, amending the act regulating and licensing practitioners of medicine in Pennsylvania, so as to provide that before an applicant be licensed to practice he shall "have received an approved three months' field course and service in military training."

Surgical Unit in California.—The first surgical unit offered to the government by California is that of San Bernardino. The unit is formed under the Red Cross Society, and is commanded by Dr. Henry W. Mills, assisted by Drs. Thomas R. McHugh, David C. Strong and Claude H. Lashlee, together with seven nurses, two orderlies and a secretary-stenographer.

Hospital Ships Sunk.—The British hospital ship *Salta* is said to have been sunk by a mine in the English Channel, April 10, and fifty-two persons were drowned.——The British hospital ship *Gloucester Castle* was torpedoed, it is said, without warning in the English Channel, March 30. Since the beginning of the war, six hospital ships of the allies have been destroyed by torpedoes or mines, with a loss of 247 lives.

Services of State Health Board Offered Government.—At a meeting of the Kentucky State Board of Health in Louisville, April 2, the board offered its personal equipment and the active services of its trained health officers to the president, and assured him of the readiness of as many physicians as may be assigned to the quota of the state to serve in whatever capacity thought necessary within the country or over-seas.

New York Physicians Volunteer.—At a meeting held at police headquarters, April 6, presided over by Chief Surgeon Edward T. Higgins of the police department, about 150 physicians volunteered to offer professional services under the direction of the police department. An organization by boroughs was appointed and a committee was appointed to serve with Dr. Higgins in obtaining the necessary equipment for the service.

Ohio Assignments.—Lieut.-Col. Joseph A. Hall, chief surgeon of the Ohio National Guard, announced, April 7, the following appointments in his department: Major Charles E. Neal, M. C., assigned adjutant to the chief surgeon; Capt. James M. Bentley, M. C., relieved from duty with the First Field Hospital, and assigned to cavalry; Capt. John D. Spelman, M. C., relieved from duty with the First Field Hospital, and assigned to the First Infantry.

Military Instruction in Milwaukee.—Under the authority of the adjutant general, Major Gilbert E. Seaman, chief surgeon, Wis. N. G., has established a school of instruction in military medical surgery and hygiene for medical officers and noncommissioned officers of the sanitary troops. The sessions are being held at the headquarters of the Field Hospital, Goldsmith Building, Milwaukee, on Tuesdays and Thursdays at 4 p. m., and began April 10.

New York Broad Street Hospital for War Service.—The board of governors of the Broad Street Hospital, New York City, which is in process of construction, has offered it to the government, together with the services of a medical and surgical staff. A fund of $200,000 is to be raised to equip the building and make changes in the original plans. Barber and Company have made an addition contribution of $50,000 to further these plans, and Mrs. James Barber has contributed a motor ambulance.

Kenosha County (Wisconsin) Society Acts.—The Wisconsin State Medical Society has appointed the following as a Kenosha County Committee on Medical Preparedness: George F. Adams, chairman; J. F. Hastings, secretary; P. P. M. Jorgensen, G. Windesheim, J. H. Holm, J. H. Cleary and W. J. Hanley. This committee has held two meetings. A tentative working plan has been outlined and is to be submitted to the physicians of Kenosha County. Another meeting is to be held April 19.

Health Lessons of War.—Sir Alfred Keogh, surgeon-general of the British army, in a recent interview revealed the close cooperation between the American and British medical services, and stated that he had given and is still giving the medical men of the army the benefit of the English experience in keeping healthy its enormous army. The first essential for an efficient army is that it be well fed, the second that it be kept free from epidemics, and the third that great care shall be exercised as regards rural sanitation.

Western Reserve Lectures on Military Sanitation.—A series of eight lectures on "Military Medicine and Sanitation" is being given by Major Harry L. Gilchrist, M. C., U. S. Army, at the School of Medicine of Western Reserve University, Cleveland, on Tuesdays at 4:30 p. m. The series commenced April 10, and includes "Organization of the Sanitary Service," "Military Hygiene and Sanitation," "The Recruit," "Camp Sanitation," "Hygiene of Mobile Troops," "Water Supply of the Army," "Military Medicine," and "Military Surgery."

Shortage of Physicians.—There is an alarming shortage of physicians in New Zealand on account of the war. In a report made by the chief health officer to the minister for public health it is shown that instead of one medical man for every 2,000 of population, there is one physician for every 2,380 of population. In the four medical districts of the colony there are in practice 546 medical men; 190 are on active service and forty-seven are employed at various military camps or as examining officers on the Military Medical Board.

Baltimore Physicians Prepare.—At a meeting of the Baltimore City Medical Society, March 30, action was taken on the resolution drawn up by the Maryland Committee on Preparedness and endorsed by the council of the State Medical Society. Major Robert E. Noble read a paper on "What Doctors the Government Needs and How It Will Use Them in Peace or War." Dr. William H. Welch, Baltimore, discussed "The Medical Profession and Preparedness," and Dr. Gordon Wilson spoke on "What Doctors of Baltimore Can and Should Do."

Educational Facilities for British Prisoners of War.—The *Lancet* states that the Conference of Examining Bodies has voted to recognize work done and examinations passed in the camps of prisoners of war. It is believed that this step will prove a great encouragement to the men to use wisely the time of their captivity, and of material assistance to them on their return home. News of this arrangement is to be sent as soon as possible to the various internment camps in enemy and neutral countries, and it is suggested to friends and relatives writing to the prisoners of war to inform them of the matter.

Ambulance Corps Notes.—Fifty students at the Washington and Lee University, Lexington, Va., have organized a volun-

teer ambulance corps for service with the army.——The Jackson County (Mo.) Medical Society, Kansas City, has presented the Third Infantry, Mo. N. G., with a trailer for the ambulance, recently given to it by the Daughters of the Revolution. The cost of the trailer was $1,500, and it will accommodate four patients.——At a meeting of Chicago Lodge No. 4, B. P. O. E., it was voted to purchase two field ambulances to be sent to France for immediate service. The cost of the ambulance and equipment will be $3,200.

Offers Services to Soldiers' Families.—The Barton County (Kan.) Medical Association, at a meeting in Hoisington, April 9, agreed to endeavor to take care of and to keep intact the practice of any member of the society who may enter the medical service.——The Bay City (Mich.) Medical Society has offered to give its services free to families of all Bay City men who enlist in the army or National Guard. ——Talbot County (Md.) Medical Society, at its meeting in Easton, April 6, adopted resolutions tendering professional services gratuitously to the members of families of those who are called to the colors.

Michigan State Society to Hold Special War Meeting.—A call has been issued for a special meeting of the house of delegates of the Michigan State Medical Society to convene in Battle Creek at 10 a. m. on Thursday, May 10. The call advises the members of the state society that Michigan should furnish 600 physicians for service in the army and the purpose of the meeting is to discuss and determine how best to meet the responsibility that has been placed on the medical profession of Michigan by reason of the declaration of war. Not only members of the house of delegates, but all members of the organization are asked to be in attendance at the general session planned. Prominent men of the profession and representatives from the army and navy medical departments will present the questions for discussion.

Navy Medical Corps Examinations.—The navy requires for its regular medical corps 300 physicians. Examinations for this branch will be given at the Naval Hospital. The navy is also enrolling a number of doctors for the Naval Coast Defense Reserve. This duty will require the service of the doctors only in the Fourth Naval District in and around Philadelphia in time of war only. If doctors are enrolled they can be given active duty at once, provided they personally apply to the commandant of the Navy Yard, Philadelphia, for this duty. All information relative to any medical branch of the service will be cheerfully given by Surg. Ralph W. Plummer, U. S. Navy, at the mayor's office, city hall. Any of the medical officers of the Naval Hospital or of the Navy Yard will also supply the desired information.

Hospitals Tendered Government.—Dr. Karoline S. R. Engelhardt, owner of the Lansdale Private Sanitarium, has offered the institution to the government for use in case of war.——The Memorial Hospital, Chicago, under the charge of Lieut. Francis Deacon, M. R. C., U. S. Army, has been offered to the War Department as a general hospital, and arrangements are being made for the organization of a base hospital unit. ——The North Chicago Hospital has offered an independent unit to the government for use in case of war. Dr. Joseph C. Beck will be chief of staff of the unit and Dr. Clarence Loeb, assistant. The unit proposes to maintain two staffs, one at the front and the other in Chicago. A contribution of $10,000 toward the unit has been made by Mr. V. Mueller, president, and Mr. George Walrich, secretary of the Mueller Instrument Company.

Call for Service.—Only about 400 men in the Philadelphia Division have been enrolled in the Officers' Reserve Corps of the Army and many more are needed. Few of these are young enough for the first call into active service. The navy is in urgent need of medical reserves for immediate duty. Recruits cannot be examined the day they enlist, for there are now only about thirty physicians in the Coast Defense Reserve to examine them. The pay in either service amounts, with maintenance, to about $200 per month. Each medical volunteer can be assured that his practice will be cared for while he is away. A committee of the society headed by Dr. William W. Keen will be prepared to do this work and turn over the accounts for collection. Those wishing to join the Coast Defense Reserve of the Navy should call on Dr. Robert A. Bachmann at the United States Naval Hospital any day.

Pennsylvania National Guard Changes.—Majors Herbert A. Arnold, Ardmore, and William J. Crookston, Pittsburgh, have been commissioned lieutenant colonels in the Medical Corps of the National Guard, and Capt. George J. Swartz, Philadelphia, has been commissioned major.——Major James F. Edwards, Pittsburgh, and Lieuts. Edward K. Tullidge, Philadelphia, Albert A. Wagner, Pittsburgh, Walter C. Shaw, Ridgeway, Theodore L. Hazlett, Pittsburgh, and James W. Doughty, Philadelphia, have resigned and been honorably discharged from the state service.——Lieut. Leonard D. Frescoln, M. C., has been relieved from duty with the Thirteenth Infantry and assigned to duty with the First Infantry.——Major Allen W. Urmson, M. J., has, on his own request, been placed on the officers' reserve list.——Major Elmer E. Keiser, M. C., has, on his own request, been placed on the retired list.

Young Men Needed for Hospital Corps.—"I have read with interest your editorials and current comments on medical preparedness and the report of the General Medical Board and have acted accordingly. I have volunteered to become a member of the Medical Reserve Corps of the U. S. Army. Two young men also have been made interested in the Hospital Corps of the Navy and will enlist as hospital apprentices." This comes from Dr. John A. Koch, of Quincy, Ill. What Dr. Koch has done should be done by physicians all over the country. Both the Army and Navy need young laymen for the Hospital Corps. The Navy needs young men of a high class for enlistment in its Hospital Corps, and physicians should urge young men of their acquaintance who are high-school graduates and who think they would make good and reliable members of the Hospital Corps to enlist at the nearest naval recruiting station.

Government Sends Scientific Commission.—Six American scientists accredited to the American embassies in London and Paris are now on their way to England and France to cooperate with the scientific men of those countries in studying problems arising out of the war. They are sent by the Advisory Commission of the Council of National Defense and the National Research Council. Members of the party and the subjects which they will investigate are Dr. Joseph S. Ames, Johns Hopkins University, aeronautic conditions; Dr. Richard P. Strong, Harvard, camp sanitation; Dr. Linsley L. Williams, assistant health commissioner of New York, health; Dr. George A. Hulett, Princeton, chemistry of explosives; Dr. Harry Fielding Reid, Johns Hopkins, scientific map making and photography from aeroplanes; Dr. George K. Burgess of the federal bureau of standards, gun metals and rigid dirigibles. Early reports on the special subjects assigned will be made.

Treatment of Gas Asphyxia.—The treatment of soldiers who have been "gassed," by the method of Chassevant, is described in the *Lancet,* London, March 31. The hospital of which Chassevant was in charge, acting as an evacuation hospital, received the gassed soldiers from two to eight hours after being gassed. Some had already received first aid and others came direct from the trenches. All were subjected to the rhythmic inhalation of oxygen under pressure, at several sittings, with intervals between. Chassevant says oxygen given from a rubber bag after the usual method is of no efficacy; it is necessary to insufflate the oxygen on the lines of d'Arsonval's treatment of carbonic oxid intoxication. A rubber catheter is introduced far back in the buccal cavity, and is connected with a cylinder of compressed oxygen. By opening and shutting the regulator key active rhythmic insufflation at the rate of 15 or 16 to the minute is brought about. The effect is to calm the dyspnea, favor aeration of the lungs, and render unnecessary the patient's painful efforts at inspiration. To combat cardiac weakness camphorated oil in doses of from 5 to 15 c.c. or more in twenty-four hours is employed.

The Base Hospital.—One of the subjects particularly prominent at this time is the base hospital. Numerous physicians have affiliated themselves with the base hospital without a thorough understanding of what such service involves or of just what duties they will be called on to perform. Major T. S. Bratton of the Medical Corps a few years ago outlined the internal administration of the base hospital. ("The Internal Administration of a Base Hospital," T. S. Bratton, "Collected Papers, Field Service School for Medical Officers," Fort Leavenworth, Kan., 1914.) The functions of a base hospital are: "to receive patients from the field and evacuation hospitals as well as cases originating on the line of communications and at the base, and to give them definitive treatment." By definitive treatment is meant the final treatment, and its great importance is to prevent patients getting out of the control of the army authorities and back home where sympathetic friends, with false ideas of their duties to their country, will attempt to prevent the return of the patients to the army. This has been the case in past wars and is certainly an important problem. It becomes clear,

then, that the base hospital is called into duty whenever active warfare ensues. And not till then.

Examination of Dentists for Army.—The surgeon-general of the army announces that examinations for the appointment in the Dental Corps of the Army will be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Mo.; Fort Logan, Colo., and Fort McDowell, Calif., May 7 and July 2. Application blanks and full information concerning these examinations can be procured by addressing the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 21 and 32 years of age, a graduate of a dental school legally authorized to confer the degree of "D.D.S." and shall be of good moral character and habits. Successful applicants will be immediately appointed (as far as the number of vacancies will permit) to the grade of first lieutenant, at an entrance salary of $2,000 per annum. In order to perfect all necessary arrangements for the examination, applications must be in the possession of the surgeon-general at least two weeks before the date of examination. Early attention is therefore enjoined on all intending applicants. There are at present fourteen vacancies and on July 1, 1917, there will be twenty-two additional vacancies.

Advancing Medical Students in Preparation for Mobilization.—To promote the condition of preparedness in the medical services in accordance with the request of the surgeons-general of the army and navy, the medical departments of university and other medical schools are considering the question of having a continuous session, omitting the usual summer vacation, so that students may be graduated sooner. Harvard has announced that arrangements have been made for instruction equivalent to that provided for fourth year students to be continued throughout the summer until the beginning of the regular academic year, September 24. This will permit students in good standing who register for the course by May 1 to complete their fourth year and come up for examination for the M.D. degree at mid-year. Certain other privileges with reference to obtaining the M.D., degree are to be permitted to men entering the medical service of the army or navy, according to the Harvard announcement. The faculty of the University of Louisville, Medical Department, has also taken action to begin, one week after the annual commencement this year, the regular schedule of lectures for all classes. The work will continue for eight months, at the conclusion of which time the next senior class will be graduated.

Utilization of Insane in Preparedness Movement.—The State Lunacy Commission has submitted the following plans to the State Board of Agriculture as a part of the preparedness movement: 1. The placing out system, whereby the commission would parole to carefully selected farmers as many able-bodied feebleminded patients as are able to do farm work. 2. The Emergency Squad.—A carefully selected group of patients who would be taken from the hospital in motor trucks to adjoining farms and there gather the crops, in case the farmer is unable to get sufficient labor. 3. Cooperative cultivation by which the planting of necessary crops, such as corn, potatoes, etc., would be undertaken. In addition it is suggested that land adjoining each hospital now lying idle be leased or bought and placed under cultivation by the institution. 4. That the state cultivate large tracts of waste land, placing thereon 100 or more patients under proper supervision to cultivate this land, the products to be used as directed by the State Board of Agriculture. In utilizing the labor of the patients in the institutions, only those well adapted to farm life would be selected, and every safeguard would be used to avoid accident. A special meeting of the superintendents and boards of managers was called for April 19 to study these propositions.

Requirements for the Nurse Corps.—Dr. L. G. Leland, Newton Falls, Ohio, writes: Will you please give me the minimum educational requirements for acceptance on the nursing force of the army? As similar letters are being received from others, we cite the following from the Act of Feb. 2, 1901, creating a nursing corps: All nurses in the Nursing Corps shall be appointed or removed by the surgeon-general, with the approval of the secretary of war; they shall be graduates of hospital training schools and shall have passed a satisfactory professional, moral, mental and physical examination. Applicants must be between 25 and 35 years of age and unmarried. The applicant must be not less than 60 inches and not more than 70 inches in height and must weigh not less than 100 pounds nor more than 195 pounds. The training school from which she shall have graduated must be one which gives a thorough professional education, both theoretical and practical. Residence of at least two years in an acceptable general hospital of 100 beds or more is required. Graduates of training schools connected with hospitals not meeting the above requirements may, on submitting proof of at least six months' experience in a large general hospital, be put on the eligible list if found otherwise qualified. The professional and mental examination of applicants is in writing, and is conducted by the superintendent. Reference should be made to the discussion of the Nurse Corps in a special article on the administration of the medical department, this issue, page 1180.

Some Practical Points from German Experience.—Some months ago, Col. Hans Daae, head of the Norwegian army medical service, made a general tour of inspection of the German army medical service to study changes which had occurred since the beginning of the war, and he gives his observations in Volume 1, 1917, of the *Norsk Tidsskrift for Militærmedicin.* Colonel Daae was impressed greatly by some of the marked changes in equipment which have resulted from changing conditions. Dressings in the depot for supplying the medical department were packed in squares stamped on both sides, and different colors were employed to distinguish between sterilized and nonsterilized dressings. As there is great need for metal, all cases containing metal have been discarded. Instruments formerly kept in metal cases are now wrapped in cloth which has been previously impregnated with paraffin. A special department is devoted to supplying new lenses for broken spectacles, and it is stated that about 500 application forms for such new lenses were received daily. Every article of copper, brass and nickel was withdrawn from the medical service and replaced by galvanized iron or papier mâché with apparently satisfactory results. It was found that the organization of the medical service in the field had to be thoroughly revised. Early in the war the infliction of a single casualty was the signal for a medical officer to be sent, and the service suffered great losses in the first months of the war. A similar mistake was made in establishing dressing stations before it was even comparatively safe to do so, that is, before the actual conflict had begun to quiet down. The casualties in the medical service assumed such alarming proportions that orders were issued that military surgeons should not be sent to such posts at the command of the nonmedical staff, but should themselves determine when their services should be given. Colonel Daae was struck by the important change in the status of the officers in the army medical service during the war. *They have been put on an equal footing with other officers in the field.*

References to Literature on Military Medicine.—Several inquiries have been received concerning the securing of literature on military medical service. The following books are recommended for consultation by those desiring to familiarize themselves with the work of the medical officers:

Manual for the Medical Department, 1916, Supt. of Documents, Government Printing Office, Washington, D. C., 60 cents.
Field Service Regulations, 1914, ibid., 60 cents.
Army Regulations, 1913, ibid., 60 cents.
Drill Regulations and Service Manual for Sanitary Troops, 1914, ibid., 50 cents.
Straub: Medical Service in Campaign, P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, $1.50.
Havard: Military Hygiene, William Wood & Co., 51 Fifth Ave., New York, $5.
Keefer: Military Hygiene and Sanitation, W. B. Saunders Co., W. Washington Sq., Philadelphia, $1.50.
Mason: Handbook for Hospital Corps, William Wood & Co., $4.
Ashburn: Military Hygiene, Houghton, Mifflin Company, Cambridge, Mass., $1.50.
Woodhull: Military Hygiene, John Wiley & Sons, 432 Fourth Ave., New York, $1.50.
Woodhull: Military Hygiene for Officers of the Line, John Wiley & Sons, 432 Fourth Ave., New York, $1.50.
Morrison and Munson: Study of Troop Leading and Management of the Sanitary Service in War, Cavalry Journal, Fort Leavenworth, Kan., $1.25.

In addition, reference should be made to the following articles on military subjects which have appeared in THE JOURNAL during the past three years:

Rejections and Enlistments in the Army, editorial, Jan. 31, 1914, p. 386.
Alcohol Barred from Navy, editorial, April 11, 1914, p. 1176.
Disease Dangers of Mexican Invasion, editorial, May 2, 1914, p. 1403.
Government Medical Services Ready, editorial, May 2, 1914, p. 1406.
The Medical Reserve Corps, editorial, May 2, 1914, p. 1407.
Mitchell, S. W.: The Medical Department in the Civil War, May 9, 1914, p. 1445.

Oman, C. M.: Medical and Surgical Work on a U. S. Battle-Ship, May 16, 1914, p. 1541.
Military Surgery in the Balkans, editorial, Aug. 1, 1914, p. 405.
The Army and Mental Disease, editorial, Oct. 17, 1914, p. 1396.
Health Conditions in the Navy, editorial, Dec. 12, 1914, p. 2139.
Hoguet, J. P.: Observations on Military Surgery in the Early Weeks of the War, Dec. 19, 1914, p. 2194.
Health in Our Army, editorial, Jan. 9, 1915, p. 155.
Military Surgery, Correspondence, Jan. 9, 1915, p. 167.
Current Aspects of Military Surgery, editorial, March 6, 1915, p. 832.
War Surgery, editorial, March 13, 1915, p. 912.
Alcohol in European Armies, editorial, May 15, 1915, p. 1663.
Jablons, B.: Pathology of War Surgery, June 19, 1915, p. 2045.
Preparedness, editorial, July 1, 1915, p. 42.
Drennen, W. E.: Experiences in Military Surgery, July 24, 1915, p. 296.
Straub, W.: Alcohol in European Armies, Correspondence, Aug. 21, 1915, p. 732.
What the Civilian Doctor Called to Active Service with the Army Should Know:
1. Duties in the Zone of the Interior, Feb. 5, 1916, p. 425.
2. Duties on the Line of Communications; Sanitary Measures in Camps, Feb. 12, 1916, p. 508.
3. Duties in Zone of the Advance, Feb. 19, 1916, p. 571.

A reprint of this series will be sent on receipt of a stamped addressed envelope.

Medical Preparedness and the Army, editorial, Feb. 19, 1916, p. 575.
Increased Medical Staff in the Army, editorial, April 8, 1916, p. 1121.
The Army Medical Department and Preparedness, editorial, April 22, 1916, p. 1313.
The National Defense Bill and the Army Medical Service, editorial, June 10, 1916, p. 1859.
Disease Dangers of War with Mexico, editorial, June 24, 1916, p. 2070.
The Army Medical Service as a Career, editorial, July 1, 1916, p. 40.
Osgood, R. B.: Orthopedic Surgery in War Time, Aug. 5, 1916, p. 418.
Membership in Army Medical Corps as a Career, editorial, Oct. 28, 1916, p. 1308.
Medical Officers' Reserve Corps, editorial, Oct. 28, 1916, p. 1308.
Recent Legislation for the Medical Corps of the Navy, editorial, Nov. 11, 1916, p. 1452.
Chamberlain, W. P.: Care of Troops on the Mexican Border, Nov. 25, 1916, p. 1573.
Medical Progress in the Navy, editorial, Dec. 16, 1916, p. 1854.
Noble, R. E.: Medical Corps of Army as a Career, March 31, 1917, p. 955.
Holcomb, R. C.: The Navy and Its Relation to the Medical Profession in Time of War, April 14, 1917, p. 1095.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Protest Against License Fee.—At a meeting of the Birmingham Commission, March 27, more than twenty-five physicians appeared to protest against the license schedule, which taxes each physician a minimum of $15 on a practice of $2,000. The commission suggested the appointment of a committee of three to frame an equitable schedule.

Personal.—The resignation of Capt. William T. Weissinger, Uniontown, M. C., Ala. N. G., was accepted, March 9.——Dr. William W. Dinsmore, Montgomery, assistant state health officer, has been appointed state prison inspector to succeed Dr. William H. Oates, term expired.——Dr. H. J. Lowrey has been appointed assistant health officer of Birmingham.

CALIFORNIA

Measles Epidemic.—Measles is reported to be more prevalent in California than in any other period in its history. More than 8,500 cases were reported during the first three months of this year.

Medical Boards Bill Killed in Committee.—The bill introduced by Senator Edgar Luce, which seeks to combine the five state medical boards now in existence, was tabled by the Senate Public Health and Quarantine Committee at its session, March 20.

Smallpox on Steamer.—The steamer *Rose City* of the San Francisco and Portland Steamship Company reached San Francisco, March 20, with a case of smallpox on board. The patient was removed to the Isolation Hospital, the vessel was quarantined and the passengers, after being vaccinated, were allowed to land.

Personal.—A complimentary farewell was tendered Dr. Jacob C. Geiger, chief bacteriologist of the State Hygienic Laboratory, Oakland, and assistant director of the Bureau of Communicable Diseases, of the State Board of Health. Dr. Geiger entered the United States Public Health Service, April 15, and has been ordered to duty in malarial prevention work in New Orleans.

Physicians' Building Reconstructed.—The Physicians' Building, Sacramento, is undergoing reconstruction. The remodeled building will be five stories in height and will be thoroughly equipped for the use of physicians and dentists.——A new building, representing an investment of $350,000, to be devoted exclusively to the use of physicians and dentists is to be erected at Grand Avenue and Webster Street, Oakland. The structure will be seven or ten stories in height, and of steel and pressed brick construction.

Drugless Healers Ask Injunction.—L. E. Nickell and Robert J. Burke, drugless healers and ordained ministers of the Church of the Spiritual Temple of Truth, Los Angeles, have applied for an injunction to prevent the enforcement of the state law requiring medical examinations for all persons practicing healing. The appeal attacks the state medical law as unconstitutional and class legislation, and as depriving the petitioners of their right to make a living, a license to practice medicine being denied them.

Donations Toward University Hospital.—At the charter day exercises of the University of California, March 23, Pres. Benjamin Ide Wheeler announced that $43,493 has been given by various friends of the university to furnish and equip the new University Hospital in San Francisco, a 215-bed teaching hospital, itself built through gifts of $586,000 from a number of different benefactors. The donors of the equipment fund are: Wallace M. Alexander, $2,000; an alumnus of the university, $10,000; F. W. Bradley, $5,000; William H. Crocker, $2,616.50; the children of Regent F. W. Dohrmann, $500; D. C. Jackling, $1,000; Charles W. Merrill, $1,000; Mrs. James Moffitt, $15,000; N. Ohlandt, $1,500; a friend, $2,377; a friend, $2,500.

Summer Graduate Course.—Stanford University Medical School announces its fourth summer graduate medical course, which will extend from July 9 to August 17. Classes will be held in the Medical School Building, Sacramento and Webster streets; the Lane Hospital, at Clay and Webster streets; San Francisco Hospital, at Twenty-Second Street and Potrero Avenue, and the Isolation Hospital at Army and DeHaro streets. The course of instruction will include clinical medicine, roentgenography and Roentgen therapy, cutaneous medicine, syphilis, pediatrics, clinical surgery, anatomy, orthopedic surgery, genito-urinary surgery, clinical ophthalmology, otology and laryngology, practical obstetrics, gynecology, cystoscopy, anesthesia and pathology. As many courses as desired may be taken, the total maximum fee being $150. All correspondence regarding this course should be addressed to the dean of the school.

ILLINOIS

Contract for Hospital Awarded.—A contract for the erection of the first unit of the Illinois Valley Hospital, Ottawa, has been awarded. The new building will cost about $30,000 and will be known as the Diagnostic Pavilion. It will be one story in height and of masonry construction with high basement.

Talks Before Medical Society.—At the quarterly meeting of the Warren County Medical Society, held in Monmouth, April 15, Dr. Kellogg Speed, Chicago, delivered an address on "Military Surgery," illustrated by stereopticon views, and Dr. Wilber E. Post, Chicago, spoke on "The Use of Salts and Alkali in Nephritis."——Dr. Charles P. Emerson, Indianapolis, dean of the Indiana University School of Medicine, delivered an address, April 13, on "Modern Medicine and the School Child," before the Illinois State Teachers' Association.

Personal.—Dr. Leon W. Kelso, Paxton, has been appointed local surgeon for the Illinois Central Railroad, succeeding Dr. Spencer S. Fuller, resigned.——Dr. Robert W. Allen, Donnellson, underwent operation at the Hillsboro Hospital, April 4, and is reported to be doing well.——Dr. John W. Earel, Quincy, who is expected to resume practice after an absence of nearly a year on account of illness, has had a relapse and may not be able to return to work for two or three months.

State Society Meeting.—The annual meeting of the Illinois State Medical Society will be held in Bloomington, May 7 to 10. All business sessions will be held in the Masonic Temple. On the Sunday preceding the meeting, which will be known as Health Sunday, the pulpits in the various

PERSONAL HISTORY OF APPLICANT FOR APPOINTMENT IN THE MEDICAL CORPS, UNITED STATES ARMY.

Give your name *in full* (including your full middle name):

The date of your birth: The place of your birth:

When and where were you naturalized (if of alien birth)?

Are you married or single? Have you any children; if so, how many?

What is your height, in inches? Your weight, in pounds?

Give the nature and dates of all serious sicknesses and injuries which you have suffered:

Do you labor under any mental or physical infirmity which could interfere with the efficient discharge by you of the duties of a medical officer?

If either parent, or brother, or sister has died, state cause and age in each case:

Do you use intoxicating liquors or narcotics; if so, to what extent?

Have you found your health or habits to interfere with your success in civil life?

What academy, high school, college, or university have you attended? State periods of attendance from year to year, and whether you were graduated, giving date or dates of graduation:*

Name any other educational advantage you have had, such as private tuition, foreign travel, etc.:

Give all literary or scientific degrees you have taken, if any, names of institutions granting them, and dates:

With what ancient or modern languages or branches of science are you acquainted?

When did you begin the study of medicine, and under whose direction? His residence?

How many courses of lectures have you attended? Names of colleges and dates:

When and where were you graduated in medicine?

* If a graduate of a literary or scientific college, normal school, or high school, you should forward each diploma or certificate of graduation, or a certified copy thereof attested by a notary public or clerk of a court of record.

Have you been before a State Examining Board? If so, state when, where, and with what result:

Have you had service in a hospital? If so, state where and in what capacity, giving inclusive dates of each kind of service:

What clinical experience have you had in dispensary or private practice?

Have you paid particular attention to any specialty in medicine; if so, what branch?

What opportunities for instruction or practice in operative surgery have you had?

Have you previously been an applicant for entry into the United States service? If so, state when, where, and with what result:

Are you a member of the organized militia? If so, state with what organization and in what capacity.

Have you been in the military or naval service of the United States? If so, give inclusive dates of service with each organization, designating it:

In case of war or threatened war, will you accept active service for duty with the Army, should your services be needed?

What occupation, if any, have you followed other than that of student or practitioner?

Present or temporary address: †

Permanent residence: †

I CERTIFY that to the best of my knowledge and belief the above statements are true.

Signature ☞

Date, ..., *191*

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† The candidate should give his present address for correspondence, and also his permanent address to which he desires commission sent should he be appointed.

FORM 149.
W. D., S. G. O.
(Revised March 6, 1912.)

Jour. A. M. A.
April 21, 1917

.................................., *M.D.*,

OF

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FURNISHES PERSONAL HISTORY,

IN CONNECTION WITH

APPLICATION FOR APPOINTMENT

IN THE

MEDICAL OFFICERS' RESERVE CORPS,
U. S. ARMY

................*Inclosures*

churches will be filled by visiting physicians. In addition to the sectional meetings, there will be a public mass meeting at the Second Presbyterian Church on Sunday evening when addresses will be given by Drs. William L. Noble, president of the society, John Dill Robertson, and William A. Evans, all of Chicago. On Monday evening a public meeting will be held at the high school auditorium at which addresses will be given by Dr. Joseph C. Beck, Chicago, on "Prevention of Blindness" and by Dr. Richard J. Tivnen, also of Chicago, on "The Prevention of Deafness."

Chicago

Ancient Medicine.—The next meeting of the Society of Medical History of Chicago will be held at the Hotel Sherman, April 27, when Prof. Morris Jastrow, Philadelphia, will deliver an illustrated lecture on "The Medicine of the Babylonians and Assyrians."

Oral Surgery or Dentistry.—On April 12 a case of great importance to the profession was concluded before Judge Olson, chief justice of the Municipal Court. The Dental Board of Illinois caused the arrest of Dr. William A. Lurie on the charge of practicing dentistry without a license. The attorney-general contended that a physician has no right to treat diseases of the jaw under the provision of the dentistry act. After a partial hearing of the case of the state, the judge indicated that the prosecution which arose from the treatment by Dr. Lurie of a case of antrum and jaw infection could not be sustained, and the state thereupon nonsuited. Dr. Lurie was represented by Attorney Robert J. Folonie, acting for the Chicago Medical Society and the Illinois State Medical Society.

KANSAS

Hospital Association to Meet.—The annual meeting of the Kansas Hospital Association will be held in Salina, May 1, under the presidency of Dr. Samuel Murdock, Jr., Sabetha.

Speed at Topeka.—Dr. Kellogg Speed, Chicago, who has recently returned from the western war front in France, delivered an address before the Shawnee County Medical Society, at Topeka, April 2.

MAINE

Department of Health Created.—The Maine legislature, prior to its adjournment, April 7, enacted a law creating a state department of health and providing a health commissioner with a visiting council appointed by the governor, and a council commissioner for a term of six years, removable for cause only. The commissioner is empowered to appoint three or more district commissioners, responsible to, and paid by, him.——The bill creating a board for the registration of osteopaths failed to pass.

MARYLAND

Sexton Transfers.—Dr. Lewis A. Sexton, Baltimore, for several years chief of the dispensary clinic of Johns Hopkins Hospital, has resigned to accept the position of superintendent of the Hartford (Conn.) Hospital.

NEW JERSEY

Memorial Tablet Erected.—In memory of the late Dr. Henry G. Taylor, for twenty-six years visiting physician to the Cooper Hospital, Camden, a tablet has been placed in the central corridor of the main building of the institution.

Personal.—Dr. Daniel J. Donohue, Jersey City, sustained a fracture of the skull and other injuries when the steering gear of his car broke, while he was answering an emergency call, March 30.——Dr. Thomas B. Lee, Camden, has been appointed a member of the state board of health.

NEW YORK

New Queens Hospital.—The Queensborough General Hospital has been organized to take over the Jamaica Hospital. Option on a site just north of Jamaica has been secured, and a campaign to raise $250,000 has been started. Tentative plans provide for a building with 200 rooms on a plot large enough to permit of the construction of additional wings as required.

State Medical Society Meeting.—The annual meeting of the Medical Society of the State of New York will be held in Utica, April 24 to 27, with headquarters at the State Armory, Rutgar and Struben streets. Section meeting places are at the New Century Auditorium, Cope Memorial Church, Park Baptist Church, Park Baptist Chapter, and two sections will meet in the parlors at the Armory.

Personal.—Major H. Judson Lipes, Albany, Capt. Henry B. Gillen, Cohoes, and Eugene F. Connally, Troy, all assigned to the Second Infantry, have resigned from the Medical Corps. ——Lieut. Homer H. Oaksford, Gloversville, has been commissioned Major, M. C., N. Y. N. G., and assigned Second Infantry.——Dr. George H. Houghton, Albany, has been transferred to the Second Infantry.——Dr. Samuel A. Munford, Ithaca, has resigned as medical advisor of Cornell University to accept a position in the Clifton Springs Sanitarium.

New York City

Many Years a Typhoid Carrier.—The New York Health Department reports a typhoid carrier just discovered, a woman, 76 years of age, who had typhoid fever forty-nine years ago.

The Work of the Bacteriologic Laboratory.—During the past year there were submitted to the Municipal Bacteriologic Laboratory 215,341 cultures for contagious diseases, and each of the four bacteriologists averaged 141 tests a day, including Sundays and holidays.

Gift of Milk for Schoolchildren.—The Clover Farms, Inc., and the Sheffield Farms-Slawson-Decker Company have donated to the Bureau of Child Hygiene 500 books of 30-quart coupons each. These books will be distributed to schoolchildren needing additional nourishment.

Dentist to Care for Teeth of Tuberculous Children.—The Jewish Aid Society of Brooklyn has arranged for dental work for the child patients of the Tuberculosis Day Camp at Rutherford. Patients whose sputum contains tubercle bacilli are to be treated separately and not in a public dental clinic.

Health Survey of Chelsea District.—The Chelsea Neighborhood Association, in cooperation with the Metropolitan Life Insurance Company, has undertaken a survey of the district from Fourteenth to Forty-Second streets, and from Fifth Avenue to the Hudson River, including a population of about 180,000 people. The census is to be taken the end of April.

Mosquito and Fly Week.—Members of the Interstate Mosquito Committee met recently under the chairmanship of Dr. Haven Emerson in order to discuss plans for fighting mosquitoes and flies this summer. It was decided to hold a mosquito and fly week, beginning May 28, during which an education campaign will be conducted against the mosquito and the fly.

Oral Hygiene Week.—The health department, the department of education and the First and Second District Dental societies have inaugurated a city-wide educational campaign on oral hygiene during the week of May 13. A large part of the work will be carried on in schools, the dental societies having agreed to furnish a lecturer for every school in the city. In addition prizes will be given for posters, for a slogan, and for the best set of teeth in each school.

Examination for Pathologist.—The Municipal Civil Service Commission announces that it will receive applications from April 11 to April 25 for the position of pathologist. The examination will be competitive and open to all citizens of the United States. Candidates must be graduates in medicine from approved institutions, at least 21 years of age, and must pass the required examination. The compensation rates proposed by the board for this position range from $1,740 to $2,100.

Instruction for Mosquito Fighters.—The Brooklyn Institute of Arts and Sciences announces a course of instruction designed to train persons for practical work in the elimination of mosquitoes and flies. The course is to be given at the Biological Laboratory, Cold Harbor Springs, L. I., beginning July 5, and continuing six weeks. The course includes surveys and mapping, identification of species, life history of the different species of mosquitoes and flies, and specifications for treatment and elimination. Further information regarding this course may be had by addressing Dr. Charles B. Davenport, Cold Harbor Springs, L. I., N. Y.

Medical Consultant Wanted for Law Department.—The Municipal Civil Service Commission announces that applications will be received up to 4 p. m., April 24, for the position of medical consultant, law department. A qualifying physical examination will be given; candidates must have had ten years' general practice of medicine, or five years' general practice of medicine and five years of hospital operating work. They must have had extended experience in physical examination of a nature tending to qualify them for the duties of the position. The duties of the position are to act when required as medical consultant to the corporation coun-

cil, namely in connection with claims and actions against the city for damages for personal injuries. Applicants must be at least 35 years of age. The compensation is $6,000 annually, and full time service is not required.

OHIO

Physicians to Fill Pulpits.—On Sunday, May 13, preceding the opening of the annual session of the Ohio State Medical Association at Springfield, the pulpits of that city will be filled by out-of-town physicians, who will deliver addresses on subjects connected with public health.

Eugenic Marriage Bill Passes Senate.—The Ohio State Senate, March 22, passed a bill requiring male applicants for marriage licenses to undergo a physical examination and present a certificate of good health, and providing that divorced men cannot remarry within six months after divorce.

Personal.—Dr. William Pennell, Mount Vernon, is critically ill at Bethesda Hospital, Cincinnati.——Dr. Henry Houton, formerly of Upper Arlington, dean of the Harvard School in China, has arrived in San Francisco, from Shanghai.——Dr. Morton W. Bland, Bellevue, state registrar of vital statistics, has resigned.

Cancer Campaign.—The cancer committee of the Ohio State Medical Society has arranged with the *Ohio State Medical Journal* to devote the May number to cancer problems. These problems will be discussed at the meeting of the Ohio State Medical Association at Springfield, in May. An educational campaign will also be inaugurated among physicians, nurses and the public.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Edward T. Reichert, professor of physiology at the University of Pennsylvania, has offered to the government his 50-foot sea-going yacht *Fortuna 3rd.*

Rose Cold and Hay-Fever Dispensary.—The Samaritan Hospital has opened a dispensary for the diagnosis and treatment of persons suffering with rose cold and hay-fever under the department of Dr. William Egbert Robertson. The dispensary work will be in charge of Dr. Claude P. Brown, Glen Olden, and the dispensary hour will be Tuesday, 7:30 to 8:30 p. m., beginning April 17.

Obstetric Fellowship Established.—The Women's Medical College of Pennsylvania, Philadelphia, has established an obstetric fellowship amounting to $1,000, to be awarded annually to any medical woman of especial ability who, following the undergraduate course, has completed at least one year of hospital service, including work in the maternity wards, and one year of further practice. The amount is to cover twelve months of special work as fellow in obstetrics, with the condition that the holder of the fellowship shall thereafter continue the practice of this specialty.

Pupils Aid in War on Flies.—Dr. John P. Garber, superintendent of public schools, and Dr. Walter S. Cornell, director of school medical inspection, have given their support to the Cooperative Committee for Fly Extermination in its efforts against the house fly. Letters signed by both Dr. Garber and Dr. Cornell are being distributed through the public schools directing the work, and a call has been issued for volunteer inspectors who will hunt for breeding places of the insect and direct the proper disinfection. Letters sent out last week containing circulars directing the extermination of the fly brought many replies not only from superintendents of hospitals but from hotel managers, restaurant and boarding house proprietors, all endorsing the movement and promising the fullest cooperation.

TENNESSEE

Personal.—Dr. Louis Frank, Louisville, Ky., spoke before the Memphis and Shelby County Medical Society, at its meeting, March 20, on "Safety Factors in Prostatic Surgery." The address was illustrated by lantern slides.——Dr. Arthur G. Kelley, Memphis, has moved to New York.

Cornerstone Laid.—The cornerstone of the new anatomic hall at Meharry College, Nashville, was laid, March 23. The president of the college, Dr. George W. Hubbard, was master of ceremonies, and the principal address was delivered by Bishop Frank M. Bristol of the Methodist Episcopal Church. The new building will be completed in time for use in the term which opens in the autumn.

County Society Regulates Hospital.—The Memphis-Shelby County Medical Society early in March adopted resolutions for the regulation of hospitals in Memphis, demanding that each hospital appoint a board of medical advisers; that it maintain an efficient method of filing and indexing histories; that it require each member of its attending staff to leave in the hospital a record of each case, and that it require all physicians sending patients to or operating on them in the hospital to live up to the professional requirements of the society. It also demanded that each hospital create a laboratory fund from the fees paid for laboratory examinations of all kinds at a rate to be determined by the hospital and the pathologist, such fund to be expended only on the laboratory; that there should be in each laboratory a full time technician, and that each intern be required to serve at least two months in the laboratory. In accordance with this action, St. Joseph's Hospital has notified the local members of the profession that all pay patients will be charged an additional $2 on admission for laboratory examinations, and that all tissue removed at operation is the property of the hospital, and will form a part of the operation record, but that charity patients will receive any laboratory services which may be necessary.

State Society Meeting.—The eighty-fourth annual meeting of the Tennessee State Medical Association was held in Nashville, April 3 to 5, under the presidency of Dr. Charles N. Cowden, Nashville. The following officers were elected: president, Dr. Edward T. Newell, Chattanooga; vice presidents, for Eastern Tennessee, Dr. Henry M. Cass, Johnson City; for Middle Tennessee, Dr. Thomas G. Pollard, Nashville, and for Western Tennessee, Dr. William O. Sullivan, Newbern; treasurer, Dr. Joseph F. H. Gallagher, Nashville (reelected); secretary, Dr. Olin West, Nashville (reelected); delegate to the American Medical Association, Dr. Andrew F. Richards, Sparta; alternate, Dr. William Britt Burns, Memphis, and councilors, Drs. Samuel R. Miller, Knoxville, Zeb L. Shipley, Cookeville; William C. Dixon, Nashville; Alexander B. Dancy, Jackson, and William T. Black, Memphis.——The section on ophthalmology and oto-laryngology at its final session elected Dr. Richmond McKinney, Memphis, president, and Dr. William W. Potter, Knoxville, secretary.——At the annual banquet of the association, April 4, Dr. John A. Witherspoon, Nashville, made an eloquent appeal to the association to support the government in the present war crisis, and resolutions were adopted pledging the service of the members to the United States in case of war.

UTAH

State Medical Board Organized.—The new State Medical Board met at Salt Lake City, April 7, and organized, electing Dr. David C. Budge, Logan, president; Dr. Fred W. Taylor, Provo, vice president; Dr. Walter M. Stookey, Salt Lake City, secretary-treasurer, and Dr. George F. Harding, corresponding secretary. The two new members of the board are Drs. Harry N. Mayo, Salt Lake City, and John R. A. Whitlock, Tremonton.

New Staff Begins Work.—The new staff of the Salt Lake County Hospital for the quarter beginning April 1 is as follows: surgery, Dr. George W. Middleton; orthopedic surgery, Dr. Samuel C. Baldwin; internal medicine, Dr. William H. Rothwell, Murray; diseases of the eye, ear and throat, Dr. Leslie W. Snow; diseases of children, Dr. Charles E. Carter; diseases of the kidney and bladder, Dr. Francis A. Goeltz; diseases of the skin, Dr. William L. Rich, and pathology, Dr. George F. Roberts.

VIRGINIA

Faculty Changes.—At the meeting of the faculty of the Medical College of Virginia, Richmond, March 28, Dr. Hugh M. Taylor resigned as professor of clinical surgery and was elected emeritus professor; Dr. William L. Peple was elected professor of clinical surgery; Dr. L. Schuyler B. Moon, acting professor of pathology, was elected professor of pathology, and Dr. Edgar C. L. Miller was reelected professor of bacteriology and physiologic chemistry.

Personal.—Dr. Robert J. Payne, Fredericksburg, has been appointed a member of the board of visitors of the Medical College of Virginia, Richmond, succeeding Dr. Joseph N. Barney, who resigned to accept an appointment in the Medical Reserve Corps, U. S. Army.——Dr. Stuart McGuire, Richmond, has been appointed a member of the board of visitors of the Medical College of Virginia, Richmond, succeeding Dr. Robert C. Randolph, resigned.——Dr. Ernest C. Levy has resigned as chief health officer of Richmond to accept a position with the North Public Health Bureau, New York.——Dr. Roy K. Flannagan, Richmond, has been appointed city health officer of Richmond.——Dr. B. Lawrence Taliferro, Catawba

Sanatorium, has been appointed medical director of the Piedmont Sanatorium.

Hospital News.—The people of Abingdon will erect a hospital as a monument to the late Dr. George Ben Johnston, Richmond, to be known as the George Ben Johnston Memorial Hospital. In an eight-day campaign to raise funds for this purpose, $30,000 was subscribed.——The Chesapeake and Ohio Railway Company has opened a new hospital at Clifton Forge. The building cost $70,000, and is under the charge of Dr. Benjamin B. Wheeler.——More than $112,000 of the $150,000 required for the building fund for the Retreat for the Sick, Richmond, had already been subscribed, April 1.——Mrs. Henry B. Gilpin of Baltimore and Scaleby Manor, Clarke County, will erect and equip, at an expense of $10,000, a large children's department at the Winchester Memorial Hospital.

WASHINGTON

Personal.—Dr. William A. Shannon, Seattle, has been reappointed a member of the board of regents of the University of Washington for a six-year term.——Dr. John B. Anderson has been reelected city health officer of Spokane.——In the damage suit brought by Dr. L. Maud Parker, Seattle, against the Northwest Motor Company for injuries alleged to have resulted from an automobile collision in October, 1915, and for which $51,000 was claimed, the jury brought in a verdict for the defendant, April 6.

Graduate Medical Course.—A graduate medical course will be conducted at the new St. Luke's Hospital, Spokane, during the summer. Among those who have announced their acceptance of positions as instructors are: Drs. W. T. Councilman, Harvey Cushing, Walter B. Cannon, Fritz B. Talbot, James S. Stone, George Holmes, David L. Edsall and Francis W. Peabody, Boston; William G. MacCallum and Warfield T. Longcope, New York; Lewellys F. Barker and Theodore C. Janeway, Baltimore, and Rollin T. Woodyatt, Ludvig Hektoen and Harry G. Wells, Chicago.

CANADA

First Aid for Injured Workmen.—An amendment to the Workmen's Compensation Act of Ontario provides for first aid to injured workmen. This will continue for thirty days after the injury. No specific amount is named, but it will be paid out of the accident fund.

Personal.—Surg.-Gen. Guy Carleton Jones, Ottawa, Ont., has arrived in Halifax.——Gen. John T. Fotheringham, C. M. G., Toronto, has been invited to deliver the Cavendish address before the London Medico-Chirurgical Society in June.——Major E. Stanley Ryerson, Toronto, who was with the University of Toronto Base Hospital at Saloniki, but who returned to Toronto a short time ago, has been appointed A. D. M. S., Toronto Military District, in succession to Col. Frederick W. Marlow, resigned. Major Ryerson will have the temporary rank of lieutenant-colonel.——Capt. James G. Bruce of the C. A. M. C. has recently returned to Toronto on furlough.

GENERAL

Pediatrists to Meet.—The American Pediatric Society will hold its twenty-ninth annual meeting at the Greenbrier, White Sulphur Springs, W. Va., May 28 to 30, under the presidency of Dr. Frank S. Churchill, Chicago.

Confederate Surgeons to Meet.—The twentieth annual meeting of the Association of Medical Officers of the Army and Navy of the Confederate States will be held in the New Willard Hotel, Washington, June 4 to 8. The meeting will be held concurrently with the general reunion of the United Confederate Veterans.

Alienists and Neurologists to Meet.—The annual meeting of alienists and neurologists will be held, July 9 to 12, in the Red Room of the Hotel LaSalle, under the auspices of the Chicago Medical Society. Dr. George A. Zeller, Springfield, Ill., will act as chairman, and Dr. Bayard Holmes, Chicago, as secretary of the meeting.

Immunologists Elect Officers.—At the annual meeting of the American Association of Immunologists, held in New York, April 6 and 7, Dr. John A. Kolmer, Philadelphia, was elected president; Dr. Martin J. Synnott, Montclair, N. J., secretary, and Dr. Willard J. Stone, Toledo, Ohio, treasurer. The new council is composed of the officers and Drs. Richard Weil, Arthur F. Coca, and William H. Park, New York, and Dr. A. Parker Hitchens, Glen Olden, Pa. The next meeting will be held in Minneapolis in April, 1918.

State Health Officers to Meet in Washington.—The annual conference of state health officers with the surgeon-general of the United States Public Health Service has been called to meet in Washington, D. C., April 30 and May 1. Immediately following the adjournment of this official conference, the Conference of State and Provincial Boards of Health of North America will meet and remain in session two days. In the latter body various Canadian provinces are represented, and are expected to have their health officers present. The leading topic before both conferences will be the coordination of existing federal, state and city health agencies with particular reference to increased efficiency during the war.

Conference of Charities and Correction.—The forty-fourth annual National Conference of Charities and Correction will be held at Pittsburgh, June 6 to 13, under the presidency of Frederick Almy, Buffalo. The conference sessions will include a general open meeting at which the presidential address will be delivered; a religious service on Sunday at which the annual sermon will be preached by Bishop Williams of Michigan, and on Saturday the general business session of the conference will be held. The work of the conference will be under the following general divisions: children, community programs, correction, the family and the community, health, mental hygiene, public charities, rural social problems and social insurance.

McIntire Prizes.—The American Academy of Medicine, in appreciative commemoration of the work of Dr. Charles McIntire, Easton, Pa., secretary of the academy for twenty-five years, announces that it will give two prizes to be awarded at the annual meetings in 1918 and 1921, respectively. The subject for 1918 is "The Principles Governing the Physicians' Compensation in the Various Forms of Social Insurance." The committee to award this prize is composed of Drs. John L. Heffron of the Syracuse (N. Y.) College of Medicine; Reuben Peterson of the University of Michigan, Ann Arbor, and John Staige Davis of the University of Virginia, Charlottesville. The subject for 1921 is "What Effect has Child Labor on the Growth of the Body," and the committee to award this prize is composed of Drs. Thomas S. Arbuthnot, University of Pittsburgh; Winfield Scott Hall of Northwestern University, Chicago, and James C. Wilson of Jefferson Medical College, Philadelphia.

The Statistics of Blindness.—The forthcoming report from the Bureau of the Census on blindness in the United States indicates that 30.8 per cent. of the blind population lost their sight when less than 20 years of age; 7.4 per cent. during the early and middle years of adult life (from 20 to 64 years); and 21.8 per cent. after passing 65 years of age. The greatest loss of sight, by periods of five years, occurred in the first period of life. These figures are based on information from 29,242 blind persons of the 57,272 to whom schedules were sent by the census bureau. There has been a marked decrease since 1880 in the proportion of blind who lose their sight in infancy. This decrease is to be explained in great measure by the increased use of the Credé method of prophylaxis for ophthalmia neonatorum. The proportion of blind who lost their sight during the early or middle years of adult life has increased since 1880 and this increase is probably due in part to the great industrial growth of the United States during the last thirty years, with its natural increase in blindness due to occupational injuries and diseases.

Interstate Quarantine Regulations to Cover Construction Camps and the Oyster Industry.—By an amendment to the interstate quarantine regulations, recently promulgated by the secretary of the treasury, persons maintaining camps for migratory workers are required to keep such camps in a proper sanitary condition, to take measures to keep such camps free from vermin, and to exercise such other precautions as may be necessary to prevent the interstate spread of disease. The surgeon-general of the United States Public Health Service is authorized to make such inspections as may be necessary. Common carriers are forbidden to accept oysters, clams, or other shellfish which have been grown, fattened, or handled in such a way as to be agents in the spread of disease. The surgeon-general of the United States Public Health Service is directed to inspect beds used for growing or fattening oysters, clams, or other shellfish, and shucking houses and similar places where they are prepared for shipment, and to forbid their shipment if they are produced or handled so as to be agents for the spread of disease.

Civil Service Examinations.—The United States Civil Service Commission announces an open competitive examination for assistant curator, division of medicine (male), to be held

May 2, to fill a vacancy in the National Museum, Washington, D. C., at a salary ranging from $1,500 to $1,800 a year, and future similar vacancies. The duties of the position include the identification, classification and labeling of specimens exemplifying the history of medicine, materia medica, pharmacy and public hygiene, and the planning and installing of exhibits illustrating these groups. Competitors will be examined in botany, materia medica, pharmaceutical chemistry and history of medicine. Applicants must be less than 40 years of age, must be graduates of a school of medicine or pharmacy, and should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the secretary of any United States Civil Service Board. A second examination is for medical intern, St. Elizabeth's Hospital, Washington, D. C., to be held June 6, 1917. This examination will be for both men and women, to fill a vacancy at $900 a year with maintenance. For the existing vacancy males are eligible. Applicants must be graduates of reputable medical colleges or senior students in such institutions, must be unmarried and 20 years of age or over. Applicants should apply for Form 1312, stating the title of the examination to the Civil Service Commission, Washington, D. C., or the secretary of any United States Civil Service Board.

FOREIGN

Bubonic Plague in England.—News of the appearance of bubonic plague at Liverpool, England, was contained in a special order of the quarantine department of the port of New York to subject all vessels excepting passenger ships from Liverpool to fumigation at the end of their voyage for the destruction of rats, and that they shall comply with the plague regulations of the port.

Joint Meeting of Philippine Medical Associations.—The Philippine Island Medical Association has been invited by the Colegio Medico Farmaceutico de Filipinas to hold its annual scientific session jointly with their organization. The council of the Philippine Island Medical Association is strongly in favor of holding such a joint session. The Colegio is a very active organization both socially and scientifically, and the Filipino physicians take much interest in the organization.

Quacks at Havana.—The *Vida Nueva* of Havana remarks that it is truly alarming the increasing number of charlatans practicing in the capital of the Republic of Cuba. The newspapers carry the advertisements of dozens of them who offer moral and physical treatment for every kind of disease. It adds: "Some of them practice medicine, as is well known, without possessing the most rudimentary knowledge of this difficult science. It would be well if the medical authorities would come to some effectual decision as to the matter for conditions are graver even than appears on the surface. It is necessary to combat this evil, because every one knows that the ignorant are inclined to put themselves in the hands of quacks, who exploit their ignorance."

Max Nordau Interned at Madrid.—Dr. Max Nordau, author of several satirical arraignments of our civilization, long Paris correspondent of the Vienna *Neue Freie Presse,* has been interned at Madrid for some time. He was admitted to the practice of medicine in 1882. The Surgeon-General's Catalogue states that his real name is Südfeld, Nordau being a free translation, "North meadow" for "South field." His best known work is "Conventional Lies of Our Civilization," in which he included "Gottesgnadenthum" as one of the most colossal lies. This made it necessary for him to live outside of Teutonic countries, and he made Paris his home. When the war began, he had to leave France as well. The *Siglo Medico* gives a recent interview with him in which he discussed Semmelweis' use of chlorin in disinfection in 1847.

Deaths in the Profession Abroad.—A. Combe, professor of pediatrics at the University of Lausanne, Switzerland, aged 68.——**J. Brault,** professor of the diseases of tropical countries and of skin diseases and syphilis at the University of Alger, in Algiers, Africa, and author of numerous monographs on these subjects, aged 55.——**F. Massei,** professor of affections of the ear, nose and throat at the University of Naples, aged 70. He founded in 1881 the *Archivio Italiano di Laringologia* which he called "La nostra carta di visita," and in which he constantly reiterated the principle that the specialties must beware of becoming closed circles but must always clasp hands with general clinical medicine. He has long been the leader in otorhinolaryngology in Italy and represented his specialty in the international medical congresses. He has a record of over 500 tumors of the larynx successfully removed by the natural route.

LONDON LETTER

London, March 26, 1917.

The Waste of War

Mr. Barnes, the pensions minister, described in Parliament the measures taken to deal with the disabled of the war and their dependents, which have already reached a huge total. The numbers at present are: disabled men, 157,544; widows, 62,796; children of those widows, 128,294; dependents of deceased men, 29,832; widows who have not reached the pension stage, about 125,000; men in hospitals, about 65,000; medically unfit, about 65,000, or a total of 673,741 men, women and children. In regard to eligibility the distinction drawn between disease attributable to military service and aggravated by it will be abolished. In future if a man's disease is aggravated by the war he will get his pension just the same as though it is caused by the war. Formerly he received only a single sum in the form of a gratuity. It is proposed to give a man a flat rate pension irrespective altogether of his earnings or earning capacity. In addition to the flat rate pension in respect of which no inquiry will be made about earnings or earning capacity, a man will have an alternative pension on cause being shown, and that will be based on his earnings before the war; but in the assessment of it regard will be had to his earning capacity. In addition, there will be allowances. A man in need of constant attendance will have $4 a week allotted to him for his wife or other person to look after him. After dealing with the pensions of men only partly disabled, Mr. Barnes made two novel suggestions in regard to treatment and training. With regard to treatment a man may be fined if he does not conform to the recommendations of his physician. As to training, the intention is to attract a man to it by additional inducements. He will be given a full pension; fees will be paid for him; his wife will have a full separation allowance, and so on; and, in addition, for the period during which he undergoes training for a new occupation he will be given $1.25 a week as a bonus at the end of the period. The case of a man under 20 per cent. disability will be dealt with by way of a gratuity or temporary allowance, and the provisions mentioned do not apply to such a man. The scheme in its entirety, according to the actuary's report, will involve a capital charge of $1,980,000,000, and in the first year $125,000,000. In addition to this there are what are called "the medical unfit," who number over 100,000. These men were passed into the army owing to the great pressure at which physicians had to work in the early days. Hundreds of them have passed into the army who should never have been passed, veritable weeds that ought never to have been there at all. Some of them concealed their ailments when they were examined, and thousands of them did not do more than two or three days' service. But, allowing for all that, the state must assume some responsibility, because the physician had passed them. But the measure of responsibility is by no means anything like a pension for their lives. What is proposed is to put them back where the state found them. In exceptional cases, where a man's disease had been accelerated by the war, there will be a gratuity of $500. The great bulk of them will be disposed of by a small gratuity according to a scale which has been drawn up.

Deaths Due to Wild Animals in India

A large number of deaths is caused annually in India by wild animals. During the year ended June 30, 1916, 26,385 persons died in India from snake bite, an increase of 3,700 over the previous year. Over 2,000 more deaths were caused by elephants, tigers and other animals. During the past five years, elephants, tigers and other animals have killed 9,192 people in British India, and of these tigers have claimed a total of 3,682. In the same period, 116,828 persons have died as the result of snake bites. In the United Provinces, one man-eating tiger in the Almora district killed ten persons out of the provincial total of twenty. In order to effect the destruction of as many wild animals and snakes as possible, the government pays bounties. The number of animals destroyed in 1915 was 25,036, including 1,582 tigers, 6,623 leopards, 2,775 bears and 2,191 wolves. The total number of snakes killed was 184,663.

Cocain and Unqualified Dentists

A regulation was made last July forbidding the sale of cocain except to authorized persons, in consequence of the existence of the cocain habit among soldiers in the London area. An outcry was then raised by unqualified dentists, and a temporary permit was issued under which they could pur-

chase cocain preparations not exceeding 1 per cent. strength. In November the home secretary appointed a committee to consider the authorizations granted for the use of cocain in dentistry, and to advise whether or not they should be continued or modified, and, if continued, in what cases and with what conditions. The committee has now reported. The majority (consisting of laymen) proposes that persons practicing bona fide as unqualified dental practitioners shall be entitled to apply for registration for right to purchase preparations of cocain containing not more than 1 per cent. The committee makes these recommendations for two reasons. It holds that to prohibit unqualified dental practitioners from using cocain would be inconvenient to them, since they have not the requisite skill in the use of novocain, and, secondly, that there is no evidence "to show that there is any serious or perhaps even noticeable prevalence of the cocain habit among the civilian or military population." Bayliss, the physiologist, the only medical member of the committee, differs from the other members. He is convinced that the use of cocain is not necessary for any dental operation, and that its place can be taken by novocain without inflicting any hardship on the dentist. Unqualified dentists have laid stress on the alleged necessity of adding epinephrin to the novocain solution, and it seems that in some cases more was added than was necessary. Bayliss thinks that the injurious results may have been due rather to the septic state of the mouth, and that no local anesthetic whatever ought to have been used. He criticizes the arrangements under which unqualified dentists can obtain cocain. There are 13,000 persons engaged in the practice of dentistry, of whom only about 5,000 are qualified. Bayliss holds that it would be a mistake to give the unqualified dentists official recognition when the scarcity of qualified practitioners would be more effectively met by raising the status of the dental profession as a whole. His conclusion is that since the sale of cocain is attended with serious risks to the community and is unnecessary in dentistry, the permit issued to unregistered dentists to obtain preparations of cocain should not be continued.

Cancer Mortality

For the first time the mortality from cancer has overtaken that from consumption in this country. This startling fact is revealed in the annual report of the Society for the Prevention and Relief of Cancer. At the present time, in England and Wales, 40,000 persons die annually from the scourge. A warning is given in the report regarding the effects of the war, as cancer frequently develops at the site of a former scar or wound. Whatever the underlying cause of the malady may be, the lamentable fact remains that as a result of the present unparalleled warfare, we shall have to face in the near future a most serious increase in malignant growths in men, especially the men who have served their country in the field.

PARIS LETTER

PARIS, March 22, 1917.

The War

STRICTER SANITARY MEASURES TO BE ADOPTED ON CALLING TO THE COLORS THE MEN OF THE "1918" CLASS

Because of the youth of the recruits of the "1918" class, which are the next to be called into service, Justin Godart, undersecretary of state and head of the military health service, has deemed it proper to direct particular attention to their bedding, clothing, food, to the health conditions of the districts in which they will be assembled, to the proper course of their military instruction, and to the development of their military spirit. The undersecretary has ordered that the barracks reserved for these recruits be selected from among the best, and that they be evacuated sufficiently long before their occupation by the "1918" class to permit of carrying out proper hygienic measures, such as fumigation, whitewashing of the walls and cleaning the floors with antiseptics. The director of the sanitary service and his assistants are to pay a personal visit to the barracks in every district, in order that all the buildings, without exception, which are to be occupied by any contingent of the "1918" class, may be examined from the standpoint of general hygiene and with a view to prevent the outbreak of epidemic diseases. This investigation must be completed by March 30. A formal prohibitive order will be issued forbidding the drying in sleeping rooms of damp clothing and linen, on the ground that the humidity resulting from this practice may cause sore throat and bronchitis. Drying rooms, specially heated, will be provided in all the barracks. Shower baths will be installed where they are lacking, and those already existing will be put in good order. Every soldier will be required to take a shower bath once a week. So far as food is concerned, the meat ration will be 400 gm., but during the first three months after the call the meat ration will be 450 gm. With the beginning of systematic instruction, just before the morning drill, hot coffee, together with a cold or warm sandwich, will be served, and hot drinks will be furnished during the day whenever the weather conditions seem to require it.

STERILIZATION OF INSTRUMENTS BY FORMALDEHYD VAPOR

Since the beginning of the war Chevassu has employed formaldehyd vapor to sterilize his instruments. This sterilization is effected in a very simple manner by producing a formaldehyd vapor bath in the box containing the instruments. The procedure consists in placing in the regular metallic box or sterilizer, or in any other kind of sterilizer, two little bags, each containing four trioxymethylene pastils. In the surgical automobile ambulance, of which Chevassu is director, sterilization was accomplished by placing the boxes in a linen-drier to which is attached a thermometer. The temperature must not exceed 55 C. At 50 C. sterilization requires only twenty minutes, which is certainly very rapid, and as it will not affect the instruments in any way, it is recommended particularly for the sterilization incident to the performance of many operations, as in a surgical automobile ambulance. If a linen-drier is not at hand, the metallic box may be placed on two bricks laid on a stove, or in summer the sun will suffice to bring about sterilization. The method is so simple that, now that it has given superabundant proof of its value, it seems bound to become the ideal method of sterilization for all of the sanitary divisions of the army, and after the war is over it is certain to be the chosen method of the general practitioner.

WORKSHOP FOR BLIND SOLDIERS

A new movement is being launched for the purpose of creating industrial workshops for blind soldiers. They will supplement workshops of reeducation referred to in a previous letter (THE JOURNAL, March 18, 1916, p. 905). The responsible parties of this movement are not only philanthropists, but also commercial and industrial societies. One of these workshops will be given over to the manufacture of automobile and aeroplane motors; it will be opened soon. This work has been conceived in a practical spirit, and is expected to yield good results. The blind, themselves, will participate in all the benefits of the enterprise in the proportion of 95 per cent., which will be added to their salary. The industrial side of the movement is taken care of by one philanthropic association which proposes to lodge the unmarried blind workers coming from regions invaded by the enemy, and to look after their material welfare, besides forming little reunions, circles or groups to look after the intellectual welfare of the blind. This movement will be known as "the trades of the blind soldiers."

Reduction in Size of Medical Bulletin

For economic reasons it has become necessary to reduce the number of editions and pages of the daily newspapers. For the same reasons, the *Bulletin de la Société médicale des hôpitaux de Paris* will put into effect after March 15 the following rules: The regular members of the society will not be permitted to use more than four pages of the bulletin for their communications and presentations (illustrations excluded); corresponding members and nonmembers will not be permitted to use more than two pages, but all may occasionally make use of two additional pages at their own expense, paying the society 5 francs ($1) per page.

Treatment of Malaria by Arsenic and Quinin

Ravaut and de Kerdrel have reported the excellent results which they have obtained from treating malaria with a mixture of arsenic and quinin. Starting with the knowledge gained from the study of syphilis and amebic dysentery, they show that the parasites causing these three diseases are possessed of common characters. They are the parasites which are encysted deeply in the organism. These chronic maladies are characterized by acute exacerbations, the result of the multiplication of these parasites and their dissemination throughout the body. So far as the treatment is concerned, it must be methodical, and given in series. The combination of arsenic and quinin enhances greatly the efficacy of either agent alone. The treatment consists of ten intravenous injections of neosalvarsan from 0.15 gm. to 0.30 gm., repeated every third day. In the interval between the injections,

quinin is administered intravenously or by mouth. Ravaut and de Kerdrel were able to effect a cure in fifty-three cases in which all other methods of treatment had failed. They have also obtained good results in the treatment of malarial hematuria and gastric hemorrhages of malarial origin. At the same time, the general condition of the patient was greatly improved.

Recurrence of Mumps

According to Florand, the recurrence of mumps, less rare than one would believe, is common in certain countries. He made this observation in the contagious service of the Val-de-Grâce Hospital, where a number of Annamites were treated for the third and even the fourth attack of mumps. Unless there was a complicating orchitis, the condition was usually benign, and nearly always apyretic.

Movement to Raise the Birth Rate

The league "Pour la vie" proposes to exert itself to the utmost to raise the birth rate in France. It takes as its task the arousing of public opinion on the necessity of revising civil, political, administrative and fiscal legislation.

Association News

THE NEW YORK SESSION

Railroad Rates Announcement

Those who are going to New York for the Annual Session are urged to consult the local ticket agent at their home town for complete information regarding fares, time limits, extentions and stop-over privileges available in making the trip. There is on file in every ticket office the traffic schedule which officially informs local agents of the rates from that point. Fellows should not leave the determination of the route desired until just before they are ready to start on the trip. Local ticket agents may have to obtain special tickets for these excursions from central points, and they must be arranged in time so that the tickets may be purchased when the journey is begun. These agents will also be able to give information concerning circuit routes which will permit making whatever side trips may be desired in connection with the journey to or from New York. Those from Chicago, St. Louis and the West may purchase short limit summer tourist tickets, which will be on sale to New York City, commencing June 1, at lower fare and with more liberal limit and stop-over privileges than apply in connection with reduced fares authorized for conventions. Round trip circle tour tickets, going one route and returning another, are available, sale commencing May 15, to New York and to Boston, in one direction via New York with a choice of many routes: through Niagara Falls, Montreal, Washington, D. C., Baltimore, and Norfolk, Va., including rail and water trips if desired.

The following railroad rates are reported:

CENTRAL PASSENGER ASSOCIATION: Two cents per mile in each direction, but in no case more than summer tourist fares. Signature form of tickets will be sold June 3, 4 and 5, final return limit to reach the original starting point not later than midnight, June 12. A joint tariff authorizing fares for the annual session of the Association from points in the Central Passenger Association territory is now being compiled.

THE TRUNK LINE ASSOCIATION: This serves most of New York, Pennsylvania, New Jersey, Delaware, Maryland and West Virginia, also a part of Virginia, and announces that there will be available for those attending the coming session of the American Medical Association a railroad rate of 2 cents per mile in each direction with a minimum of $1 for the round trip on the certificate plan, going and returning via same route, only. Going tickets in connection with certificates to be sold June 3, 4 and 5 at one-way fares applicable to New York City on the certificate plan. These certificates must be obtained from the ticket agent at the starting point (or nearest station issuing through tickets to New York City) and to be valid for the reduced fares returning, must be endorsed by the secretary of the American Medical Association, indicating that the holder has been in attendance at the meeting and is entitled to the reduction, and must also be validated by a special agent on either June 5, 6 or 7. Return tickets will be sold on presentation of validated certificates June 5-11 at the difference between the fares paid on the going trip and the fares for the round trip; these latter tickets to be limited to continuous passage to destination, which must be reached in no case later than on June 12. No fee will be required for the validation of certificates.

WESTERN PASSENGER ASSOCIATION AND SOUTHWESTERN PASSENGER ASSOCIATION: The members of the Western Passenger Association and Southwestern Passenger Association have not announced any reduced fares; but commencing June 1, 1917, round-trip summer tickets will be on sale to New York from points in the territory of those associations, at lower fares and with more liberal return limit and stop-over privileges than apply in connection with reduced fares authorized for conventions.

Clinics at the New York Session

The Local Committee on Arrangements for the New York session of the American Medical Association announces that it has about completed the program of clinics to begin Monday, June 4, and continue through Tuesday, June 5. A general committee has appointed a subcommittee and has assigned to this the task of arranging clinics and demonstrations in general medicine; pharmacology and therapeutics; pathology and physiology, including the clinical and medicolegal phases, laboratory diagnosis and cancer research; preventive medicine and public health, including state and municipal phases of the work; pediatrics, dermatology, neurology, mental diseases, general surgery, orthopedic surgery, gynecology, obstetrics, urology, surgery of the colon and rectum, ophthalmology, otology, rhinology, laryngology, stomatology, roentgenology, anesthetics, nursing, including training schools and district nursing, hospital social service, planning and financing municipal and other hospitals, hospital superintendency and executives, and military and Red Cross work.

The programs already outlined include clinics, ward walks, demonstrations, both clinical and laboratory, conference, necropsies, moving picture demonstrations, exhibits by means of charts, models and laboratory specimens, and visits to the officers of the different branches of the health department and other points of medical interest.

Physicians of New York have arranged to place the medical resources of the city at the disposal of the Fellows of the American Medical Association. Interesting material will be offered to those who go to New York, no matter how large the attendance at the annual session may be. In view of this exceptional opportunity to see this medical center, those who can go to New York should plan to arrive not later than the morning of Monday, June 4, so that they may register both as in attendance at the annual session and with the Local Committee on Arrangements. The privileges of these clinics are to be limited to those who are registered as in attendance at the annual session of the Association.

Marriages

ASST. SURG. LOUIS H. WILLIAMS, M. R. C., U. S. Navy, to Miss May Ashby Warden of Washington, D. C., March 31.

JAMES PINER BARTLEY, M.D., Bartlesville, Okla., to Miss Elizabeth B. Ensor of Baltimore, at Bartlesville, March 1.

WILLIAM V. PRUETT, M.D., Brownsville, Tenn., to Miss Elizabeth Selden Henry of Chicago, March 5.

JOHN ARCHIBALD MCINTYRE, M.D., Walcott, Iowa, to Miss Miriam Sybil Bliss of St. Paul, April 7.

LESLIE CORNEALOUS RANDALL, M.D., Licking, Mo., to Miss Alta Dunham of Craddock, Mo., April 8.

HERMAN MORRIS ADLER, M.D., Chicago, to Miss Frances Porter of Hubbard Woods, Ill., recently.

SOPHIA BILLENKAMP, M.D., to Mr. John Conrad Donis, both of St. Louis, at Clayton, Ill., April 4.

ARNO ROY ZACK, M.D., to Miss Elizabeth Wagner, both of Bethlehem, Pa., March 29.

Deaths

John Kearsley Mitchell, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1883; aged 57; a Fellow of the American Medical Association and College of Physicians of Philadelphia; a member of the Association of American Physicians, American Neurological Association, and many special societies; physician to the Philadelphia Infirmary for Nervous Diseases and consulting neurologist to the Pennsylvania Institution for Feebleminded Children; from 1886 to 1892 demonstrator of general symptomatology and diagnosis, and lecturer from 1893 to 1898 in his alma mater; co-author with his father, the late Dr. S. Weir Mitchell, of "Fat and Blood," the eighth edition of which appeared in 1898; author of a work on "Remote Consequences of Injuries of Nerves," which appeared in 1895, and of one on "Mechanotherapy Massage and Physical Education," which was published in 1904; who had been ill with heart disease for the last eight months; died at his home, April 10.

George Fuller Hawley, M.D., Chicago; College of Physicians and Surgeons in the City of New York, 1868; aged 73; formerly a Fellow of the American Medical Association; a member of the Illinois States Medical Society, Mississippi Valley Medical Association and American Academy of Ophthalmology and Oto-Laryngology; professor of otology, rhinology and laryngology in the Illinois Post-Graduate Medical School; a member of the staff of Cook County Hospital, and the Illinois Charitable Eye and Ear Infirmary; one of the first men in Chicago to specialize on diseases of the eye, ear, nose and throat; an assistant of Sir Morell Mackenzie in the early eighties; died at his home, April 16, from chronic myocarditis.

P. A. Surg. Earle Mason Brown, U. S. Navy (retired), Los Angeles; University of Michigan, Ann Arbor, 1901; aged 40; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; who entered the navy, May 8, 1902, and was retired, April 8, 1910, for incapacity resulting from an incident of service, after two years and ten months' sea service and four years and two months' shore or other duty; died in Palm Springs, Calif., April 3.

Joseph B. Payne, M.D., Hot Springs, Ark.; Memphis (Tenn.) Medical College, 1855; New Orleans School of Medicine, 1859; aged 83; vice president of the Arkansas State Medical Society in 1890; surgeon of the Nineteenth Arkansas Infantry, C. S. A., during the Civil War; at one time city physician of Hot Springs and at the time of his death president of the local school board; died at the home of his daughter in Argenta, March 27.

Isaac Newton Rawles, M.D., Dyersburg, Tenn.; Vanderbilt University, Nashville, Tenn., 1880; aged 59; a member of the Tennessee State Medical Association and first president of the Dyer County Medical Society; for several years county and city health officer; president of the city board of education; a member of the legislature in 1905 and 1906; died at his home, February 25, from cerebral hemorrhage.

John Thomas Manning, M.D., Lineville, Ala.; Vanderbilt University, Nashville, Tenn., 1885; aged 52; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Alabama; died at his home, March 30, from the effects of a gunshot wound of the head, believed to have been self-inflicted, with suicidal intent, while despondent on account of ill health.

Isaiah Franklin Houx, Gordon, Texas (license, Judicial District Board, Texas, 1874); a practitioner since 1866; aged 80; a member of the State Medical Association of Texas; a Confederate veteran; also a pharmacist; died in St. Joseph's Infirmary, Fort Worth, Texas, March 21, from peritonitis, following an operation on the prostate gland a few days before.

Leopold Goldschmiedt, M.D., Los Angeles; New York University, New York, 1869; aged 69; formerly a member of the Medical Society of the State of California; deputy coroner of New York City from 1876 to 1882; sanitary inspector of New York City from 1884 to 1888; inspector of schools at Ensenada, Lower California, Mexico; died in Los Angeles, February 12.

William Washington Everett, M.D., Highland, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 60; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; surgeon to St. Joseph's Hospital, Highland; died in a hospital in St. Louis, March 30, from a nervous breakdown.

William H. Gillum, Rockville, Ind. (license, Indiana, 1897); aged 69; a member of the Indiana State Medical Association, and formerly secretary of the Parke County Medical Society and health officer of Parke County; local surgeon of the Vandalia System; a Confederate veteran; a practitioner since 1868; died at his home, March 28.

John Edmond Howe, M.D., Greenfield, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1873; aged 69; a Fellow of the American Medical Association; a member of the State Board of Pardons and Parole from 1909 to 1911; a well known surgeon of southern Iowa; died at his home, April 3, from heart disease.

Delbert Melvin Shively, M.D., Kansas City, Kan.; University Medical College, Kansas City, Mo., 1901; aged 45; a member of the Kansas Medical Society; coroner of Wyandotte County, Kan., for two terms and twice president of the Western Association Baseball League; died at his home, April 2.

John W. Meek, M.D., Camden, Ark.; New Orleans School of Medicine, 1870; aged 67; formerly a Fellow of the American Medical Association; a member of the Arkansas Medical Society; formerly president of the board of health of Camden and for two terms state senator; died at his home, March 31.

Walter W. Wilkinson, M.D., Catawba Sanatorium, Va.; George Washington University, Washington, D. C., 1905; aged 40; a Fellow of the American Medical Association; assistant physician at the Catawba Sanatorium, Va.; died in that institution, March 28, from tuberculosis.

William Wallace Smith, M.D., Avoca, N. Y.; Bellevue Hospital Medical College, 1871; aged 71; a member of the Medical Society of the State of New York and for seventeen years secretary of the Steuben County Medical Society; died at his home, February 4, from pneumonia.

Harvey Lionel Morris, M.D., Vassar, Mich.; Saginaw Valley Medical College, Saginaw, Mich., 1898; New York University, New York, 1899; aged 40; formerly a Fellow of the American Medical Association; died in Miami, Fla., March 28, from pernicious anemia.

Judson Beach, M.D., Etna, N. Y.; University of Michigan, Ann Arbor, 1874; aged 72; a Fellow of the American Medical Association; a veteran of the Civil War; for more than forty years a practitioner of Etna; died at his home, March 16, from angina pectoris.

John Harvey Hansen, M.D., Grandfield, Okla.; Kentucky School of Medicine, Louisville, 1883; aged 69; a Fellow of the American Medical Association; once president of the Decatur County (Iowa) Medical Society; died at his home, March 11, from pneumonia.

August Ernst Brune, M.D., San Francisco; Cooper Medical College, San Francisco, 1875; University of Berlin, Germany, 1877; aged 67; a member of the Medical Society of the State of California; died at his home, March 24, from cerebral hemorrhage.

Thomas G. Stephens, M.D., Sidney, Iowa; Western Reserve University, Cleveland, 1856; aged 84; a pioneer practitioner of Fremont County, where he had practiced for more than half a century; died at the home of his daughter in Sidney, March 20.

Charles M. Matson, Brookville, Pa. (license, Jefferson County, Pa., 1877); aged 83; a practitioner since 1858; founder and first president of the Jefferson County Medical Society; surgeon of volunteers during the Civil War; died at his home, March 27.

Heman Walbridge Fulkerson, M.D., Louisa, Ky.; Kentucky School of Medicine, Louisville, 1907; aged 32; formerly a member of the Kentucky State Medical Association; died in the Central State Hospital, Lakeland, Ky., March 23, from paresis.

James H. Frank, M.D., Anoka, Minn.; Minnesota Hospital College, Minneapolis, 1882; American Medical College, St. Louis, 1883; aged 63; for several years physician and surgeon in charge of the Anoka State Hospital; died at his home, April 1.

Robert H. Baird, M.D., Howell, Mich.; Detroit College of Medicine and Surgery, 1901; aged 42; a Fellow of the American Medical Association; who went to Vero, Fla., last fall on account of his health; died in that place, March 23, from heart disease.

Samuel Tate Blair, M.D., Springfield, Mo.; University of Nashville, Tenn., 1867; aged 78; a Confederate veteran; for several years a member of the faculty of the Northwestern Medical College, St. Joseph, Mo.; died at his home, March 30.

John J. Stites, M.D., Pontiac, Ill.; Eclectic Medical Institute, Cincinnati, 1850; Medical School of the Valley of Virginia, Winchester, 1860; aged 90; formerly a member of the Illinois State Medical Society; died at his home, March 25.

Willard Adolphus Whitney, M.D., Big Rapids, Mich.; Homeopathic Hospital College, Cleveland, 1870; aged 73; an honorary member of the Michigan State Medical Society; died at his home, February 11, from pernicious anemia.

Roy Earl Fisk, M.D., Salt Lake City, Utah; Bennett Medical College, Chicago, 1913; aged 34; formerly a practitioner of Highwood, Mont.; died at St. Mark's Hospital, Salt Lake City, February 24, from acute rheumatic endocarditis.

George W. Baskett, M.D., Van Alstyne, Texas; University of Louisville, Ky., 1875; aged 67; formerly a Fellow of the American Medical Association; a member of the State Medical Association of Texas; died at his home, March 26.

Joseph Faerber, Merrill, Wis. (registration, Wisconsin, 1899); aged 78; a practitioner since 1862; for two years surgeon in the navy of Holland; but for thirty-five years a practitioner of Merrill; died at his home, about March 27.

John Winfield Keppel, M.D., Youngstown, Ohio; Western Reserve University, Cleveland, 1886; aged 61; formerly a member of the Ohio State Medical Association; also a druggist; died in the Youngstown Hospital, March 19.

Benjamin F. Thomson, M.D., Mount Sterling, Ky.; Jefferson Medical College, 1864; aged 76; for more than half a century a practitioner of Montgomery County; died at his home, March 21, from carcinoma of the liver.

William T. Green, M.D., Albion, Ind.; Rush Medical College, 1880; aged 59; a member of the Indiana State Medical Association; state senator from the Twelfth District; died in Indianapolis, January 23, from pneumonia.

George S. Walker, M.D., Staunton, Va.; Jefferson Medical College, 1859; aged 80; assistant surgeon of the Twenty-First North Carolina Cavalry, C. S. A., during the Civil War; died at his home, March 13, from erysipelas.

Hugh Austin Pinson, M.D., Pittsburgh; Atlanta (Ga.) Medical College, 1915; aged 33; house physician at St. John's General Hospital, Pittsburgh; died at that institution, March 27, after an operation for appendicitis.

John Dean Scouller, M.D., Pontiac, Ill.; University of Buffalo, N. Y., 1870; aged 81; for nineteen years superintendent of the State Reformatory, Pontiac; died in that city, March 31, after a surgical operation.

Oliver Prescott Sook, M.D., Newark, Ohio; Homeopathic Hospital College, Cleveland, 1871; aged 73; local surgeon for the Pennsylvania System; a veteran of the Civil War; died suddenly in his office, April 1.

Charles E. Barnes, M.D., Mountain Grove, Mo.; Barnes Medical College, St. Louis, 1895; aged 44; formerly a member of the Missouri State Medical Association; died in a sanatorium in St. Louis, March 24.

James Sibbald, M.D., Philadelphia; Jefferson Medical College, 1881; aged 57; a specialist in proctology; for several years surgeon to St. Timothy's Hospital; died at his home, March 30, from heart disease.

Elijah F. Miller, M.D., Verdella, Mo.; American Medical College, St. Louis, 1880; aged 60; a member of the Missouri State Medical Association; died in Mount Carmel Hospital, Pittsburg, Kan., March 21.

Louis Henry Hallock, M.D., Flint, Mich.; Miami Medical College, Cincinnati, 1882; aged 57; for many years a druggist of Sebawaing, Mich., and Cheyenne, Wyo.; died at his home, March 31, from carcinoma.

Harry Leach Bender, M.D., New York; College of Physicians and Surgeons in the City of New York, 1894; aged 44; a specialist on diseases of the nose and throat; died at Clifton Springs, N. Y., March 29.

Maximilian C. Cornelius, M.D., Chicago; John A. Creighton Medical College, Omaha, Neb., 1895; aged 43; died in St. Luke's Hospital, Chicago, April 3, after an operation for carcinoma of the bladder.

James Everett Johnson, M.D., Denver; Denver College of Medicine, 1895; aged 45; a member of the Colorado State Medical Society; died in San Diego, Calif., March 17, from chronic endocarditis.

James W. Stone, M.D., Henderson, Ky.; University of Louisville, Ky., 1880; aged 62; a member of the Kentucky State Medical Association; died at his home, February 5, from heart disease.

Leroy M. Lee, M.D., Orlando, Okla.; Washington University, St. Louis, 1872; aged 65; for many years a practitioner of Elsberry, Mo.; died at his home near Orlando, March 16, from heart disease.

John Wesley Way, M.D., Kremmling, Colo.; Kentucky School of Medicine, Louisville, 1892; aged 49; formerly a member of the Colorado State Medical Society; died at his home, March 24.

George A. McClain, M.D., Johnson City, Tenn.; Vanderbilt University, Nashville, Tenn., 1891; aged 68; formerly a member of the Tennessee State Medical Association; died at his home, March 21.

William J. Montford, M.D., Swansboro, N. C.; Jefferson Medical College, 1859; aged 77; formerly a member of the Medical Society of the State of North Carolina; died at his home, March 31.

Henry W. Ogden, M.D., Evanston, Ill.; Rush Medical College, 1881; aged 73; for many years a practitioner at Fort Atkinson, Wis.; a veteran of the Civil War; died at his home, February 17.

George W. Redmond, Potter, Kan. (license, Kansas, 1901); aged 68; formerly a Fellow of the American Medical Association; died in the Atchison (Kan.) Hospital, March 28, from empyema.

Charles Locke Skinner, M.D., Charlestown, W. Va.; University of Virginia, Charlottesville, 1897; aged 42; a Fellow of the American Medical Association; died at his home, March 24.

Benjamin Eugene Donham, M.D., Saulnierville, N. S.; Harvard Medical School, 1868; aged 73; a veteran of the Civil War; died in the Togus (Me.) Soldiers' Home in February.

Charles H. Walden, New Market, Ind. (license, Indiana, 1897); aged 62; formerly a Fellow of the American Medical Association; died at his home, January 29, from tuberculosis.

Marcus Jay Williams, M.D., Syracuse, N. Y.; University of Vermont, Burlington, 1878; aged 63; associate physician to the Crouse-Irving Hospital; died at his home, March 11.

Robert Henry Sykes, M.D., North Warren, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1895; aged 51; died in the West Penn Hospital, Pittsburgh, March 12.

Perry Llewellyn Anderson, M.D., New York; College of Physicians and Surgeons, Chicago, 1886; aged 57; died in Rochester, Minn., February 24, from chronic nephritis.

Alexander C. Spencer, M.D., Bloomington, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1883; aged 65; died at his home, near Bloomington, February 7.

Victor Hugo Ruble, M.D., Columbus, Mont.; Bellevue Hospital Medical College, 1887; aged 55; was accidentally shot and killed on his ranch, near Columbus, March 19.

William Hause, M.D., Westport, Ind.; Eclectic Medical Institute, Cincinnati, 1865; aged 79; a veteran of the Civil War; died at his home, March 22, from nephritis.

Julia Phiania Harton, M.D., Philadelphia; Women's Medical College of Pennsylvania, Philadelphia, 1904; aged 35; died at her home, March 15, from tuberculous meningitis.

Joseph Coloni Dreher, Battle Creek, Mich. (license, Michigan, 1900); aged 72; a practitioner since 1869; died at the home of his son in Battle Creek, March 22.

Octavius King Yates, M.D., West Paris, Me.; Medical School of Maine, Brunswick, 1870; aged 83; died at his home, March 18, from cerebral hemorrhage.

Simeon Gray, Worthington, Ind. (license, Indiana, 1897); aged 69; a practitioner since 1870; died at his home, January 31, from cerebral hemorrhage.

Charles Everett Thompson, M.D., Hamilton, Ont.; University of Toronto, Ont., 1916; aged 22; died in Toronto, February 3, from pneumonia.

Lloyd John O'Brien, M.D., Burnips, Mich.; Chicago College of Medicine and Surgery, 1913; aged 36; died at his home, March 19, from anemia.

Joseph D. Zimmerman, M.D., Lebanon, Pa.; University of Pennsylvania, Philadelphia, 1871; aged 72; died at his home, March 22.

William A. Johnston, M.D., Cambridge City, Ind.; Eclectic Medical Institute, Cincinnati, 1881; aged 79; died at his home, February 7.

Harvey A. White, M.D., Chicago; Eclectic Medical Institute, Cincinnati, 1882; aged 78; died in Tampa, Fla., March 27.

Abbie A. Hinkle, M.D., Evanston, Ill.; Hahnemann Medical College, Chicago, 1887; died at her home, April 2.

The Propaganda for Reform

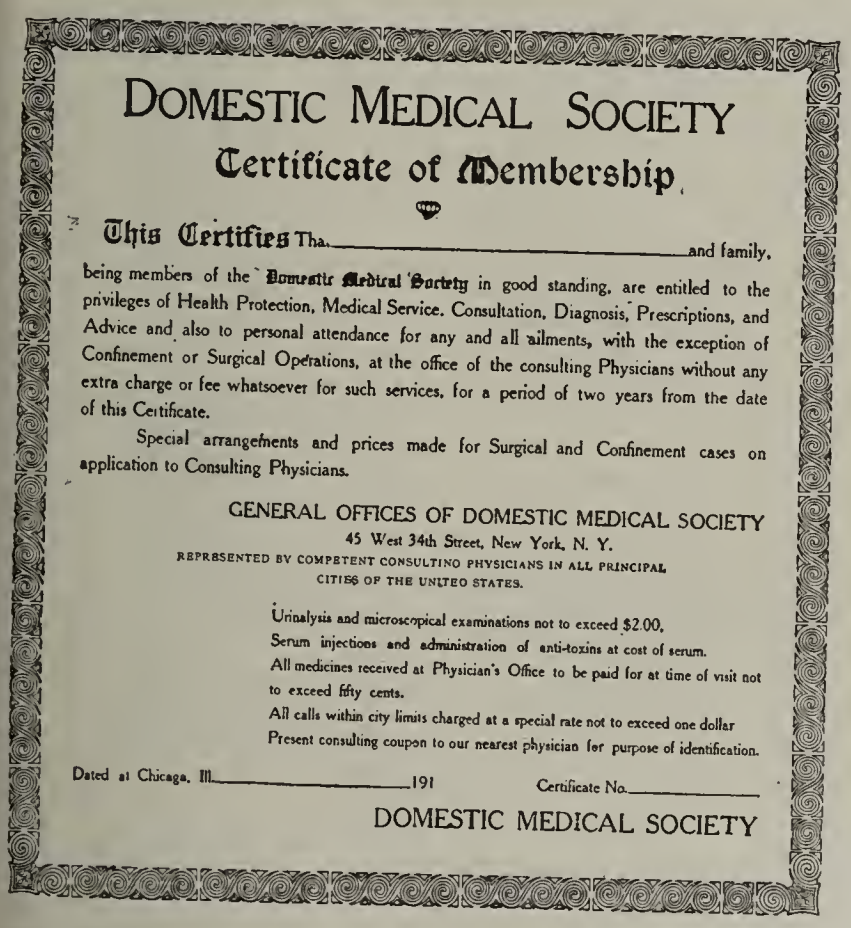
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE "HOME MEDICAL ADVISER" TO DATE

"Free" Medical Service to Purchasers of "Home Treatment" Books

A modification of the old "free chromo with every pound of tea" scheme has been worked for the past few years in the sale of books of the "home medical adviser" type. The system is one of wide distribution and is operated under various names as well as from various cities.

The plan generally seems to be to have agents go out from various centers selling a pretentious looking volume. The book, or books, for there are apparently more than one, go under various names, having been sold under such titles as "Medicology," "Domestic Medical Practice," "Health and Longevity," "Library of Health," etc. Sometimes they come in a single volume of about 1,500 pages and one-half foot thick; in other instances, apparently, they are prepared in two-volume form. Such specimens as have been brought or sent to this office indicate that these imposing tomes are printed from stereotypes that have seen better days. In at least one instance the matter seems to be made up largely from a book published over thirty years ago. This book, while written by men of standing and containing matter of value and interest to the public, was never prepared with the slightest idea on the part of the authors that it would be



DOMESTIC MEDICAL SOCIETY

Certificate of Membership

This Certifies That_____and family,

being members of the Domestic Medical Society in good standing, are entitled to the privileges of Health Protection, Medical Service. Consultation, Diagnosis, Prescriptions, and Advice and also to personal attendance for any and all ailments, with the exception of Confinement or Surgical Operations, at the office of the consulting Physicians without any extra charge or fee whatsoever for such services, for a period of two years from the date of this Certificate.

Special arrangements and prices made for Surgical and Confinement cases on application to Consulting Physicians.

GENERAL OFFICES OF DOMESTIC MEDICAL SOCIETY
45 West 34th Street, New York, N. Y.
REPRESENTED BY COMPETENT CONSULTING PHYSICIANS IN ALL PRINCIPAL CITIES OF THE UNITED STATES.

Urinalysis and microscopical examinations not to exceed $2.00.
Serum injections and administration of anti-toxins at cost of serum.
All medicines received at Physician's Office to be paid for at time of visit not to exceed fifty cents.
All calls within city limits charged at a special rate not to exceed one dollar
Present consulting coupon to our nearest physician for purpose of identification.

Dated at Chicago, Ill._____191 Certificate No._____

DOMESTIC MEDICAL SOCIETY

Photographic facsimile (reduced) of the "Certificate of Membership" issued by the Chicago branch of the "Domestic Medical Society" with offices at 45 West 34th Street, New York City.

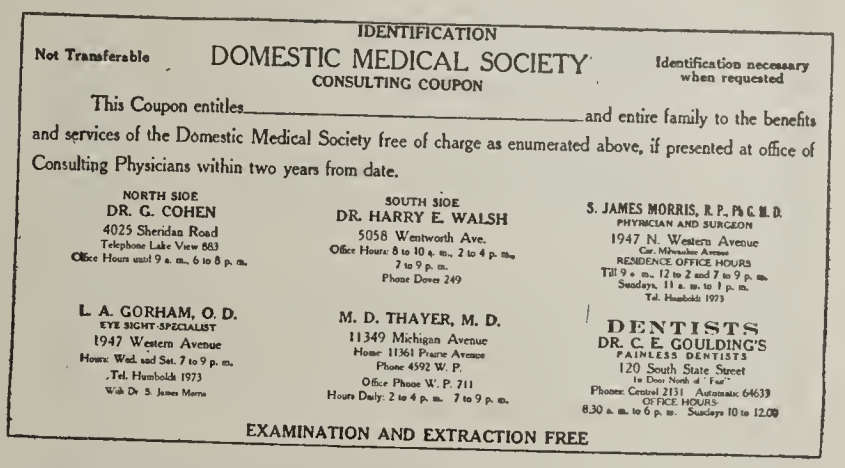
revamped and used as a premium for an alleged free medical treatment.

DOMESTIC MEDICAL SOCIETY

Each purchaser of the "health book" is given a very official-looking certificate which is said to entitle him and his family "to the privileges of Health Protection, Medical Advice, Consultation, Health Advice, and Prescriptions at the office of the consulting Physicians without any extra charge or fee whatsoever for such services, for a period of two years from date of this Certificate." The business is done by agents who, before going forth on their errand, memorize a line of "patter" to unload on prospective victims. Here is part of the "Demonstrators Talk" which is said to have been used by those who attempted to sell "Domestic Medical Practice":

THE DEMONSTRATOR'S "PATTER"

"Good morning! You received a circular from the Domestic Medical Society? That is too bad, you should have had one! I'll take your name and address and have one mailed you free. Your name is what? Your initials are what? Your number is what?



IDENTIFICATION

Not Transferable

DOMESTIC MEDICAL SOCIETY
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Identification necessary when requested

This Coupon entitles_____and entire family to the benefits and services of the Domestic Medical Society free of charge as enumerated above, if presented at office of Consulting Physicians within two years from date.

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SOUTH SIDE
DR. HARRY E. WALSH
5058 Wentworth Ave.
Office Hours: 8 to 10 a. m., 2 to 4 p. m., 7 to 9 p. m.
Phone Dover 249

S. JAMES MORRIS, R. P., Ph. G., M. D.
PHYSICIAN AND SURGEON
1947 N. Western Avenue
Cor. Milwaukee Avenue
RESIDENCE OFFICE HOURS
Till 9 a. m., 12 to 2 and 7 to 9 p. m.
Sundays, 11 a. m. to 1 p. m.
Tel. Humboldt 1973

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Identification coupon in use about two years ago by the Chicago branch of the "Domestic Medical Society" in connection with the sale of "Domestic Medical Practice."

"Our object is to help stop the spread of contagious diseases. You know that there would not be any scarlet fever, diphtheria, or even consumption if people knew how to prevent them. Isn't that so? It requires one minute's explanation and costs you nothing. You can spare one minute, can't you? I'll just step in and explain it to you.

"We first take up contagious diseases. If Diphtheria, Scarlet Fever, Small Pox or Measles should come to your home you certainly would want to know what to do about it, and what the board of health requires you to do, wouldn't you?

"We show you here the Physician's Manikin painted especially for this work; it shows the location of all the organs of the human body, the back and front view of the heart, the lungs, the liver, the stomach, the kidneys, etc.

"You hear a great deal about appendicitis. There you see the Appendix. It is the most mysterious organ of the human body. Medical records tell us that more people have been killed by the operation than die from the disease itself.

"Our authority on this, has cured 95 per cent. of his patients by a local application of oils, such as petroleum or turpentine, applied over the area outlined by Capital A.

"Then you have in your own home treatment for 49 diseases by local application, such as Colds, Pneumonia, Neuralgia, Epilepsy, Dyspepsia, Kidney troubles, etc.

"These are all cured by Turpentine, Vinegar, Salt, Lemon, etc., remedies which you have in your own kitchen. The doctor prescribes all these in Latin, which confuses you and helps the druggist to get higher prices for his drugs. Isn't that so?

"Then we have the Plants, Vegetables, Fruits and Herbs. Celery cures Rheumatism, Lemon cures 21 different diseases, the Pumpkinseed removed the tapeworm, head, body and all.

"Did you ever have the Grippe? Do you know that one-half a teaspoonful of Cayenne pepper will cure the worst attack of Grippe in one night? Cayenne pepper also cures Scarlet Fever."

If the "dēmonstrator" has not been gently but firmly propelled down the front steps by the time he reaches this point, he discourses on the care of infants and the treatment of infant ailments as detailed in "Domestic Medical Practice." Then—we quote *verbatim*—he continues:

"We give you over 500 standard medical prescriptions in Latin and English, as prescribed by Physicians, showing you how you are overcharged by the druggist.

"For instance, the standard medical prescription for Cholera Morbus is: Piper, Sodium Chlorid, Cordialis Rubus Villos, Aqua Bulliens. This is nothing but pepper, common salt, blackberry brandy and boiling water, articles to be found in almost every kitchen, or which can be had from a grocery store for next to nothing, but, from a Doctor and in Latin, it will cost from $1.50 on to $2.50."

And the peroration:

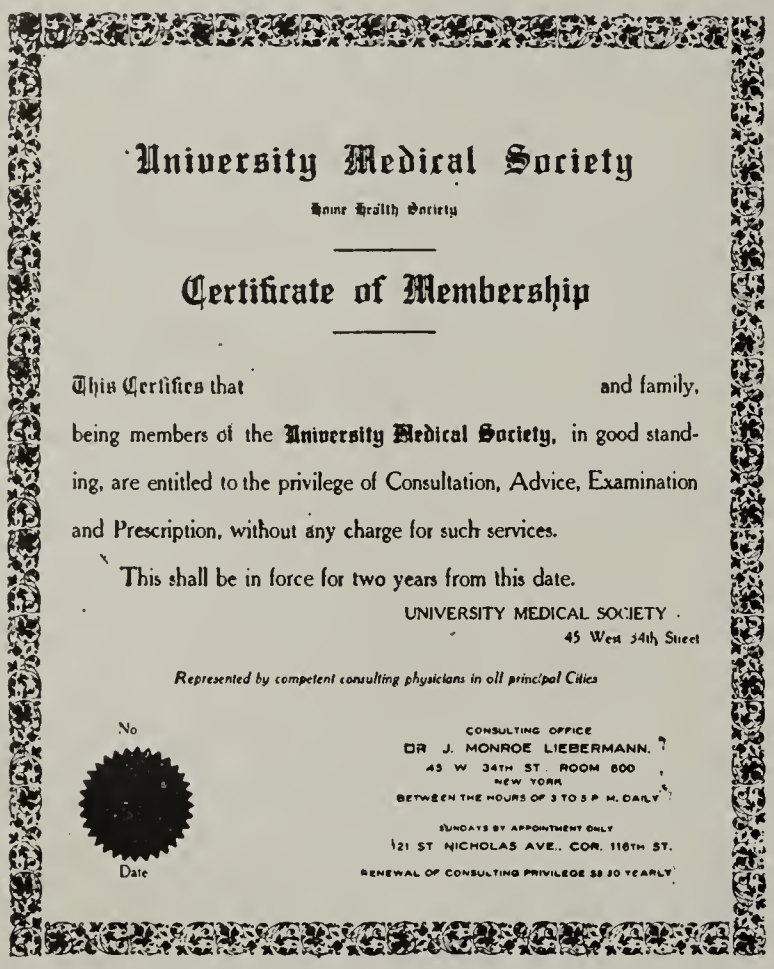
"It is complete in one large convenient volume of 1,570 pages, 42 departments, each of which is just as useful to you as the three or four I have shown you, and is bound just like this.

"It is placed in your home for three and one quarter cents a day, twenty five cents a week or one dollar a month for a period of ten months.

"Now, any one can afford a paltry quarter a week for a valuable work like this, don't you think so?

"Candidly and conscientiously, don't you think so? Of course you do; place your name here, please."

"Domestic Medical Practice," to which the preceding "talk" refers, was put on the market by a concern calling itself the "Domestic Medical Society." While located in Chicago its



University Medical Society

Home Health Society

Certificate of Membership

This Certifies that and family,

being members of the University Medical Society, in good standing, are entitled to the privilege of Consultation, Advice, Examination and Prescription, without any charge for such services.

This shall be in force for two years from this date.

UNIVERSITY MEDICAL SOCIETY
45 West 34th Street

Represented by competent consulting physicians in all principal Cities

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Photographic facsimile (reduced) of the "Certificate of Membership" used by the "University Medical Society" ("Home Health Society") with headquarters at 45 W. 34th St., New York City.

activities were by no means purely local, for we have had inquiries about it from Massachusetts to California.

AMERICAN HEALTH SOCIETY

A scheme that seems essentially similar is also operated by a Philadelphia concern which seems to go under such names as the "Historical Publishing Company," the "American Health Society," the "Home Health Society," the "University Health Society"—and possibly others.

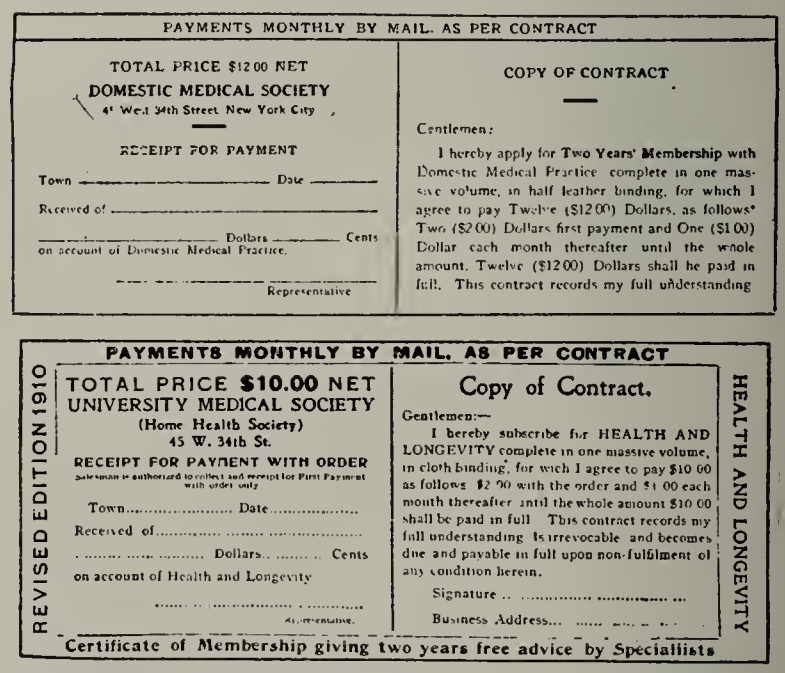
The "Historical Publishing Company" seems to have been a little too active in its home state for its own comfort. A Philadelphia paper during the past few weeks has recorded the arrest of one of the company's agents in Lebanon County, Pa. The agent, according to the newspaper report, offered for sale the usual "Library of Health" and those who paid $18 for the book were given "a certificate with a big red seal" which entitled the holder to receive treatment at the hands of the "Eminent Expert and Chief of Staff" of the "Home Health Society." Also, the enthusiastic agent seems to have given the inference that the "certificate" holders were entitled to write to Health Commissioner Samuel G. Dixon, who would diagnose their cases and send prescriptions. Here is where the agent made a mistake and his arrest followed an investigation by the officials of the state department of health. According to the same paper, the alleged "prominent specialist and chief of staff" named on the certificate was one B. Frank Scholl, M.D., of Philadelphia.

When the complaints against the company were heard before the deputy attorney-general of the state, it is alleged that the defendants asserted that they had sold one million of their publications! The company admitted that the various "health societies" under whose names it did business had no existence other than trade names. As a result the attorney general ordered the Historical Publishing Company, (1) to use only its charter name, (2) to discontinue using the names of the various "health societies," (3) to stop issuing "certificates" agreeing to treat people and (4) to cease issuing free prescriptions.

In the Middle West the "Historical Publishing Company" apparently operates as the "American Health Society" and is represented by the "Western Distributing Company," with offices in Chicago. The book sold by the Western Distributing Company is the "Library of Health," a pretentious volume of about 1,500 pages. The title page of the "Library of Health" bears the names of three physicians, B. F. Scholl, J. F. Little and F. E. Miller, while the frontispiece is a full page half-tone purporting to be a picture of Dr. B. F. Scholl. An interesting side-light on the methods used in advertising this book has been brought to our attention by Health Commissioner Ruhland of Milwaukee. The "Western Distributing Company" issued an eight page leaflet on scarlet fever under the title "Bulletin of the American Health Society, Publishers of Library of Health." The leaflet first reprints from a Milwaukee paper statements made by Commissioner Ruhland on the subject of scarlet fever. It then gives information of more or less value describing the symptoms and purporting to help the public differentiate between scarlet fever and diphtheria. It very properly declares that cases such as it describes should all be considered serious and a physician summoned, and it also informs the public that all cases of scarlet fever or other contagious disease must be reported.

The "Bulletin" closes with the statement that the information contained in it has been "selected" from the "Library of Health." It is, presumably, sent out as a means of allowing their "demonstrators" more easily to approach possible purchasers.

Aside from any inherent dishonesty that may or may not attach to the scheme of selling these various books and "certificates," the plan has certain fundamental fallacies. The book, at least in some instances, is over a quarter of a century old. Including, as some of the books do, scores of prescriptions, it will inevitably lead the purchaser to attempt self-treatment of conditions that may be dangerous not only to the individual but to the community. The bulk of the books —1,500 pages or more—is such that the reader either gets an



PAYMENTS MONTHLY BY MAIL, AS PER CONTRACT

TOTAL PRICE $12 00 NET
DOMESTIC MEDICAL SOCIETY
45 West 34th Street, New York City

RECEIPT FOR PAYMENT

Town ——— Date ———

Received of ———

——— Dollars ——— Cents
on account of Domestic Medical Practice.

Representative

COPY OF CONTRACT

Gentlemen:

I hereby apply for Two Years' Membership with Domestic Medical Practice complete in one massive volume, in half leather binding, for which I agree to pay Twelve ($12 00) Dollars, as follows: Two ($2 00) Dollars first payment and One ($1 00) Dollar each month thereafter until the whole amount, Twelve ($12 00) Dollars shall be paid in full. This contract records my full understanding

PAYMENTS MONTHLY BY MAIL, AS PER CONTRACT

REVISED EDITION 1910

TOTAL PRICE **$10.00** NET
UNIVERSITY MEDICAL SOCIETY
(Home Health Society)
45 W. 34th St.

RECEIPT FOR PAYMENT WITH ORDER

Salesman is authorized to collect and receipt for First Payment with order only

Town..... Date.....

Received of.....

..... Dollars..... Cents

on account of Health and Longevity

.....
Representative.

Copy of Contract.

Gentlemen:—

I hereby subscribe for HEALTH AND LONGEVITY complete in one massive volume, in cloth binding, for wich I agree to pay $10 00 as follows $2 00 with the order and $1 00 each month thereafter until the whole amount $10 00 shall be paid in full. This contract records my full understanding is irrevocable and becomes due and payable in full upon non-fulfilment of any condition herein.

Signature .. ..

Business Address... .....

HEALTH AND LONGEVITY

Certificate of Membership giving two years free advice by Specialists

Photographic facsimile (reduced) of the contract blanks signed by the purchasers of "Domestic Medical Practice" and "Health and Longevity," respectively. Notice that the addresses of both the "Domestic Medical Society" and "University Medical Society" ("Home Health Society") are the same.

ill-digested conception of their contents or will develop an unhealthy habit of physical introspection.

Up-to-date books of one hundred or two hundred pages written by men of standing and dealing with principles of prevention rather than with details of treatment are of far greater value to the public in the preservation of health and can be and are sold at a legitimate price. It is the bulky pretentiousness of the "health books" together with the added

inducement of alleged free medical service given as a premium that makes it possible for a price of ten, twelve or eighteen dollars to be asked and obtained. There is no legitimate excuse, either from the standpoint of economics or health preservation, for selling mediocre publications, with alleged medical service as a premium, at a price that is out of all proportion to the value received.

Correspondence

ABOLITION OF THE PATENTS ON SALVARSAN

To the Editor:—This letter is written to urge physicians and medical societies, individually and collectively, to exert all the influence they can bring to bear on Congress to abolish the patents on salvarsan, which, aside from causing enormous expense to the sick, have put very serious restrictions on the use of this necessary drug.

Now is the best opportunity we shall ever have to get rid of these patents. Our experience with salvarsan during the last two years has been almost intolerable. Salvarsan and its related products, during this time, have been obtainable only through the grace of one man, Mr. H. A. Metz, in New York City. The drug is covered, we understand, by all the protective privileges that can possibly be used in caring for the pecuniary interests of those owning proprietary remedies. The name is copyrighted; the drug itself is a patented product; and the processes of its manufacture are patented. Under these patents, the German owners and their American representative have made millions from the sale of the drug in America.

Although the facts are familiar to most physicians, it may be worth while to review the situation in regard to this drug that has developed during the war: First, Mr. Metz used his supply and what he could obtain from Germany in such manner as he saw fit. He distributed the drug to physicians, giving them such amounts as he thought they should have and limiting them in any way he pleased. We are not saying that he did not act wisely and in the best way he knew how or with public spirit, but at best he was a public-spirited and wise autocrat, dictating to the whole body of men who have the sickness among 100,000,000 people in their charge as to the supply of a drug that is at times essential. Next, when he was no longer able to supply the drug himself, he allowed the Dermatological Research Laboratory of Philadelphia to make it, under an agreement by which he could stop their manufacture of it immediately, whenever he saw fit. That laboratory, it may be said in passing, is not organized for profit, and their large profits from the manufacture of salvarsan during a short period have been dedicated to research in medicine. That institution, it may also be said, made a salvarsan which in the opinion of some competent men was less toxic than the commercial product from Germany. Finally, when the *Deutschland* succeeded in getting over here and brought a new supply of salvarsan, Mr. Metz immediately stopped the distribution of the Philadelphia salvarsan, and for the last several months we have been compelled to rely, as far as salvarsan is concerned, on such supplies as he has seen fit to furnish us. Sometimes, he has furnished it; sometimes he has not. It rests with him whether or not a physician gets a supply; and your patient or mine can get the salvarsan he needs or not, according to Mr. Metz' decision. The situation is as though the supply of quinin for this country was absolutely in one man's hands.

Recently, Mr. Metz has seen fit to send out a circular letter to the profession, in which he makes the explicit threat of exacting legal penalty from those who use any substitute for the patented article—this in spite of the fact that the new supply of salvarsan received from Germany, according to published reports by competent, disinterested men, has proved less free from danger than the salvarsan we got from Germany before the war or the salvarsan made in Philadelphia. In the same letter, Mr. Metz informs us that he is going to try to make it in this country, pretty soon. He is going to furnish it at the old price—a price which represents millions of dollars of profits annually from the American sale of the drug. Whether he is going to succeed or not in making a satisfactory article nobody knows; but we do know that if it were not for rights that rest in Germany and do not belong to Mr. Metz except through German title, we have persons in this country who could make a first-class salvarsan and who would be glad to sell it at from one-third to one-fourth the price that Mr. Metz wants for it and that we have been made to pay for it heretofore.

The question may well be raised of the moral right of profiting to the extent of great fortunes from patents on drugs of necessity to the sick. Certainly, it is abhorrent to the ethics of the medical profession. But, even if there be nothing wrong in this, it may be said in the case of salvarsan that the drug has already yielded profits amounting to millions of dollars, and every one interested in the ownership of the drug has already been well provided for. This doubtless applies to the Ehrlich family, and there is every reason to believe that his agency for the drug in this country has added greatly to Mr. Metz' large wealth; so that no injustice would be done any one by abolishing these patents and giving the sick, for the future, the benefit of the reduction in price, and providing assurance against further failure in supply of the drug.

The medical profession and the public should see to it that these patents are abolished. Physicians and medical societies should agitate the matter with the public and use their utmost influence with their senators and congressmen to get them to take action to abolish these patents. Individuals should take it up by letters and personally when possible. Medical societies should do the same. The following resolutions have recently been passed by the Chicago Medical Society and by the St. Louis Medical Society, and they are offered as an example of such resolutions:

WHEREAS, Salvarsan is a drug which is of vital importance to the protection of health and to the saving of life; and

WHEREAS, The patent rights conferred on salvarsan and its congeners have created a monopoly which has permitted a price to be placed on the drug which makes it unavailable to tens of thousands of indigent sick in this country; and

WHEREAS, The drug has hitherto been supplied to this country from foreign shores and the supply during the war has been uncertain, and insufficient; and

WHEREAS, The patents have prevented the preparation and distribution of the drug in this country by American laboratories; and

WHEREAS, The patents conferred are operating against the health interests and the public welfare of this country, therefore be it

Resolved, By the Chicago Medical Society, that Congress be earnestly urged to abolish the patents on salvarsan and its closely related products.

Copies of the resolution or notice of the action should be sent to the chairmen of the Committees on Patents of the House and of the Senate and to members of the House and Senate. Physicians are urged to write to their congressmen and senators asking legislation to bring about this action.

Senator Ollie James is chairman of the Senate Committee on Patents.

We may be sure that the representatives in this country of these German-owned patents will use every influence they can bring to bear to save the profits for themselves. We shall have to be up and doing, if the interests of the American people are to be taken care of in this matter.

County societies and all other societies are earnestly urged to give this matter immediate attention.

J. W. VANDERSLICE, M.D.,
J. H. WALSH, M.D.,
W. A. PUSEY, M.D.,
Committee, Chicago Medical Society.

The following resolutions were unanimously adopted at the meeting of the St. Louis Medical Society, Saturday, April 7, 1917:

WHEREAS, Salvarsan is a drug which is of vital importance to the protection of health and to the saving of life, and

WHEREAS, The patent rights conferred on salvarsan and its congeners, have created a monopoly which has permitted a price to be placed

on the drug which makes it unavailable to tens of thousands of indigent sick in this country, and

Whereas, The drug has hitherto been supplied to this country from foreign shores, and the supply during the war has been uncertain and insufficient, and

Whereas, The patents have prevented the preparation and distribution of the drug in this country by American laboratories, and

Whereas, the patents conferred are operating against the health interests and the public welfare of this country; therefore be it

Resolved, By the St. Louis Medical Society, in session assembled, that Congress be earnestly urged to abrogate or at least suspend the patents on salvarsan and its closely related products.

Martin F. Engman, M.D.,
Cyrus E. Burford, M.D.,
J. Curtis Lyter, M.D., St. Louis.

SOME FACTORS IN MILK SUPPLY

To the Editor:—In three recent issues of The Journal (Nov. 4, 1916, Jan. 27, 1917, and Feb. 3, 1917) appeared editorials dealing with different aspects of the question of milk production. Recent investigations into the modus operandi of the processes of anabolism have placed the unsolved problems of milk production in a clearer light and enable us to measure the extent of our proved knowledge. The dairy cattle of Germany have recently been subjected to an experiment in rationing on such a large scale as to make the results of interpretative importance despite the fact that controls were necessarily and obviously lacking. I venture, therefore, to present in a tentative manner the results of the abnormal rationing of the dairy cattle of Germany in their bearings on the problems of milk production as discussed in your editorials.

The proved facts in milk production, derived in part from dairy experience and in part from experimentation, are as follows:

1. The quality of the milk is determined by the breed. The milks of Jersey and Holstein herds vary sufficiently to permit classification by the chemist.

2. The quantity of milk varies with the breed and with families within the breed. High quantitative producers breed true, just as trotters and pacers breed true.

3. It is not possible to any material extent (certainly not to a commercial extent) to modify the quality of the milk (that is, the percentage of fat, sugar and protein) by modification of the diet.

4. The quantity can be increased to the maximum of the production of the particular individual or family solely through the supply of the nutrient ingredients in adequate amounts.

5. The milch cow may be regarded as a machine within a machine. The external machine (the metabolism of the cow) requires, let us say, 250 gm. of protein and 6,000 calories in carbohydrate and fat for maintenance. The machine within the machine (the milk secretion) requires the administration of an amount of protein corresponding in nitrogen to the total protein of the milk plus carbohydrate and fat in such amounts as to cover the fat and lactose content; for example, 1 kg. of protein plus carbohydrate and fat worth 16,000 calories.

6. The cow possesses no noteworthy power of synthesis of amino-acids. The ration must, therefore, contain proteins that are balanced and must contain in quantity (in excess of maintenance requirement) the protein corresponding to the total protein of the milk. Under the influence of the chemical impulse, especially early in lactation, a cow may compensate for unbalanced protein and deficient protein in the ration by robbing her own tissues quantitatively and qualitatively, just as the anadromous fishes build up milt and eggs through utilization of muscle. This power of substitution is, however, according to recent investigations, probably not of large extent, and is in any event fraught with danger to the animal. There is evidence suggesting that the milk production and the tissues of the cows have in some instances in Germany suffered as a result of continuous subsistence on unbalanced proteins.

7. Butter fat can be formed either from carbohydrate or from fat in the diet. In many dairies no fat is fed whatsoever and all the butter fat represents synthesis from carbohydrate. In some dairies protein is fed to such excess as to act as substrate for fat, a wasteful conversion, as 100 parts of protein yield, via sugar, only 30 parts of fat. That triglycerids in the food pass into the milk more or less unchanged is an established fact, known for carnivora as well. If an emaciated female dog is fattened rapidly on fat mutton, the body fat of the animal will present a melting point much closer to that of mutton tallow than to that of normal dog fat. If under such circumstances a litter is thrown, the fat of the milk will also present a high melting point.

8. The green vegetation of spring contains substances that act as stimuli to the milk secretion, other ingredients in the diet being constant.

Your editorials dealt with the relation of balanced and unbalanced protein to the anabolism of the proteins of the milk; with the question of the dependence of milk fat on food fat and body fat, and with the factors of nervous and chemical stimuli to lactation.

The blockade of Germany has exhibited one of its most destructive operations in the exclusion of concentrated feeding stuffs from the dairies of Germany. According to the data collected by German scientists, German dairy cattle received during the year 1913, from imported concentrates, protein and fat to the extent of some 700,000 and 300,000 tons, respectively. One of the most striking features of the agricultural situation of Germany was the disproportion between the number of cattle and the acreage devoted to pasture, rotation grasses and roughage. During the past twenty years the production of beef and dairy products has increased out of all proportion to increase in lands devoted to pasture, rotation grasses and hay. Each decade, therefore, the German producer of beef and dairy products depended more and more on imported concentrates. It is in this country the custom to feed to milch cows, in the form of grain concentrates largely, the protein required for milk production, leaving to carbohydrate almost entirely the rôle of covering the needs for lactose and fat. In Germany, however, it has become within recent years more and more the practice to substitute in part fat for carbohydrate in the intake, so that the large dairies of Germany were at the outset of the war directly dependent on imported concentrates not only for protein, but also to a surprising extent for fat. The tendency to feed fat in part, rather than carbohydrate solely, plus the required protein finds a direct analogue in human nutrition. The man who is doing a day's work requiring 3,000 or 4,000 calories will find no difficulty in covering his needs by the ingestion of carbohydrate alone plus the required protein for upkeep; but when increasingly larger amounts of work are done, up to 6,000 or more calories, the worker naturally turns to fat, because the bulk of a diet that is to furnish such large numbers of calories becomes burdensome, if the heat needs are to be covered by carbohydrate alone. From the standpoint of digestion it is wiser to cover the large caloric needs by a mixture of fat and carbohydrate than by carbohydrate alone; and although the alimentary tract of herbivora cannot be compared, from this point of view, directly with the alimentary tract of omnivora, yet in general the experience of the German dairies tended to show definitely that for large production it was not only practicable but advantageous to administer a portion of the carbonous feed in the form of fat.

The crop of 1915 was low in all feeding stuffs and particularly low in the fodders that contain largely carbohydrate. Calculation of the production of feeding stuffs in the German Empire for that year indicates that in terms of energy, the feeding stuffs of that year available were not in excess of 65 per cent. of the normal. In other words, the dairymen faced loss of protein through abolition of importation, loss of fat through abolition of importation, and a striking reduction in carbohydrate through failure of the roughage crops. In attempting to meet this situation they could compensate in part for the lack of protein by diverting to cattle-feed waste protein that previously went to the soil as fertilizer. They had, however, nothing to substitute for the fat previously imported, and they had little to take the place of the carbohydrate of which they had been deprived through crop

failure. Lack of silage and low yield of fodder roots accentuated the stringency. Under these circumstances it was not surprising that the milk production of Germany during 1915-1916 fell to a level variously estimated at from 45 to 55 per cent. of the normal. The total milk production of Germany in the year 1916 was not larger than the amount that in peace time went to butter making alone. The sum total of this experience tends clearly to substantiate the view that unless the food intakes are balanced in every direction, or convertible, the total milk production falls.

Faith in the chemical (really biochemical) impulse as determining the production of milk during the early months of lactation was widely held in Germany, and was the basis for the belief that in the spring of 1916 the new flow of milk, aided by the green feed, would result in a large increase in milk production. These predictions and hopes were not fulfilled. The cattle came through the winter in very poor condition. When they calved in the spring, the cows were emaciated. When they were placed on the abundant green feed that did develop early in the spring, contrary to the expectations the excess feed went into the tissues of the cow (into the external machine) rather than into the milk production (the internal machine). One views here what really amounts to competition between the growth impulse and the milk secretion. Growth is largely dimensional, dimensional in the sense that the cells of an adult animal possess a certain size and contain a certain amount of protein in the form of protoplasm. If now these cells, from subnutrition, become depleted, they are, so to speak, returned to a state corresponding to adolescence. When nutrients to the extent of normal maintenance are again available, the dimensional growth impulse strives to utilize these nutrients for the restoration of the normal masses of the cells. That the biologic impulse of milk secretion is extremely strong is clear from many investigations, and has been made very obvious in recent studies in which it was shown that the calcium elimination of milk in forced milk production was so high as to be in excess of calcium assimilation of the animal's alimentary tract and was obtained in part from the body of the animal. Nevertheless, the experience in Germany indicated that when applied to a large group of animals, many of whom were confessedly nondescript and not of highly bred milk strains, the biochemical impulse did not result in an increase of milk production; instead, the animals repaired their lost tissues, just as in the ordinary beef types of cattle the impulse in the direction of fleshening is naturally stronger than in the direction of milk production. The quality of the milk under the varying conditions fluctuated surprisingly little. A lowered fat production was observed, at times to quite an extent; but otherwise the experiences of the dairies during the two extremely trying years indicated that the quality of milk was representative of the anabolism of the particular animal, family or breed and tended to be independent of the intake. Most consistent was the casein production. The falling-off in production that is prone to occur late in the period of lactation was exaggerated in undernourished animals.

In the editorial devoted to the relation of fat in the diet to fat in the milk, there was not sufficient segregation of the ingredients grouped under butter fat to make the points under discussion entirely clear. These ingredients may be divided into the triglycerids, the flavoring and coloring matters and the lower fatty acids. Apart from the direct transfer of certain flavoring and coloring matters from the diet to the milk, there can be no question that the mammary glands tend to stamp the milk so far as taste and color are concerned. This is most clearly indicated by the definite differences in the taste and color of the fat of the milk of cows, goats and sheep on the same rations. There is also no question of the fact that the content in lower fatty acids tends to be specific. On the other hand, the investigations quoted in your editorial are not sufficient to indicate that milch cows convert one triglycerid into another to any large extent. The appeal to the modern theory that fats are split in digestion does not concern the point at all, since that same theory predicates that they are resynthesized in the intestinal wall. There is evidence to the effect that the triglycerids of the thoracic duct are different from the triglycerids of the diet; but there is, of course, an uncontrollable variable in the experiment. It is also true that while altering the fat intake modifies the melting point of the butter fat of the animal, yet on the whole an increase tends to produce butter of a more or less constant melting point. The extent to which, for example, tristearin in the diet is converted into tripalmitin, or triolein into tristearin, has not been experimentally shown, nor is it to be calculated from any of the data at present available in the literature.

The development of goat dairies is being actively encouraged in Germany. This is due not directly to the fact that the browsing goat makes lesser claims than the grazing cow. It is due rather to the fact that the maintenance for the number of goats required to produce a unit of milk is lower than in the case of cows; the ratio of maintenance to milk production is more favorable.

ALONZO ENGLEBERT TAYLOR, M.D., Philadelphia.

VISUAL REQUIREMENTS OF MILITARY AVIATORS

To the Editor:—The article on this subject (THE JOURNAL, March 17, 1917, p. 841) is certainly a timely one; however, some questions have arisen in my mind during the reading of it.

1. Why make color blindness a reason for rejection? The writer points out that an air scout would not detect "red uniforms of soldiers from the surrounding green foliage, even in the most favorable conditions, if he is red-green blind." But may I ask: Where at the present time are red uniforms to be seen, outside of the parade grounds? As scout, the chief function is to take "large numbers of photographs of the enemy's position." What has color blindness to do with this? Many color-blind men know so well how to take advantage of secondary circumstances (shade, luster or luminosity) that their defect is never recognized except by careful examination.

2. As the first and chief requisite must be normal vision ($^{20}/_{20}$) for each eye uncorrected, I cannot see that "a cycloplegic should be used in all cases." This shows a serious incompetence. When an ophthalmologist (and we cannot expect any other medical man to do this most specific work) is unable to examine the iris reaction, or the presence of synechiae, or the vitreous for opacities, or the fundus for changes in young persons without a cycloplegic, when the vision is $^{20}/_{20}$, such a one ought never to receive the certificate from the self-constituted American board of hypercompetent examiners for the license to practice ophthalmology.

3. "Even with normal vision in each eye, the aviator must have normal binocular vision," etc. Will you kindly tell me what the value of binocular single vision (I suppose it is this function to which the writer refers) is at the height at which aviators usually take their soundings? How does the writer convince himself of the presence of binocular single vision? In what terms does he express his findings?

I think that all physicians are sufficiently interested in these fundamental questions to justify ventilation of the topic of the visual requirements for aviators.

EDMOND BLAAUW, M.D., Buffalo.

[The foregoing communication was referred to Dr. Small, who replies:]

To the Editor:—When this paper was read before the Chicago Ophthalmological Society, I stated that I was not presenting any particularly new facts, but that my chief purpose was to point out the unusual conditions arising in this new field in order to get suggestions or criticisms and thus be able to make this branch of our military service as efficient as possible. I therefore wish to thank Dr. Blaauw for his criticism and am perfectly willing to abide by the judgment of other oculists in regard to these or other points in this subject. I can only state my personal opinion on the three points he discusses:

1. Normal color sense is absolutely essential. The particular illustration used was simply to call attention to the

inability of this form of color-blind person to distinguish between red and green. Much important work is done at night; red and green are the two colors most frequently used in signal lights. I can easily conceive of most disastrous results from a pilot's inability even to see these lights at a little distance. Again, figures, letters or designs of various kinds are painted on the planes as distinguishing marks. Failure to recognize these quickly might have grave consequences. I see no reason why the duties of the air pilot require any less keen color perception than do the duties of the sea pilot.

2. It is not so very infrequent that we find a young man whose manifest refraction is $^{20}/_{20}$, but whose absolute refraction under a cycloplegic is as low as $^{20}/_{70}$. Such a man, engaged in this work, will probably show rapidly increasing symptoms of eye strain, if his ametropia remains uncorrected. With a record of his absolute refraction on file, a reexamination may determine his unfitness for continuing in this service. The fundus can be studied with much greater accuracy through the dilated pupil. My ophthalmoscopic technic may be faulty, but I confess my inability to get, for example, in a beginning retinitis pigmentosa, a satisfactory picture of the periphery of the fundus, without the aid of a mydriatic. It is absolutely impossible to detect the amount and extent of posterior synechiae, without artificially dilating the pupil.

3. An aviator, after being in the air for an hour or more, with his nerves under pretty high tension, being then obliged to make a rapid descent, would require a rather keen sense of perspective to avoid striking the ground with damaging force. I maintain that without binocular single vision, stereoscopic vision, or sense of perspective, is wanting. I make it a part of every routine examination to estimate and record the amount of adduction, abduction, and the muscle balance for distance and at 33 cm. using Stevenson's tangent method for the last, which also serves to determine the presence or absence of binocular single vision.

Charles P. Small, M.D., Chicago.

DUODENAL CULTURES IN TYPHOID FEVER

To the Editor:—In The Journal, March 10, 1917, p. 780, Dr. Durham, in his article on the isolation of the typhoid bacillus from duodenal contents, says, "To the best of my knowledge and information, this is the first time that duodenal contents, secured by the use of the duodenal tube, ever gave a positive *Bacillus typhosus* culture." I wish to call attention to my own article published in The Journal, Nov. 18, 1916, p. 1493.

A. L. Garbat, M.D., New York.

REMOVAL OF URETERAL CALCULUS BY CYSTOSCOPIC METHOD

To the Editor:—In his article on this subject (The Journal, April 7, 1917, p. 1028), Dr. William S. Ehrich desires to know why the treatment of small ureteral calculi by operative cystoscopy and ureteral dilatation has not supplanted the open operation. The answer is that this more rational method of ureteral calculus removal has supplanted the open operation, and has been used for many years past by leading urologists throughout the country. Dr. Ehrich would certainly be aware of this fact had he reviewed the urologic literature of the past few years. An open operation is the exception today in the management of ureteral calculus.

H. W. E. Walther, M.D., New Orleans.

Medical Compounds in Madagascar.—The French customs tariff require medical compounds imported into Madagascar to pay a specific duty of 20 per cent. ad valorem maximum and 15 per cent. minimum. Merchandise from the United States is dutiable at the higher rate. Medical compounds not mentioned in any pharmacopeia are prohibited. Wholesale houses in Madagascar do not sell medicines or preparations to the various pharmacies and general stores on the island. Such goods are ordered direct by pharmacists in the leading centers.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CITRIC ACID—SERGENT'S LINE—HUMIDITY

To the Editor:—Please favor me with answers to the following questions:

1. Does the ingestion of fruit acids, notably those of the citrus fruits, tend to decrease the alkalinity of the blood?
2. Do these fruits have a deleterious effect in nephritis, especially in chronic cardiorenal conditions?
3. What is their effect on the reaction of the urine?
4. What is the effect of sodium citrate, potassium citrate and potassium acetate on the alkalinity of the blood and urine?
5. Can you refer me to any recent literature on this subject?
6. What is Sergent's "white line" in suprarenal insufficiency?
7. Is there any practical method for humidifying the air in dwelling houses in winter?

Kindly do not use my name. F. A. B.

Answer.—1. The citrus fruits contain in their juices citric acid. Citric acid and its salts—potassium and sodium citrate—are oxidized in the body with the formation of carbonates. Hence they tend to increase the alkalinity of the blood.

2. It is not likely that these fruits, taken in moderation, would have a deleterious effect in nephritis. In general, it is not advisable to give diuretics in cardiovascular renal disease. Potassium citrate has a diuretic action. However, if an alkaline effect is needed, this drug may be given.

3. The ingestion of citric acid tends to make the urine alkaline.

4. Sodium citrate, potassium citrate and potassium acetate tend to keep the blood alkaline, and the salts excreted by the kidneys render the urine less acid, and after large doses, alkaline. All of these drugs act as diuretics and may be used in nephritis although, as stated, it is generally not advisable to give diuretics in cardiovascular renal disease.

5. The use of these drugs is described in practically all textbooks on pharmacology. We may refer you particularly to H. C. Wood: Pharmacology and Therapeutics, Edition 2, Philadelphia, J. B. Lippincott Company, 1916, p. 271; Useful Drugs, American Medical Association, 1916, pp. 112 and 113; Hatcher and Wilbert: The Pharmacology of Useful Drugs, 1915, pp. 417 and 418; Sollmann: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1917, p. 729.

6. Sergent's "white line" in suprarenal insufficiency is a vasomotor phenomenon. A geometric figure is traced on the skin of the abdomen with a blunt object, such as the rounded end of a fountain pen or a finger tip. In about thirty seconds a pale line or band may be noticed over the course traced. This gradually becomes more distinct and wide, attaining its maximum clearness in about one minute and lasting for about two or three minutes. The author states that it is significant of suprarenal insufficiency. The normal reaction is a red line; "white dermographism" probably indicates vasomotor instability.

7. The use of humidifiers is discussed in "The Relation of Atmospheric Humidity to Health," editorial, The Journal, March 17, 1917, p. 852.

ALUM AND PHOSPHATE CONTENT OF BAKING POWDERS

To the Editor:—Please give me a report on Royal baking powder and on Dr. Price's baking powder as to the alum and phosphate content.

W. J. Avery, M.D., St. Louis.

Answer.—According to the analyses made by the North Dakota food department in 1913, neither Dr. Price's baking powder nor the Royal brand contains either alum or phosphate. They belong, instead, to what is known as the "cream of tartar" type of powders, that is, powders from which the carbon dioxid is set free by the action of potassium bitartrate (cream of tartar) and tartaric acid on sodium bicarbonate (baking soda). From the analyses referred to above, the North Dakota food department calculated the probable original composition for the powders analyzed. The formulas for the two powders mentioned were calculated to be approximately as follows:

	Baking Powder	
	Dr. Price's	Royal
Sodium bicarbonate (baking soda)	24	24
Potassium bitartrate (cream of tartar)	38	41
Free tartaric acid	6	5
Starch	29	28
Water (undetermined)	3	2

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

ARKANSAS, ECLECTIC: Little Rock May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

ARKANSAS, HOMEOPATHIC: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

GEORGIA: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St., Honolulu.

ILLINOIS: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.

MASSACHUSETTS: Boston, May 8-10. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEVADA: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.

Nebraska May-June Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the oral, practical and written examinations held at Lincoln, May 10-11 and June 8-9, 1916. The total number of subjects examined in was 12; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 40, all of whom passed. Thirteen candidates were granted reregistration licenses by examination. Eighteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1915)	84.2
John A. Creighton Med. College	(1915) 83.9; (1916) 75, 76.4, 76.5, 77.1, 78, 78.4, 78.9, 79.2, 79.2, 80.1, 80.4, 80.4, 80.5, 80.9, 80.9, 81.1, 81.1, 81.4, 81.6, 82, 82.1, 82.4, 82.5, 82.5, 82.9, 83.1, 83.9, 84.1, 84.2, 84.4, 84.6, 84.7, 85.9, 86.5, 87.2, 88.1.		
Lincoln Medical College		(1910)	75.1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Medical College of Alabama		(1906)	Mississippi
Chicago Homeopathic Medical College		(1895)	Iowa
College of Physicians and Surgeons, Chicago		(1910)	Illinois
Northwestern University		(1911)	Illinois
Rush Medical College	(1889) Iowa; (1911, 2)	(1914)	Illinois
State University of Iowa, Coll. of Med.	(1886)	(1905)	Iowa
Tulane University of Louisiana		(1914)	Nevada
Johns Hopkins University		(1909)	Iowa
Ensworth-Central Med. Coll. of St. Joseph		(1906)	Kansas
St. Louis University		(1910, 2)	Missouri
Eclectic Medical College		(1902)	Ohio
Medico-Chirurgical College of Philadelphia		(1900)	Iowa
Universities of Nashville and Tennessee		(1911)	Tennessee

Illinois October Report

Dr. C. St. Clair Drake, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, Oct. 10-12, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 115, of whom 88 passed and 27 failed. Eight candidates did not complete the examination. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
Howard University		(1914)	1
Bennett Medical College		(1915)	2
Chicago Coll. of Med. & Surg.	(1915, 2); (1916, 31)		33
Chicago Hospital College of Medicine	(1915) (1916)		2
Hahnemann Med. Coll. and Hosp. of Chicago		(1916)	1
Jenner Medical College		(1916)	2
Loyola University		(1916)	18
Northwestern University		(1916)	2
Rush Medical College	(1903) (1914) (1916, 9)		11
University of Illinois		(1916)	6
Indiana University		(1916)	1
State University of Iowa Coll. of Med.	(1907) (1916)		2
Johns Hopkins University		(1915)	1
Detroit College of Medicine		(1904)	1
University of Michigan Medical School		(1909)	1
St. Louis University		(1915)	1
University of Pennsylvania		(1903)	1
Vanderbilt University		(1916)	1
Medical College of Virginia		(1906)	1
	FAILED		
Bennett Medical College	(1910) (1915, 2)		3
Chicago College of Medicine and Surgery	(1915) (1916, 7)		8
Chicago Hospital College of Medicine	(1915, 2) (1916, 2)		4
Hahnemann Medical College and Hospital of Chicago	(1915)		1
Loyola University		(1916)	3
Reliance Medical College		(1911)	1
Hospital College of Medicine, Louisville		(1904)	1
National University of Arts and Sciences		(1916)	1
St. Louis College of Physicians and Surgeons		(1910)	1
University of Pennsylvania		(1896)	1
National University, Athens	(1884) (1905)		2
Female Medical Institute, Kharkof		(1914)	1

Porto Rico October Report

Dr. Quevedo Baez, secretary of the Porto Rico Board of Medical Examiners, reports the written examination held at San Juan, Oct. 3, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examind was 29, of whom 21 passed, and 8 failed. The following collges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1916)	79.7
Atlanta Medical College		(1916)	75
Bennett Medical College		(1915)	75
Chicago College of Medicine and Surgery	(1916) 76.3, 80.6, 81.5.		
Loyola University		(1916)	75.2
University of Maryland	(1916) 75.8, 77, 77.6, 79.8, 81.2.		
Harvard University		(1916)	81.5
University of Nebraska		(1916)	75.8
Jefferson Medical College of Philadelphia		(1916) 76.8,	92.8
Medico-Chirurgical College of Philadelphia		(1916)	75
Temple University		(1916) 78.7,	80.4
Medical College of Virginia		(1915)	75
University of Santiago, Spain		(1915)	79.2
	FAILED		
Chicago College of Medicine and Surgery		(1915)	65.1
Loyola University	(1915) 65.6; (1916) 66.6, 67.1, 69.7, 69.8.		
University of Maryland		(1916)	68.7
University of the City of New York		(1889)	61.7

Missouri December Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, Dec. 11-13, 1916. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 14, of whom 9 passed and 5 failed. Four candidates were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University		(1916)	77
University of Illinois		(1916) 77,	86
Harvard University		(1914)	87
American Medical College		(1904)	75
Ensworth Medical College		(1911)	88
National University of Arts and Sciences		(1916)	78
Meharry Medical College	(1916) 81;	(1917)	81
	FAILED		
Chicago College of Medicine and Surgery		(1916)	70
National University of Arts and Sciences		(1916)	70
St. Louis College of Physicians and Surgeons		(1910)	70
University of West Tennessee		(1915) 65,	70

Alabama January Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Health, reports the written examination held at Montgomery, Jan. 9-12, 1917. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 22, of whom 12 passed and 10 failed. One candidate was granted a license under a special exemption clause. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Alabama		(1916)	76.5
Atlanta Medical College	(1916) 79.9, 84.6, 86.4.		
Tulane University of Louisiana		(1915)	83.5
Johns Hopkins University		(1914)	87.5
Washington University		(1910)	76.9
University of Pennsylvania		(1911)	80.5
University of Tennessee		(1916) 75	75
Vanderbilt University		(1915) 78.3,	82.8
	LICENSED UNDER SPECIAL EXEMPTION CLAUSE		
Kentucky University		(1906)	1
	FAILED		
Birmingham Medical College	(1915) 57.1, 65.1, 67.5.		
Atlanta Med. College		(1915) 72.8; (1916)	71.1
Tulane University of Louisiana		(1909)	72.5
Meharry Medical College		(1916) 55.4,	70.3
Memphis Hospital Med. College		(1899) 69.9, (1911)	64

Book Notices

The Diseases of Infancy and Childhood. For the Use of Students and Practitioners of Medicine. By L. Emmett Holt, M.D., Sc.D., LL.D., Professor of Diseases of Children in the College of Physicians and Surgeons, New York, and John Howland, A.M., M.D., Professor of Pediatrics in the Johns Hopkins University. Seventh Edition. Cloth. Price, $6. Pp. 1180, with 215 illustrations. New York: D. Appleton and Co., 1916.

The sixth edition of this book appeared in 1911, at which time Dr. Howland, who assisted Dr. Holt in the preparation of the book, was professor of the diseases of children at Washington University Medical School, St. Louis, following his work with Professor Holt in New York. Dr. Howland now appears as co-author with Dr. Holt, writing from his position as professor of pediatrics at Johns Hopkins University, Baltimore.

Needless to say, in the five years which have elapsed since the appearance of the last edition, there have been many advances in our knowledge of pediatrics, and these advances are recorded in the new edition. The seventh edition contains, including index, but sixty-eight pages more than the sixth edition. To make room for the new material, some of the old has been eliminated and much rewritten. The authors state that so much revision was necessary that scarcely a page appears as it did before, and the book has been entirely reprinted from new plates. Attention is called to sixteen new articles, among them those on acidosis, neuropathic and exudative diathesis, cardiac arrhythmia, acute lymphatic leukemia, Banti's disease, osteogenesis imperfecta, Still's disease, syphilis of the nervous system, pellagra, epidemic catarrh, duodenal ulcer, and idiosyncrasies to foodstuffs. In addition, special attention has been given to the chapters on birth paralyses, milk and infant feeding, digestion in infancy, chronic intestinal indigestion, Hirschsprung's disease, asthma, accidental heart murmurs, hydronephrosis, gonococcus vaginitis, tetany, convulsions, epilepsy, hydrocephalus, poliomyelitis, diseases of ductless glands, diabetes, Hodgkin's disease, and tuberculous adenitis.

The book follows in general the same plan as previous editions. As the arrangement in those was eminently satisfactory, there was of course no need for a change. In eliminating some of the illustrations, the authors have wisely chosen those illustrating apparatus, such as scales and nipples, which are familiar to every one.

The book bears throughout evidences of careful and thorough revision. The new material which has been added is fully up to the standard of the old. It is a valuable guide to the conditions it covers.

A Laboratory Manual of Organic Chemistry for Medical Students. By Matthew Steel, Ph.D., Professor of Organic and Biological Chemistry, the Long Island College Hospital. Cloth. Price, $1.25 net. Pp. 193. New York: John Wiley & Sons, 1916.

There has been a tendency to differentiate between chemistry as ordinarily taught and chemistry for medical students, although it is debatable whether or not the elementary courses in chemistry should differ for various students. Dr. Steel's book is the development of the instructions given to the students in Long Island College Hospital, Brooklyn. Not only are the various properties of organic compounds discussed, but the subject is presented in such a manner as to classify the book almost as a qualitative organic analysis. One objection which might arise is that the student who follows the "practical course," as outlined by Steel, may lack some of the essential technical operations which he would otherwise have obtained when taking the usual laboratory course in organic chemistry, in which more or less elaborate synthetics are prepared. Steel, like many authors of laboratory manuals, seems to think that it is an added advantage to have alternate pages blank in order that the observations may be recorded. It is to be hoped that sooner or later this "conventionality" will be discarded, as it surely stifles critical observation—the student endeavoring to note the results of the experiments on an allotted short page. The book is divided into twenty-seven chapters, and contains an appendix of tables. Besides an outline of experiments on the usual class of organic compounds, there are also presented valuable tests for the lipins, proteins and alkaloids—a group of subjects which is of more than casual interest to the future physician.

Medicolegal

Construction of Exception for Practice of the Religious Tenets of Any Church

(People vs. Cole (N. Y.), 113 N. E. R. 790)

The Court of Appeals of New York reverses the judgment and orders a new trial in this case, wherein the defendant was convicted of the crime of practicing medicine without lawful authorization and registration, because of a misconstruction of the exception to the statutory definition of who practices medicine that "this article shall not be construed to affect . . . the practice of the religious tenets of any church." The court says that the exception includes every person in the practice of the religious tenets of any church, and it is not in any way in conflict with the federal or state constitution. The language quoted is not in any sense an affirmative license. It is an exception to the general prohibition. Whether the practice of the religious tenets of any church should have been excepted from the general prohibition against the practice of medicine unless the practitioner is registered and authorized so to do, or whether the exception should be continued therein is a question for the legislature and not for the courts. The purpose of the general statute is to protect citizens and others of the state from being treated in their physical ailments and diseases by persons who have not adequate or proper training, education or qualifications to treat them. The tenets of a church are the beliefs, doctrines and creeds of the church. The exception relates to the tenets of the church as an organized body as distinguished from an individual. It does not relate to or except persons practicing in accordance with individual belief. The defendant was a member of the Christian Science Church. The Christian Science Church is in terms expressly excepted from the prohibition contained in the medical practice acts of many of the states. It is so expressly excepted in the statutes of Maine, New Hampshire, Massachusetts, Connecticut, North Carolina, North and South Dakota, Kentucky, Tennessee and Wisconsin. The court thinks the exception in the New York statute is broad enough to permit offering prayer for the healing of disease in accordance with the recognized tenets of the Christian Science Church. It may be said that if the exception is so construed, it will lead to numberless persons assuming to cure diseases in the name of a church for the purpose of thereby maintaining a business and securing a livelihood. But the religious tenets of a church must be practiced in good faith to come within the exception. When such practice is a fraud or pretense, it is not excepted from the general prohibition. When wrong is practiced in the name of religion, it is not protected by constitution or statute. A person should not be allowed to assume to practice the tenets of the Christian Science or any church as a shield to cover a business undertaking. When a person claims to be practicing the religious tenets of any church, particularly when compensation is taken therefor and the practice is apart from a church edifice or the sanctity of the home of the applicant, the question whether or not such person is within the exception should be left to a jury as a question of fact. It was error to charge the jury in this case that if they found from the evidence that the defendant did engage in the practice of medicine as alleged in the indictment, within the definition which the court had given to them, it was no defense that he did what he did from any sense of duty, or that he did these acts in the practice of the religious tenets of the Christian Science Church. The exception was intended by the legislature to exclude from the prohibition the practice of the religious tenets of the Christian Science and other churches. It was necessary, as we have seen, that

the practice be of the tenets of a recognized church, and the court, instead of charging the jury as stated, should have left to the jury the question whether or not the defendant was in good faith practicing the tenets of such a church within the meaning of the statutory exception.

Misstatements of Physicians Ground for Relief from Releases

(*Chicago, R. I. & P. Ry. Co. vs. Rogers (Okla.), 159 Pac. R. 1132*)

The Supreme Court of Oklahoma, in affirming a judgment for $1,001 in favor of plaintiff Rogers for damages for a burn and injury to his right leg while he was in the service of the defendant company, for which he had signed a release, says that the plaintiff was advised by the defendant's claim agent that the physicians of the company had reported the injury as merely a skin wound, and that it was not permanent. He was advised by two physicians of the company that the injury was merely a skin wound, and not permanent. He was advised by one of those two physicians that he would have a good leg and would be able to perform labor to the extent and in the capacity he did prior to the injury. The plaintiff was a mere employee of the company. He had no knowledge of medical science. He could not judge of the effect of a burn as to its permanency or its temporary character. He relied on the statements of the company's physicians to the effect that he would have a good leg, and, believing and relying on such statements, executed the release in question. In such cases innocent misrepresentations made in good faith and under an honest belief at the time made that they are true, on the one hand, and relied and acted on in good faith and under an honest belief of their truth, on the other hand, as well as statements made which are intentionally false and relied on by the party executing a release, may equally be made the basis of relief from such releases.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Maine Medical Association, Portland, June 12-13.
Maryland Medical and Chirurgical Faculty, Baltimore, April 24-26.
Massachusetts Medical Society, Boston, June 12-13.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
New York State Medical Society, Utica, April 24-26.
North Dakota State Medical Association, New Rockford, May 9-10.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Washington State Medical Association, Spokane, June 17-19.
Wyoming State Medical Society, Casper, May 9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

April, XIII, No. 4

1 Amyotonia Congenita: Survey of Known Cases; Report of Three Cases. H. K. Faber, San Francisco.—p. 305.
2 *Epidemiology of Bacillary Dysentery. W. G. Smillie, Boston.—p. 337.
3 *Hypertension in Nephritis in Childhood; Study of Ninety-Three Cases. H. K. Berkley, San Francisco and J. M. Lee, Nashville, Tenn.—p. 354.

2. **Epidemiology of Bacillary Dysentery.**—Smillie reports the study of seventy-five cases occurring in Boston during the summers of 1915 and 1916. The nests of infection in certain portions of the south end, and in South Boston, are striking. Sanitary conditions are equally bad in the north end and west end, but the former neighborhoods are occupied largely by first generation Irish-Americans, and the latter by foreigners —Italians, Poles and Russian Jews. Most factors affecting the health of infants in both neighborhoods are the same, the same water, the same milk supply, the same temperature and humidity, and equal number of flies, etc. The only factor that is not common to both neighborhoods is food, for most foreign mothers nurse their babies, while many American mothers do not. One of the cases was a nursing baby. This child was nursed only at night and was fed condensed milk during the day. A study of the epidemiology of widely scattered and isolated cases, of which there were fifteen, showed that the only factor in common was a certain brand of condensed milk, although repeated examinations failed to disclose the dysentery bacillus in this milk. Nine cases were due to the use of ice cream cones. Twenty-seven cases were due to direct contact. Thus, though seventy-five cases were studied, the foci of infection of these cases were reduced to twenty-eight, and Smillie is convinced that more intensive study of the cases from unknown sources would have reduced the number of separate foci of infection still more. In every dirty, careless household visited, where the sick child remained more than one week, there resulted a contact care of bacillary dysentery. Smillie is of the opinion that bacillary dysentery is introduced into the community in the summer by a carrier, and once begun, other factors carry it on. Four babies developed bacillary dysentery in the wards of the hospital. Each child was admitted with quite a different diagnosis, and their stools were negative on entrance. Each developed the disease seven to ten days after admission, and in no instance did the child come from an infected home or neighborhood.

3. **Hypertension in Nephritis in Childhood.**—From a study of blood pressure observations in sixty-six cases of acute nephritis and twenty-seven cases of chronic nephritis in children between the ages of 2 and 12 years, Berkley and Lee say that the blood pressure is elevated in the nephritis of childhood, and occasionally to a marked degree. Systolic and diastolic pressures are not increased to the same degree, the former averaging about 20 mm. Hg, and the latter about 10 mm. above normal. The pulse pressure is increased, but the factor is not constant. The blood pressure may, in rare instances, be of prognostic value. No relation has been found to exist between the blood pressure and the urinary findings. Albuminuric retinitis is probably not common even in cases showing a marked increase in blood pressure.

American Journal of Public Health, Boston

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4 Program of Public Health for Cities. W. C. Rucker, Washington, D. C.—p. 225.
5 Program of Public Health for Towns, Villages and Rural Communities. G. F. Ruediger, LaSalle, Ill.—p. 235.
6 Health Administration on District Plan. A. E. Shipley, New York. —p. 248.
7 Scientific Management and Its Relation to Health of Worker. R. A. Feiss, Cleveland.—p. 262.
8 Modern Chemical Industries and Public Health. F. E. Fronczak, Buffalo.—p. 268.

9 Munition Plant Poisons. A. Rice, Parlin, N. J.—p. 273.
10 Dangers Connected with Spray Method of Finishing and Decorating. R. P. Albaugh, Cleveland.—p. 279.
11 *Facts and Fallacies in Disinfection. H. C. Hamilton, Detroit.—p. 282.
12 Institutional Sewage Plants. C. F. Mebus, Philadelphia.—p. 296.
13 Refuse Disposal in Small Towns. G. W. Simons, Jr., Jacksonville, Fla.—p. 299.
14 Acupuncture; Best Method of Vaccination. H. W. Hill, London. —p. 304.

11. **Facts and Fallacies in Disinfection.**—A rather extensive experimental laboratory study of disinfectants made by Hamilton shows that formaldehyd, when used under conditions in which the gas acts in an aqueous solution, is an efficient disinfectant, probably the only generally applicable fumigant. Mercuric iodid combined with potassium iodid is an exceptionally valuable germicide for the skin and for disinfecting surgical instruments and vessels. Its germicidal value is 5,000 times as high as that of phenol. Lime water freshly slaked from good stone lime has high germicidal value, but its objectionable features both in itself and in its action on other disinfectants makes it use more or less detrimental. Soap can be considered valuable only as an aid to disinfection or as a vehicle for an active agent. Most disinfectants with the exception of mercuric potassium iodid add little to the efficiency of soap. Alcohol as commonly used, that is, on the skin previously washed with soap and water, is highly efficient in percentages of 30 or over. A coal tar disinfectant carefully standardized by one of the accepted methods is valuable in proportion to its phenol coefficient, and is less affected than some others by the factors which tend to inhibit the value of a germicide. Pine oil disinfectants and other special products require as careful standardization as the coal tar disinfectants. For safe use the dilution should not exceed a number representing the result of the phenol coefficient times the dilution of pure phenol which would be used with confidence under similar conditions. Certain of the anilin dyes give promise of practical value in wounds and as internal antiseptics because of having a selective action toward certain micro-organisms and because of their low toxicity. The old dependable germicides, mercuric chlorid, phenol, iodin, hydrogen peroxid, will never be displaced, but undoubtedly their field of usefulness will become more and more restricted.

American Review of Tuberculosis, Baltimore

March, I, No. 1

15 Various Classifications of Pulmonary Tuberculosis. W. L. Rathbun, New York.—p. 1.
16 *Chronic Nontuberculous Lung Infection. A. H. Garvin, H. W. Lyall and M. Morita, New York.—p. 16.
17 Serologic Studies in Tuberculosis. S. A. Petroff, New York.—p. 33.

16. **Chronic Nontuberculous Lung Infection.**—The material for this study consisted of nine cases of chronic nontuberculous lung infection of long standing, four years or more, and is of interest inasmuch as a careful history and physical examination had previously determined the diagnosis as tuberculosis. The disproof of the diagnosis of tuberculosis was justified after long study, comprising a review of the factors in the history, frequent physical examination, roentgenograms of the chest, and repeated bacteriologic study of the sputum. The principal differential diagnosis to be made is that from pulmonary tuberculosis. There will usually be observed a very striking disparity of these points in favor of chronic nontuberculous lung disease and against tuberculosis except at such times as acute exacerbations occur, when the differential diagnosis will not be possible and the diagnosis will be that of tuberculosis, because symptoms or signs, or both, strongly suggest it. Usually the duration of the disease is clinically longer, with less severity of effect on the patient, than would be expected if the disease were tuberculosis. Base lesions in tuberculosis are usually quite toxic and progressive. Base lesions of chronic nontuberculous type are rather nontoxic and nonprogressive. The general health appears to be much more satisfactory than would be expected if the patient were tuberculous. As regards location, 90 per cent. of all tuberculous lesions are located in the apices, or upper lobes of the chest, and but 10 per cent. in the lower lobes. In chronic nontuberculous lung infection, the reverse of this is true. The physical signs will be at considerable variance to what might be expected if the condition were tuberculous. Two extremes may be met. There are either a large number of rather moist râles and ronchi, with only moderate cough and expectoration, or very few or no physical signs in the presence of symptoms. The symptoms, particularly cough and expectoration, are usually more manifest than the signs.

The differential diagnosis of bronchiectasis of extensive degree is not difficult. The essential treatment is posture. As the lesion is usually at the base of the lung, drainage by the inverted position is necessary in order to remove the mucopurulent sputum. Examination in various inverted positions will often determine the best posture for drainage. The experience of the patient may also be used to determine this. The patient is instructed to assume this posture and is advised to vary it as the result in lung drainage is indicated. Lung drainage should be continued for a period sufficient to cleanse the respiratory tract thoroughly. At least fifteen minutes four times a day is a minimum rule. Chronic nasal sinus infections are a frequent complication and usually require attention before postural treatment can be successfully carried out. It may be advisable to place the patient in the country for six months to a year.

Archives of Pediatrics, New York

March, XXXIV, No. 3

18 Nine Cases of Amaurotic Family Idiocy. J. H. McHenry, New York.—p. 161.
19 Suggested Improvement for Out-Patient Work with Children. S. McLean, New York.—p. 173.
20 Case of Tuberculosis Following Ritual Circumcision. M. S. Reuben, New York.—p. 186.
21 History of Pediatrics in New York. A. Jacobi, New York.—p. 191.
22 Diagnosis of Pyloric Stenosis and Pyloric Spasm by Duodenal Catheter. W. W. Howell, Boston.—p. 199.
23 Establishment of Department of Preventive Medicine in Hospital Treating Children. C. V. Dorwarth, Philadelphia.—p. 206.

Archives of Ophthalmology, New Rochelle, N. Y.

March, XLVI, No. 2

24 Case of Hypopituitarism, with Homonymous Hemianopsia (Suprasellar Cyst?), Completely Relieved by Glandular Treatment. C. A. Elsberg and E. F. Krug, New York.—p. 97.
25 Scleral Trephining in Detachment of Retina. J. Green, Jr., St. Louis.—p. 104.
26 Unusual Form of Superficial Corneal Opacity, Probably an Instance of Atypical Epithelial Dystrophy. W. C. Posey, Philadelphia. —p. 113.
27 Glaucoma Simplex without Perceptible Rise in Tension. H. S. Gradle, Chicago.—p. 117.
28 Mesothorium Treatment of Eye Diseases. N. J. Cuperus, Zwolle, Holland.—p. 126.
29 Epithelial New Formation at Corneal Limbus which Recurred for Five Years and was Finally Cured with Mesothorium. Koellner, Wurzburg.—p. 130.
30 Peripupillary Combined Cystotomy. Falchi, Pavia.—p. 135.
31 Case of Pituitary Body Disease and Results of Glandular Administration. G. E. deSchweinitz and H. W. How, Philadelphia. —p. 139.
32 Atrophying Conjunctivitis with Symblepharon. R. Kuemmell, Erlangen.—p. 147.
33 Dyspituitarism with Limitation of Visual Fields; Symptoms Disappearing Under Use of Internal Glandular Therapy, with Return of Visual Fields to Normal. W. Timme, New York.—p. 151.
34 Myopia Cases Coming to Massachusetts Charitable Eye and Ear Infirmary for First Time Between Jan. 1, 1915, and Jan. 1, 1916. H. Gage, Milwaukee, Wis.—p. 154.

Boston Medical and Surgical Journal

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35 Care of Ambulatory Accident Case. H. G. Stetson, Greenfield. —p. 447.
36 Pain in Right Lower Quadrant. W. W. Townsend, Rutland, Vt. —p. 450.
37 Tumors of Spine and Cord; Report of Cases. W. J. Mixter, Boston.—p. 452.
38 *Gastric Ulcer Produced by Intravenous Injection of Staphylococcus Pyogenes. E. C. Steinharter, Cincinnati.—p. 461.
39 Diagnosis and Treatment of Gastric Ulcer. L. Fischbein, Boston. —p. 465.
40 Preparation of Vegetable Proteins for Anaphylactic Tests. R. P. Wodehouse and J. M. D. Olmsted, Boston.—p. 467.
41 Improved Blood Transfusion Tube. W. R. Morrison, Boston.—p. 468.

38. **Gastric Ulcer Produced by Injection of Staphylococcus Pyogenes.**—The organisms used by Steinharter were obtained

from two sources, namely, the blood of a patient with septicemia and one with an acutely inflamed appendix. The primary cultures in both cases were made in ascites dextrose broth, and yielded the staphylococcus in pure culture. An emulsion of the staphylococcus which was isolated from the appendix produced, on intravenous injection into rabbits, without any preliminary animal passage, stomach or appendiceal lesions in four out of five rabbits injected. On the other hand, the strain of staphylococcus obtained from the case of septicemia was not, when freshly isolated, of the proper grade of virulence to produce gastro-intestinal lesions when injected intravenously into animals, but later, after the organism had undergone preparatory cultivation in the functionating stomach wall of the rabbit, intravenous injection of it was then followed by the formation of gastric ulcer. The ulcers formed were in most cases single. They occurred invariably in the pyloric end of the stomach or duodenum. They varied in size from that of a pinhead to 5 by 7 mm. In some cases they were punched out, clean and well circumscribed, and in other cases, merely necrotic, bleeding areas. In some experiments the ulcer was the sole lesion, while in others it was associated with appendicitis, cholecystitis and arthritis.

Cleveland Medical Journal

February, XVI, No. 2

42 *Significance of Blood Platelets. R. I. Lee and G. R. Minot, Boston.—p. 65.
43 *Two Cases of Congenital Megacolon (Hirschsprung's Disease). C. A. Hamann, Cleveland.—p. 88.
44 *Case of Hodgkin's Disease Involving Stomach. S. P. Reimann, Cleveland.—p. 94.
45 Mechanical Devices in Treatment of Fractures of Long Bones. F. P. Corrigan, Cleveland.—p. 101.
46 Vaccine Treatment of Cerebrospinal Syphilis. O. P. Bigelow, Cleveland.—p.103.
47 Vasomotor Axon Reflexes. J. B. Whelan, Cleveland.—p. 111.

42. **Significance of Blood Platelets.**—Lee and Minot make the deduction that the blood platelets play a very important rôle in initiating coagulation. Apparently blood uncontaminated by tissue juice will not clot as long as the blood platelets are intact. With sufficient alteration in the blood platelets or some portion of them, either from some physical change or from some substance given off by the blood platelets, the phenomenon known as coagulation begins and the development of that phenomenon is associated with further changes in the blood platelets, which then assist in the progress of coagulation. The active principle of coagulation residing in the platelets, while insoluble in salt solution, is soluble in strong saline solution or in distilled water. Such solutions of blood platelets assist in coagulation in the same manner as the blood platelets. Unlike most of the other active coagulating substances, the blood platelets can be subjected to considerable heat (boiling for fifteen minutes) without seriously affecting their activity in promoting coagulation. There are in particular two pathologic conditions which can be attributed to abnormalities of the platelets, namely, purpura hemorrhagic and hemophilia. Since purpura hemorrhagica is intimately associated with a diminution of platelets, and since all of the symptoms are due to platelet deficiency, the rational treatment consists of an attempt to supply the platelet defect. It frequently happens that tissue juice from any source, from fresh raw beef, for example, is of great value when applied locally to a bleeding mucous membrane in this condition. In typical hemophilia there is a hereditary defect in the blood platelets. The defect consists of a slow availability of the platelets for the purposes of coagulation. In hemophilia there are blood platelets in normal or often in slightly increased numbers. Unlike purpura hemorrhagica, in which the blood platelets are normal in their activity but greatly diminished in numbers, the blood platelets in hemophilia are normal in numbers but abnormal in their activity. The direct therapeutic indication in hemophilia is exactly that as in purpura hemorrhagica, namely, the supply of normal platelets. Likewise, locally, tissue juice, may be used with marked benefit.

43. **Congenital Megacolon.**—One of Hamann's patients, a boy of 15 years, had had no fecal evacuation for some two months prior to admission to the hospital. He had attacks of prostration at times, with rapid and feeble pulse. His appetite was fairly good; there was no pain, dyspnea or vomiting. A little over a month after a preliminary colostomy a second operation was done for the purpose of removing the enlarged part of the colon. The artificial anus was first closed, then the abdomen was opened through the former incision. The large intestine was divided at about the middle of the descending colon in which the intestine was about normal in size, and was then pulled out of the pelvis, that is, straightened as much as possible so as to "take up the slack," after which it was divided about 5 inches from the anus; at the lower point of division the bowel was 3 inches in diameter. The ends of the bowel were closed and a lateral anastomosis made on the left side of the rectum. The remaining portion of the large intestine was normal in caliber. Recovery after this operation was uninterrupted. The boy is now quite well and there are regular bowel movements, without the use of cathartics or enemas. The second patient was 2½ years of age. About 10 inches of the large intestine, comprising mainly the sigmoid flexure, were removed, the ends of the bowel closed and a lateral anastomosis made. The child died of peritonitis at the end of a week. In this case a marked enlargement of the bladder was also present.

44. **Hodgkin's Disease Involving Stomach.**—The type of involvement of the stomach in Reimann's case was that of endothelial hyperplasia, fibrosis and lymphocytic infiltration. The mucosa showed a small ulcerated area extending half way down to the muscularis mucosae with irregular steep edges and a small amount of débris on the surface. Fairly well localized to an area about 1 cm. across were seen the endothelial cells and lymphocytes streaming from the submucosa and muscularis, invading between the glands in a dense, closely packed, diffuse manner, compressing and distorting the architecture of the glands. Fibrosis was more evident in the submucosa and muscularis, in which it existed as fine diffuse fibrils and as more closely packed strands. The endothelial cells and lymphocytes replaced muscle bundles and invaded the lymphatic channels, following them very closely. The type of endothelial cell was the same as that of the lymph nodes, and the lymphocytes presented the usual picture. Very few of the giant cells were present and fewer eosinophils. The edges of the infiltration were quite sharp, and with the exception of short prolongations into the lymphatics channels, ended abruptly. On either side a normal stomach wall was seen. A search for bacilli in Gram-Weigert preparations resulted unsatisfactorily; a few broken rods were found which could not be identified as organisms. In spite of definite ulceration there were no symptoms referable to the stomach. The patient is the youngest of the cases of this type on record; he was 14 years of age.

Delaware State Medical Journal, Wilmington

December, 1916, VII, No. 13

48 Abdominal Cesarean Section. W. Wertenbaker, Wilmington.—p. 6.

Florida Medical Association Journal, Jacksonville

March, III, No. 9

49 Osteochondritis Deformans Juvenilis. E. Jelks, Jacksonville.—p. 257.
50 Treatment of Fractures of Humerus and Femur; Use of Autoplastic Graft. H. C. Dozier, Ocala.—p. 259.
51 Intestinal Obstruction; Its Diagnosis and Treatment; Report of Cases. J. A. Simmons, Arcadia.—p. 264.
52 Intestinal Obstruction from Gallstone; Report of Case. R. R. Sullivan, Lakeland.—p. 269.
53 Surgery as a Future. J. S. Helms, Tampa.—p. 270.
54 Senility. W. C. Chowning, New Smyrna.—p. 273.
55 Factors Influencing Death Rate in Surgical and Medical Appendicitis. R. R. Kime, Lakeland.—p. 274.

Georgia Medical Association Journal, Augusta

March, VI, No. 11

56 *Removal of Foreign Bodies from Globe by Electromagnet. F. P. Calhoun, Atlanta.—p. 213.
57 Hygiene in Prophylaxis and Treatment of Eye Diseases. C. Stockard, Atlanta.—p. 219.
58 Treatment of Concomitant Squint. A. B. Mason, Waycross.—p. 223.
59 Vincent's Fusiform Bacillus and Its Pathology. H. M. Lokey and A. W. Gould, Atlanta.—p. 227.

60 Importance of Ocular Examination in Diagnosis of Constitutional Disorders. E. S. Osborne, Savannah.—p. 231.
61 Dysmenorrhea and Its Nasal Relations. W. Lapat, Savannah.—p. 232.
62 Congenital Deaf Mutes Hearing and Conversing Over Long Distance Telephone. M. M. Stapler, Macon.—p. 234.

56. Abstracted in The Journal, May 6, 1916, p. 1491.

Journal of Bacteriology, Baltimore

March, II, No. 2

63 Diphtheroid Group of Organisms; Their Relation to Streptococci. R. R. Mellon, Boston.—p. 81. To be continued.
64 Colorimetric Determination of Hydrogen Ion Concentration and Its Applications in Bacteriology. W. M. Clark and H. A. Lubs, Washington, D. C.—p. 109.
65 Soil Flora Studies. H. J. Conn, Geneva, N. Y.—p. 137.
66 Studies in Nomenclature and Classification of Bacteria. R. E. Buchanan, Ames, Iowa.—p. 155.
67 Evolution and Relationship of Great Groups of Bacteria. I. J. Kligler, New York.—p. 165.
68 Study of Five Members of Septicemia Hemorrhagica; Their Action on Various Carbohydrates. A. M. Besemer, Ithaca, N. Y.—p. 177.
69 Large Numbers of Bact. Abortus Var. Lipolyticus Which May Be Found in Milk. A. C. Evans, Washington, D. C.—p. 185.
70 Creatinin Production by B. Coli and B. Typhi. H. J. Sears, San Francisco.—p. 187.

Journal of Cutaneous Diseases, Boston

March, XXXV, No. 3

71 *Nitrogen Metabolism of Two Cases of Eczema. J. F. Schamberg and G. W. Raiziss, Philadelphia.—p. 135.
72 Histopathology of Hyperidrosis Circumscripta. R. L. Sutton, Kansas City, Mo.—p. 154.
73 Use of Phenol in Dermatology. D. W. Montgomery, San Francisco.—p. 157.
74 Unusual Variety of Vitiligo (Leukoderma Acquisatum Centrifugum). J. B. Shelmire, Dallas, Texas.—p. 163.
75 Case of Lichen Planus Linearis Unilateraiis. J. F. Auner, Des Moines, Iowa.—p. 166.
76 Hypertrichosis and Roentgen Ray. G. M. MacKee, New York.—p. 171.

71. **Nitrogen Metabolism of Eczema.**—Analysis of the results obtained by Schamberg and Raiziss in the metabolic study of two cases of eczema reveals the fact that two different clinical types of disease, which, in the present imperfect state of their knowledge of eczema, are grouped under this heading, exhibit quite a different picture with respect to their nitrogen metabolism. While both cases exhibit a tendency to retain the nitrogen of the ingested food as a result of, or preliminary to, the exfoliation of scales, they differ greatly in regard to the extent of nitrogen retention and its relationship to the protein loss in the scales. In one case the tendency to retain nitrogen is considerably less pronounced than in psoriasis. On a low nitrogen diet the patient was not in a position to maintain even a nitrogenous equilibrium, despite the fact that large amounts of nitrogen were steadily being lost in the exfoliated epithelium. Furthermore, on an ordinary nitrogen diet, the patient was not always able to retain sufficient nitrogen to cover wastage of protein lost in the scales. As a result, the patient lost large amounts of body protein. In psoriasis, on the other hand, during and after the outbreak of the eruption, much of the food nitrogen is retained and the patient remains ultimately in a positive nitrogenous balance. The second case presented a metabolic picture which is like that observed in psoriasis.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

March, XLV, No. 3

77 Pituitary Tumor with General Edema in Two Cases of Nanism (Paltauf and Pituitary Type). W. M. Kraus, New York.—p. 193.
78 Anomaly in Pyramidal Decussation. T. G. Inman, San Francisco. p. 214.
79 *Some Unusual Features of Jacksonian Epilepsy. S. Leopold and E. M. Auer, Philadelphia.—p. 220.
80 Case of Dementia Praecox Associated with Uncinariasis. E. D. Bondurant, Mobile, Ala.—p. 228.
81 Gold Sol Diagnostic Work in Neurosyphilis (Psychopathic Hospital, Boston). H. C. Solomon and E. E. Southard, Boston.—p. 230.
82 *Heredity in St. Vitus' Dance. C. W. Burr, Philadelphia.—p. 237.

79. **Unusual Features of Jacksonian Epilepsy.**—The authors cite a number of cases. In one there was an association of diphtheria with jacksonian epilepsy; in another there was association with unilateral sensory phenomena occurring in hydrocephalus; in a third association of thalamic pain, unilateral in character. Unilateral spasm of the face involving chiefly the muscles of the forehead and eyes without involvement of the opposite side has long been considered as a differential diagnostic point between spasm of peripheral and central origin. That such spasm can be of cortical origin is seen in a fourth case in which it is probable that the irritation was not sufficient intensity to cause bilateral involvement. A fifth case showed that general convulsions may appear as local convulsions, owing to the fact that part or the whole of one hemisphere is thrown out of action due to another cerebral lesion, as is seen frequently in the cases of infantile hemiplegia associated with epilepsy where the paralyzed limbs are in a state of spastic contracture and in which the general convulsion makes itself more apparent on the sound side. In a sixth case there occurred jacksonian convulsions from lesions distantly located from the motor cortex. That a jacksonian convulsion may be the initial symptom of a cerebral syphilis was strikingly illustrated in still another case. In another case of cerebral syphilis practically the only symptom present for more than four years was the jacksonian convulsion. The convulsions occurred at irregular intervals during this period. They showed at times the picture of a status epilepticus. There was no progression in the severity or frequency of the attack. The eyegrounds showed a choroiditis. The Wassermann of blood and spinal fluid was negative, but the globulin test was positive and there was a cell count of 20.

82. **Heredity in St. Vitus' Dance.**—Burr reports three cases of chorea occurring in one family, two of the patients being a niece and son, respectively, of the first patient. The family history disclosed the fact that seven cases had occurred in three generations. Only one of these was in a male, and this patient and his mother furnish the only instance of parent and son both being affected.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

March, IX, No. 6

83 *Effects of Strychnin, Cocain and Quinin on Vas Deferens. J. A. Waddell, Charlottesville, Va.—p. 279.
84 *Pharmacology of Ureter. Action of Hydrastin, Hydrastinin, Cotarnin, Emetin and Some Pyridin Derivatives; Further Aanalysis of Opium Action. D. I. Macht, Baltimore.—p. 287.
85 Device for Overcoming Clotting During Direct Blood Pressure Experiments. W. H. MacCraken and I. Werness, Detroit.—p. 305.
86 *Endermic Reactions. T. Sollmann and J. D. Pilcher, Cleveland.—p. 309.

83. **Effects of Strychnin on Vas Deferens.**—This paper deals with the effects of these drugs on the excised vas deferens and is, therefore, a study of the peripheral action of these agents. Strychnin in concentrations of from 1:30,000 to 1:6,000, produced rhythmic contractions and increased the tone in the quiescent organ, and increased the rate, amplitude, and tone in the rhythmically active. Cocain produced an increase in the rate, tone and amplitude of the rhythmically active organ, and a rise in tone and rhythmic activity were excited in the quiescent. The change in tone preceded that in rhythmicity. After very large doses, a rigor-like effect was observed. Quinin in concentrations of from 1:30,000 to 1:10,000, on the quiescent organ produced rhythmic contractions and in some cases moderately raised the tone; while on the rhythmically active it increased the rate, producing an intermittent, rhythmical condition in which periods of rapid movement with elevated tone alternated with ones of quiescence. The latent period was longer than after strychnin, and the effect of the drug was quickly abolished by placing fresh fluid in the bath. Sustained effect on tone was not observed.

84. **Pharmacology of Ureter.**—According to Macht, hydrastin and emetin exert a papaverin-like action on the ureter, inhibiting its contractions and relaxing its tonus. Hydrastinin and cotarnin exert a morphin-like action on the ureter, stimulating its contractions and increasing its tonus. Piperidin hydro-

chlorid and arecolin and coniin produce a stimulation of the ureteral contractions and an increase in its tonus. These observations with a large number of experiments on opium alkaloids lead Macht to a general hypothesis that the inhibitory action of the papaverin group of opium alkaloids on the ureter is due to their benzyl constituent, and that the stimulating action of the morphin group is due to their piperidin constituent.

86. **Endermic Reactions.**—In planning a study of the effects of iodism on the response to irritants Sollmann and Pilcher had recourse, among other measures, to the application of drugs to the scarified skin. Peculiar and striking reactions were produced. Sixty-two agents, including distilled water, were used. Summarizing the results noted it may be said that the application of drugs to the scarified or punctured skin produces local reactions, belonging to several distinct types. The most important of these are: urticarial wheals, vascular changes, smarting or pain. Only a few substances produce urticaria. The most typical are; histamin, peptone, morphin and its esters, atropin, calcium chlorid, urea and formaldehyd. A comparison of the substances that do and do not produce urticaria shows that this is not related to vasoconstriction or vasodilatation, or capillary paralysis, or to acidosis, or to various forms of inflammatory or sensory irritation, or to osmosis. In fact, it does not appear connected with any known chemical or pharmacologic relations; but is presumably due to a specific increase of the permeability of the capillaries. Certain of the substances that produce local urticaria are also known to be effective systemically. However, many substances that may produce cutaneous reactions on systemic administration fail to do so on local application. With these, the systemic reactions are probably indirect. Blanching is produced by certain vasoconstrictor agents (epinephrin, pituitary, hydrastin), but fails with others that act peripherally (barium, tyramin, etc.). Nitrites do not cause vasodilatation. Several distinct groups of sensory actions are distinguishable, such as the itching of the urticarial agents, the smarting and burning of the simple irritants; the formication of aconite, and the lancinating pain of veratrin.

Medical Record, New York

March 31, XCI, No. 13

87 Management of Chronic Dyspeptic. C. S. Fischer, New York.—p. 529.
88 Susceptibility to Furuncle. D. W. Montgomery and G. D. Culver, San Francisco.—p. 533.
89 Trichinosis Complicated by Encephalitis. L. Bloch and G. B. Hassin, Chicago.—p. 537.
90 Neuritis and Perineuritis with Reference to Newer Methods of Treatment. W. Martin, Atlantic City, N. J.—p. 540.
91 Case of Persistent Priapism. A. L. Wolbarst, New York.—p. 542.
92 War Surgery in Carpathians. B. F. Morowitz, New York.—p. 543.

Military Surgeon, Washington, D. C.

April, XL, No. 4

93 Sir Thomas Lauder Brunton (1844-1916); An Apostle of Preparedness. F. H. Garrison.—p. 369.
94 *Mental and Physical Activity with Reference to Nutrition and Blood Pressure. R. G. Heiner.—p. 378.
95 Civil Physicians and National Defense. H. Page.—p. 386.
96 Military Dogs. E. C. Jones.—p. 395.
97 Present Status of Artificially Treated Drinking Water in Field. W. Lyster.—p. 401.
98 Physical Examination of Large Bodies of Men. C. Willcox.—p. 411.
99 Occurrence of Endamebic Dysentery in Troops Serving in El Paso District from July, 1916, to December, 1916. C. F. Craig.—p. 423.

94. **Mental and Physical Activity and Blood Pressure.**—The facts brought out by Heiner are: (1) that exercise after meals raises the blood pressure and that activity, either mental or physical, after eating with the warding off of any inclination to sleep soon after meals, if continued over a period of several days will heighten the blood pressure considerably. This heightened blood pressure compensates for the need of extra circulation in order to supply the brain, muscles and digestive tract all at the same time. When the blood pressure is raised by this method of living the missing of a meal or sleeping after a meal will cause a fall in blood pressure, and, in the case in which sleeping after a meal occurs, there will be a lack of blood for the digestive organs and consequent failure in digestion with disagreeable symptoms on awakening; (2) when the heart, kidneys and digestive organs are sound, but some part of the body, as the lungs, is being destroyed by a chronic infection, as tuberculosis, which an increase of circulation will benefit, forced feeding carried out by exercise or stimulation after meals will give better results than forced feeding given without regard to time of exercise or stimulants; (3) living without food for a few days is not as unpleasant an experience as one would be led to believe by the symptoms of faintness and intense hunger which come on during the first few hours; for these not only pass away entirely, but there is a feeling of well being and desire to be active, and at the beginning of the second period of starvation there will be little if any of the disagreeable symptoms experienced at the start of the first period. During the starvation period practically everything is digested and absorbed from the alimentary tract and the digestive organs come to rest. During the rest and feeding period all the energies of the system are used in the process of digestion, and there will be very little of the food left undigested to putrefy and cause autointoxication.

New Orleans Medical and Surgical Journal

April, LXIX, No. 10

100 Uncinariasis Investigation in Antimony Mines, Sinhwa, Hunan Province, China. W. S. Chow, China.—p. 672.
101 Treatment of Burns with Paraffin Mixtures. R. Matas, New Orleans.—p. 677.
102 Gastro-Enterology for General Practitioner. A. L. Levin, New Orleans.—p. 688.
103 Eighteen Months' Observation on Mental and Physical State of Children Following Removal of Tonsils and Adenoids. C. J. Bloom, New Orleans.—p. 695.
104 Early Case of Leprosy. P. L. Querens, Preston, Cuba.—p. 706.
105 *Appendectomy via Inguinal Canal. J. T. Nix, Jr., New Orleans.—p. 709.

105. **Appendectomy via Inguinal Canal.**—Nix claims that while in the cadaver, the appendix is nearest McBurney's point, in life the healthy appendix is always external and below, and in appendicitis, the vermiform process lies near the internal abdominal ring. Therefore he removes the appendix via the inguinal canal. Briefly, the technic is as follows: Make an incision ½ to 1 inch in length over the inguinal canal, the lower end being about 1 inch from the right pubic spine. Separate the fibers of the external oblique, but leave the ring intact. Retract the divided aponeurosis. The strong fibers of the conjoined tendon are separated as in the gridiron technic. Retracting the divided tendon exposes a little pad of fat which protects the internal abdominal ring and separates the peritoneum at this point from the abdominal wall. By retracting upward with a small curved forceps the peritoneum is caught and divided with scissors, thereby opening the abdominal cavity. The lower border of the proximal colon can be seen through the incision. With very little difficulty the base of the vermiform process is reached and the appendix delivered into the opening. If it is retrocecal and adherent, delivery is impossible, and the retrograde subperitoneal enucleation can be easily performed. A single suture closes the incision. The operation is done under local anesthesia. Fifty-one patients have been operated on by Nix by this technic during the past year.

New York Medical Journal

March 31, CV, No. 13

106 Stuttering Relieved by Reversal of Manual Dexterity. J. H. Claiborne, New York.—p. 577.
107 Treatment of Abortion. G. L. Brodhead, New York.—p. 581.
108 Frequency and Significance of Dysfunction of Internal Secretory System in Feebleminded. C. P. McCord, Detroit, and H. A. Haynes, Lapeer, Mich.—p. 583.
109 Incompetency of Ileocecal Valve, Complication of Gastric Ulcer. L. G. Cole and J. P. Hoguet, New York.—p. 588.
110 Clinical Employment of Porcelain Filter. W. J. McGurn, Boston. p. 590.
111 Blood Pressure in Clinical Medicine. M. Schulman, New York.—p. 592.
112 Ear and General Practitioner. L. Fisher and I. H. Jones, Philadelphia.—p. 597.
113 Abdominal Cesarean Section for Toxemia of Pregnancy. T. H. Cherry, New York.—p. 600.
114 Impotence. B. P. Thom, New York.—p. 601.

Public Health Journal Toronto

March, VIII, No. 3

115 Value of Milk Depots. J. Tessier, Quebec.—p. 63.
116 Meningococcus Meningitis. J. G. Fitzgerald, Toronto.—p. 67.
117 Modern Conceptions of Fumigation After Communicable Diseases. F. Adams, Toronto.—p. 74.
118 Economic Value of Preventive Medicine. J. O. McCarthy, Toronto.—p. 78.

Psychiatric Bulletin, Utica, N. Y.

January, II, N. S., No. 1

119 Experimental Pathology of Central Nervous System Studied with Vital Azo Dyes. J. T. MacCurdy, New York.—p. 1.
120 *Clinical Studies in Epilepsy. L. P. Clark, New York.—p. 21.

120. **Studies in Epilepsy.**—The results of Clark's clinical study of essential epilepsy are briefly as follows: There exists a more or less definite type of constitutional makeup in epileptics. The essential defects of instincts are egocentricity, supersensitiveness, an emotional poverty, and an inherent defect of adaptability to normal social life in its broadest significance. The main defect is an inheritable one. This makeup is the primary or original mental endowment of the potentially epileptic individual. It is accentuated and made the more obvious by the further advance of the disease only when seizures develop. It is then often spoken of as the "mental stigma" of the disease. The attacks are not solely responsible for epileptic deterioration, but the seizures are themselves symptoms and exhibitions of the deteriorating disorders. The seizures do not always indicate the progress and degree of deterioration in any given case; that is, the number and severity of fits in a given case may not be an index to the amount of deterioration, nor may one postulate the severity of seizure reaction in a particular case by the type of deterioration.

The precipitating mental factors that often seem to bring about epileptic reactions in a potential epileptic are types of stress and annoyance, causing a loss of spontaneous interest, and an intensive regression to day-dreaming, lethargies and somnolence. The attack occurs at the final break of a too severe tension, and psychologically may be viewed as an intense reaction away from the intolerable irritation, a regression to a primitive mentality comparable to that of infancy or intra-uterine life. The therapeutic suggestions for a mental therapy in essential epilepsy would be to overcome, by proper training and education, the earliest beginnings of epileptic reactions in childhood. More particularly should the training concern itself with the eradication, so far as possible, of the defective instincts shown in egocentricity, supersensitiveness and rigidity of adaptation to the home and community. Even though many epileptics may be quite deteriorated, it is still often possible to train back their once discarded mental interest and thus restore much of their emotional and mental dilapidation. A series of arrested cases of frankly pronounced epilepsies are cited to show the mental mechanism by which arrests have been brought about.

South Carolina Medical Association Journal, Greenville

March, XIII, No. 3

121 Venereal Prophylaxis. M. H. Wyman, Columbia.—p. 488.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

March, XXV, No. 3

122 Fractures of Long Bones. F. H. Clark, El Reno.—p. 65.
123 New Sterilization Operation on Female Tubes. A. L. Blesh, Oklahoma City.—p. 73.
124 Transverse Incision in Appendix Operations. H. L. Charles, Atchison, Kan.—p. 74.
125 Hemorrhoidectomy. J. M. Cooper, Oklahoma City.—p. 79.
126 Excessive Absorption of Fat of Orbit After Enucleation of Eye; Its Cause and Prevention. J. H. Thompson, Kansas City, Mo.—p. 81.
127 When to Operate in Disease of Biliary Tract. J. G. Sheldon, Kansas City, Mo.—p. 84.
128 Malignant Growths of Face. D. W. Goldstein, Fort Smith, Ark.—p. 85.

Vermont Medicine, Rutland

March, II, No. 3

129 Sinuses and Fistulae; Importance of Their Careful Exploration and Resultant Discoveries. G. R. Anderson, Brattleboro.—p. 57.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 10, I, No. 2932

1 *Treatment of Gunshot Wounds of Abdomen. A. L. Lockwood, C. M. Kennedy, R. B. Macfie and S. F. A. Charles.—p. 317.
2 *Three Hundred Gunshot Wounds of Abdomen. J. Fraser and H. Drummond.—p. 321.
3 Abdominal Injuries in Casualty Clearing Station. A. Don.—p. 330.
4 Indian Operation of Couching for Cataract. R. H. Elliot.—p. 334.

1. **Treatment of Gunshot Wounds of Abdomen.**—The conclusions drawn by the authors from observation of 356 cases with operation and 144 not operated on are that wounds of the large vessels to the liver, kidney and spleen are fatal before they can come to operation. Wounds involving the pancreas are seldom seen on the operating table, by reason, perhaps, of the contiguity of the organ to large vessels; only one case was seen by the authors. In that a foreign body was lodged in the tail of the pancreas. Anteroposterior wounds, especially in the epigastrium, are least dangerous, and wounds from side to side, especially low down, are dangerous. Wounds of solid viscera are not so dangerous as those of hollow viscera. Patients who come to operation with a herniated loop of bowel exposed do badly, especially if much bowel is lying exposed; the same is true when the stomach is partially herniated. Wounds of the stomach, colon, and especially the small intestine, require exploration, but in posterior wounds involving the colon the greatest care should be taken not to convert a retroperitoneal condition into an intraperitoneal one. Wounds of the liver and kidney should be determined as such only, and then treated expectantly, doing no more than exploring and cleaning up the track, and not that if probably a through and through wound produced by an undistorted rifle bullet or shrapnel ball. Avoid resection. End-to-end anastomosis is preferable to lateral when resection is essential. Wounds of the diaphragm are not necessarily fatal, nor even to be greatly feared. Careful repair gives excellent results. Multiple drainage tubes are rarely necessary, and always to be avoided if possible. Abdominal lavage is a dangerous practice. Never leave free, unprotected gauze in the abdomen. Paul's tube should be relegated to the museum, except in very rare cases. Speed in operating is essential, not only for the benefit of the patient, but because of the demands of scores of less vitally wounded men requiring attention during an active offensive. Resection for fecal fistula is better done late. The results quoted in this article are proof that abdominal surgery is at least as profitable in a military sense as the surgery of compound fractures of the femur, skull, etc.; the patients who recover make a rapid and complete recovery and become a satisfactory military asset sooner than the men who have been disabled by compound fractures of the skull, etc.

2. **Id.**—The authors are convinced that, in the the vast majority of cases of penetrating wounds of the abdomen, operative measures offer the best chance of success. They qualify the statement by excluding from the category uncomplicated wounds of the liver and certain wounds of the kidney and spleen. When the wound affects the hollow viscera of the abdomen it is only as the rarest exception that a spontaneous recovery occurs. When these patients arrive in the hospital they are almost universally in a state of intense collapse. The authors have therefore found it advisable to wait for a period of from one to two hours, until the increased shock of the journey has subsided. To this rule they make one exception, those cases which show evidences of rapid or progressive hemorrhage; in such cases the risks attendant on immediate operation are undertaken. Occasionally these patients arrive in the hospital having been very heavily dosed with morphin, which greatly militates against their eventual recovery; very rarely should the amount of half a grain be exceeded. During the operation every precaution is taken to minimize the degree of shock. Immediately before the operation commences the administration of subcutaneous saline is begun, and it is continued throughout the operation;

3 to 4 pints of fluid are frequently given in this way. They have employed closed ether anesthesia and have also made great use of the method of warmed ether administration, using the apparatus supplied by Mayer and Meltzer. During the past four months the authors have had considerable opportunity for using ether intratracheal anesthesia. In surgery of the upper abdomen they have found it very pleasant to work with, but do not favor it as a general routine in abdominal surgery. There is a type of case which is, they believe, suitable for intravenous ether anesthesia, namely, patients who are obviously very collapsed, and yet who demand urgent operation.

Edinburgh Medical Journal

March, XVIII, No. 3

5 Grafting or Transplantation of Tissues. A. Thomson.—p. 169.
6 *Incidence of Bovine Infection of Tuberculosis in Children. C. Y. Wang.—p. 178.
7 Pathology of So-Called Sprains of Ankle. E. F. Cyriax.—p. 196.
8 Acute Intestinal Obstruction. A. Miles.—p. 200
9 Case of Violent Screaming and Photophobia Caused by Dentition. J. Thomson.—p. 203.
10 Two Cases of Congenital Symmetrical Perforation of Parietal Bones. D. M. Greig.—p. 205.

6. **Bovine Infection of Tuberculosis in Children.**—A bacteriologic investigation into 281 cases of various clinical forms of tuberculosis in Edinburgh conducted by various workers has resulted in the isolation of the bovine tubercle bacilli in 80 out of 102 patients (78.4 per cent.) under the age of 5 years; in 45 out of 64 patients (70.3 per cent.) between 5 and 16 years, and in 9 out of 115 patients (7.8 per cent.) above 16 years. Abdominal tuberculosis and tuberculous meningitis together are responsible for about 90 per cent. of the summed mortality from tuberculosis in children under 1 year, and about 75 per cent. in children between 1 and 5 years. The material from 9 children dead from these two diseases was examined bacteriologically, and from 6 the bovine type of tubercle bacillus was isolated. A large percentage of children in Edinburgh are fed wholly or partly on cow's milk, and in a great number of instances the milk is consumed raw. These two incidents, together with the high percentage of tuberculous cow's milk, give an explanation of the prevalence of abdominal tuberculosis in Edinburgh, and, further would account for the infection in the six cases of abdominal tuberculosis and tuberculous meningitis from which bovine tubercle bacilli were obtained. Children who were bottle fed on raw cow's milk, and also those fed on boiled cow's milk, were tested with tuberculin; it was found that 37.5 per cent. of the first group reacted, as against 15.4 per cent. of the second group. If the reaction be accepted as an indication of the presence of an infection in the body, the result, in a measure, affords corroboration of the bacteriologic findings.

Journal of Tropical Medicine and Hygiene, London

March 1, XX, No. 5

11 Prophylaxis in Bilharziasis. F. G. Cawston.—p. 49.

Lancet, London

March 10, I, No. 4880

12 Indian Operation of Couching for Cataract. R. H. Elliot.—p. 361.
13 Agglutination Curve and Its Importance in Diagnosis of Typhoid and Paratyphoid in Inoculated Persons. G. Dreyer and A. C. Inman.—p. 365.
14 *Simple Ulcer of Esophagus. J. B. Christopherson.—p. 369.
15 Chronic Empyema; Value of Decortication of Lung. W. H. Battle.—p. 371.
16 Repair of Large Bony Defects in Skull by Means of Metal Plate. C. Noon.—p. 373.
17 Case of Acute Osteomyelitis of Spine. L. P. Gould.—p. 374.
18 Closure of Colotomy Openings Performed for Wounds of Rectum. P. Lockhart-Mummery.—p. 376.
19 Use of Bismuth Iodoform Paraffin Paste Following Operation of Bone Grafting. H. S. Brander.—p. 377.
20 Suturing of Fractured Bones by Absorbable Ligatures. K. H. Digby.—p. 378.
21 Use of Phylacogen in Puerperal Sepsis. J. H. Reynolds.—p. 378.

14. **Fatal Hemorrhage in Ulcer of Esophagus.**—A case of fatal hematemesis is reported by Christopherson in a man aged 36, which occurred in July, 1916, at Khartoum, and it was due to an ulcer of the esophagus perforating the descending part of the arch of the aorta. The patient consulted a medical man because he had, he thought, something in the throat, and, as he had first noticed it after dinner on the previous evening when he had partaken of a dish of soft fish, he thought that he might have a fish-bone lodging in his throat. There being no clinical evidence of fish-bone or foreign body, he was put to bed and given expectant treatment. His symptoms were as follows: He felt as if there was "something in the chest"; he felt it when he swallowed, more especially when he swallowed "nothing" and also when he drew a deep breath. He located this sensation, which was more discomfort than pain, inside the chest behind the sternum, at a place which would correspond to the level where the ulcer was eventually found. He also had some pain behind, between the shoulder blades. There was nothing to be seen in the throat, no physical signs of anything amiss in the chest, and, in fact, the only symptoms indicating that there was anything wrong were a rise of temperature to 100 F., a coated tongue, and discomfort, sometimes amounting to a little pain, on swallowing or drawing a deep breath. Seven days later he had a large hemorrhage, and one day after this the fatal hemorrhage occurred. At the necropsy it was found that the hemorrhage came from an esophageal ulcer which had become adherent to the descending part of the arch of the aorta, in the neighborhood of the bifurcation of the trachea and which had penetrated the arterial wall. There were two other ulcers in the esophagus, both situated at the cardiac end just within the esophagus, one of which had healed with a cicatrix, and the other, a larger oval one, in the process of healing.

Medical Journal of Australia, Sydney

February 17, I, No. 7

22 *Case of Friedreich's Disease. W. F. Litchfield, O. Latham and A. W. Campbell.—p. 135.
23 Cirrhosis of Hemochromatosis or Bronzed Diabetes. J. C. Verco.—p. 140.

February 24, No. 8

24 Hints on Life Assurance. J. C. Verco.—p. 155.
25 Simple Inhaler. L. W. Bickle.—p. 159.
26 Ulceromembranous Stomatitis. H. S. Marsh.—p. 160.

22. **Friedreich's Disease.**—The microscopic examination of the brain and spinal cord in this case showed a relatively old sclerosis affecting parts of the posterior tracts, in which the interstitial tissue had assumed an unusual type, resembling that found in disseminated sclerosis. An irregular but less marked sclerosis, of considerable duration, was also present in the lateral regions of the cord. This sclerosis involved areas which do not correspond to sharply defined tracts, and was associated with a much more recent degeneration, revealed by Marchi's method of staining. These changes could be traced beyond the medulla, and there were faint indications of them in the cerebrum. There were no marked changes in the pia-arachnoid, blood vessels or lymph glands of the cord or brain. Moreover, there was a normal condition of the nerve cells, save a few in Clarke's column and the large cells in the postcentral gyrus, as well as a few in the posterior spinal ganglia. A gross atrophy of the cerebellum was not found and the dentate nuclei, the olives and red nuclei were quite normal. The changes described bear a certain pathologic resemblance to Gower's ataxic paraplegia, especially in the escape of the posterior root zones and ventral fields.

Archives des Maladies du Cœur, etc., Paris

February, X, No. 2, pp. 49-96

27 *Variations in the Heart Rhythm and Arterial Blood Pressure with Change of Position, Effort and Fatigue, Considered from Standpoint of Aptitude for Military Service. C. Laubry and P. Lidy.—p. 49.
28 *Effects on the Heart Rhythm of Severing the Cervical Spinal Cord. (Effets de la section de la moelle cervicale sur le rythme cardiaque.) M. Petzetakis.—p. 66.
29 *Action of Periarterial Sympathectomy on the Peripheral Circulation. R. Leriche and J. Heitz.—p. 79.

27. **Test Variations in Heart Rhythm and Blood Pressure.**—Laubry and Lidy state that examining men for fitness for military duty is throwing light on the reserve powers of the heart. They relate here the results of numerous tests, first

describing the findings in twenty young soldiers with apparently sound cardiovascular apparatus. They compare them with those from numbers of young men with various heart and vascular affections or during extreme fatigue or during exercise and after changes of position. Curves are given for better comparison. Among the conclusions drawn is that the test variations in rhythm in the normal are within such a wide range that an increase or decrease in the heart beat or the lack of any change or even a delay of three or four minutes before return to the previous condition cannot be regarded as indicating pathologic conditions under change from the erect to the reclining position or vice versa, and running 100 meters with the gymnasium step, followed by reclining. But pathologic conditions may be surmised if the delay before return to the normal rhythm is longer than three or four minutes. At the same time they are unable to say whether the abnormal findings are due to the weakness of the heart itself or to nervous influences. If the same findings are obtained on repetition of the test at considerable intervals, the decision is against the man's being fit for active service. No diagnostic deductions could be drawn from the tests of the blood pressure; the responses were practically the same in the healthy and in those with known heart disease. The blood pressure was examined at the same time as the heart rhythm and again after the man had flexed the trunk on the pelvis twenty times. They add that this negative conclusion is not surprising when we take into consideration the multiplicity of factors, mechanical, nervous, cardiac and vasomotor which cooperate in influencing the blood pressure. The sphygmomanometer findings may prove misleading unless supplemented by watching over the case and general condition, as a man with hyperthyroidism or polycythemia might give a normal response at a single sphygmomanometer reading.

28. **Influence on Heart Rhythm of Severing the Cervical Spinal Cord.**—Petzetakis reports experiences on dogs which show that severing the cervical spinal cord is followed by symptoms of dissociation of auricle and ventricle functioning, fibrillation and slowing of the heart rhythm. The balance between the accelerator and moderator nerves is upset and the latter assume predominating influence.

29. **Peripheral or Periarterial Sympathectomy.** — Leriche and Heitz apply this term to Jaboulay's method of denuding a segment of the large arteries by tearing away from them the network of sympathetic fibers which enlace them in a continuous sheath. He found this a successful means of influencing mal perforans of the foot (denudation of the femoral artery), and influencing certain neuralgias in the viscera (denudation of the celiac artery). Leriche announced in 1913 that a better effect was obtained by severing the sympathetic fibers, resecting the perivascular sheath over a certain stretch of the artery. Last year they found this measure successful in curing at once and permanently causalgia in the median nerve following a war wound in two cases. For this he resected the sheath of the brachial artery. Encouraged by this success they have been applying this same measure in treatment of paretic and spastic disturbances in the limbs of the reflex type, that is characterized by vasomotor and thermic disturbances, but without the reaction of degeneration. The details of nine cases are tabulated. In one there was intense pain in the median nerve, in the others there was paralysis or contracture of the arm or leg. The technic was the same in each case; the sheath clinging tightly to the artery was separated from it over a stretch of 6 or 9 cm. It is difficult to resect this sheath without tearing it into fragments, and the same points have to be gone over several times to be sure that the lower layers of the nerve network have been removed. The artery contracts to a small cord, but by the next day a vasodilating reaction follows. The temperature of the limb below may run up by 2 degrees C., but the central temperature does not alter. The blood pressure also rises. By the end of two weeks these symptoms have subsided, as a rule, and the artery has resumed its normal aspect. This was ascertained at a later operation on the limb in two cases. Clinical and experimental data harmonize as to the effect produced. They explain it as the result of the subsidence of the resistance hitherto maintained to the passage of the blood stream. The heart impulse is propagated to the periphery entire, until, after days or weeks, vascular tone is regained. See Abstr. 46.

Journal de Médecine de Bordeaux

March, LXXXVIII, No. 3, pp. 41-60

30 The Principles of Prophylaxis of Tuberculosis. X. Arnozan.—p. 43.
31 *The Antituberculosis Institutions in the Gironde Province before the War and at Present. (Les institutions antituberculeuses avant la guerre.) X. Arnozan.—p. 44; (Les œuvres militaires et les projets civils depuis la guerre.) X. Arnozan.—p. 53.
32 *The Tuberculous in the Hospitals. Leuret.—p. 55.

31, 32. **What Is Being Done in Southwestern France to Combat Tuberculosis.**—This entire number is devoted to descriptions of the various sanatoriums and organizations in the Gironde department, aiming to arrest the spread of tuberculosis. Arnozan remarks that among the thousand other problems brought by the war and pressing for solution, the question of what to do with the tuberculous soldiers soon became one of the most important. All provisions made for isolating and caring for them soon proved inadequate for the throngs flocking to them for a three months' course of treatment and training. Tuberculous soldiers are so numerous, at present, he says, especially in the cities, that their participation in social life is indispensable. To isolate them all suddenly would be to dry up an important source of the economic life of the country. Leuret reiterates that outside of the acute phases of this disease, the earning capacity of the tuberculous merchant, workman or farmhand may not suffer materially for years and years. But if the tuberculous soldiers return to indoor and factory occupations, their doom is sealed, while outdoor occupations might result in a clinical cure. Many tuberculous soldiers long to take up farm life, but they have no means nor training for this. Leuret proposes that the state should make it possible for them to return to the land. It would be cheaper in the long run, he insists, than merely palliative measures, such as sanatoriums and hospitals. A central office should be organized to study all the outdoor occupations open to the valid tuberculous, and also an employment bureau to place the men as farmhands, woodsmen, charcoal burners, surveyors, etc. But, better than all, is the plan to set up each tuberculous soldier on a small farm. A colony of such farms at a very low rental would solve the problems of restoring health, self-support and companionship. The house should be planned on the sanatorium model, with separate sleeping room for the tuberculous member of the family. Charitable societies have an ample field here. By this means the country would get the benefit of the strength still left in its tuberculous soldiers and their lives would be lengthened. Left to themselves, they will be apt to drift into crowded factories and sleep in close crowded rooms, sealing their own doom and infecting others.

Presse Médicale, Paris

February 8, XXV, No. 9, pp. 81-88

33 *Amebic Dysentery in France. (L'amibiase chronique en France à la fin de l'année 1916). P. Ravaut.—p. 81.
34 *Thumb Sign of Ulnar and Median Paralysis. (La préhension du pouce dans les paralysies du cubital et du médian.) P. Descoust.—p. 83.
35 The Throbbing in a Felon. (La sensation du doigt qui bat dans le panaris.) A. Gambier.—p. 84.

February 15, No. 10, pp. 89-96

36 *Biliary Fistulas. How to Avoid and How to Treat Them. V. Pauchet.—p. 89.
37 *Intraspinal Injection of Insoluble Calcium and Mercury Salts. A. Carniol (Bucharest).—p. 91.

33. **Chronic Amebic Disease in France.**—Ravaut remarks that the ameba is being found in the stools of an astonishingly large number of men who have chronic bowel trouble. In many cases there does not seem to have been an acute phase of dysentery; the insidious chronic type gradually became installed. The case charts of the men record merely gastro-enteritis with anemia, diarrhea with general weakness or the like. No one seems to have suspected dysentery in the first onset of trouble. The ameba parasites were evidently imported by troops from Africa early in the war, and months elapsed before there was an actual epidemic from them. In the majority of cases the disease starts in the rectum and

colon as usual, but the general symptoms and the frequency of metastasis in the liver render it more a general disease than dysentery. Among the types encountered are those with rheumatic pains and sciatica. In all, the weakness and anemia and recurring bowel disturbance keep up indefinitely, with occasional intermissions, unless the ameba is attacked with emetin and the general condition strengthened with arsenic. He urges that the men with chronic bowel trouble should be segregated in some special hospital. At present they are scattered through the hospitals or have been sent home. The amebiasis being unrecognized and hence untreated, keeps the man a chronic invalid.

34. **Thumb Sign in Ulnar and Median Paralysis.**—Descoust gives three illustrations of the abnormal position of the thumb in holding with both thumbs a sheet of paper when there is paralysis of the ulnar or median nerve or both.

36. **How to Obviate and How to Treat Biliary Fistula.**—Pauchet gives eight illustrations showing the technic advocated by Bevan, Judd and Mayo, and his own method by which accidental injury of the bile passages is avoided. He also discusses how to treat a fistula if one develops.

37. **Intraspinal Injection of Insoluble Substances.**—Carniol remarks that while the intraspinal technic has given good results in the line of anesthesia, as a therapeutic method it has proved disappointing. He thinks this is due to the drug being absorbed too rapidly low down in the intraspinal canal, and he has been experimenting with dogs to learn the fate of comparatively insoluble substances injected into the spinal canal. Dogs bore without apparent disturbance intraspinal injection of massive doses of different comparatively insoluble substances, so that he was encouraged to try the method in the clinic. He treated some epileptics with intraspinal injection of from 30 to 70 cg. of calcium carbonate suspended in 1 c.c. of distilled water or olive oil. There was headache afterward, sometimes intense, and slight backache at the point of injection, but there was no disturbance of the motor functioning, reflexes or sphincters. The patients had been having from two to five seizures a day, but after the injection they had no more for five or eight days and then they recurred less frequently than before. The subsidence of the seizures shows that the drug finally reaches the brain. No benefit from the injections was apparent in four women with chronic mania. He also tried mercury salicylate in some syphilitics by this technic. After injection of from 3 to 7 mg. the reaction was negligible, but the cases are too recent to estimate the therapeutic outcome.

Progrès Médical, Paris

February 17, XXXII, No. 7, pp. 53-60

38 *Remote Results of Skull Wounds. (Le pouls, la tension artérielle et le réflexe oculo-cardiaque dans les suites éloignées des traumatismes craniens.) R. Oppenheim.—p. 53.
39 Nodular Erythema with Inherited Syphilis. A. Vahram.—p. 55.
40 Sadism. (Les allemands et le marquis de Sade.) P. Voivenel.—p. 58.

38. **Remote Results of Wounds of the Skull.**—Oppenheim tabulates the findings as to the pulse, blood pressure and the oculocardiac reflex in forty-seven men who some months or a year or more before had suffered from concussion of the brain; also in eighty-seven whose skull wounds had required trephining. No regularity or constancy in the modifications in these lines could be detected, and series of symptoms indicating vagotony or sympathicotony were rare. At the same time, discovery of an abolished or reversed oculocardiac reflex and of acceleration or retardation of the pulse may afford a valuable basis for estimation of the subjective disturbances of which the wounded may complain.

Revue Médicale de la Suisse Romande, Geneva

January-February, XXXVII, No. 1-2, pp. 5-92

41 Treatment of Diffuse Peritonitis by the Fowler-Murphy Method. C. M. Du Pan and R. Martin.—p. 5.
42 *Tubercle Bacilli in the Urine. (De la bacillurie chez les tuberculeux.) G. Humbert.—p. 35.
43 *Comparative Gravity of Location of Tuberculous Processes in Left or Right Lung. Tecon and Aimard.—p. 45.
44 Physiotherapy at Paris for the Wounded. F. M. Messerli.—p. 49.
45 *Functional Symptoms in Certain Cases of Femoral Hernia and their Relation to Pulmonary Tuberculosis. J. A. Veyrassat.—p. 56.
46 *Periarterial Sympathectomy in Treatment of Mal Perforans. (Du traitement du mal perforant plantaire par la dénudation de l'artère fémorale dans le triangle de Scarpa.) J. A. Veyrassat and A. Schlesinger.—p. 63.
47 Chronic Frontal Sinusitis. A. Pugnat.—p. 68.
48 Fetal Hiccup. (De singultu foetale.) R. Chapuis.—p. 70.

42. **Tubercle Bacilli in the Urine Without Lesions in the Urogenital Apparatus.**—Humbert examined the twenty-four hours' urine, to be sure to avoid erroneous conclusions from too small amounts. He allowed the sediment to settle for twelve hours, using a conical vessel, then decanted and centrifugated the 100 or 150 c.c. at the bottom of the vessel, repeating until he had the whole concentrated into a single tube. The sediment then was separated into two parts. One part was spread on four microscopic slides; the other part was used to inoculate guinea-pigs in case of positive microscopic findings. He thus examined the urine of thirty-eight patients with meningeal or pulmonary tuberculosis and no clinical signs of renal localization, and in a later series forty-seven with pulmonary tuberculosis. In the total forty-three cases of pulmonary tuberculosis, bacilluria was found in only seven, that is, in 16 per cent. Examination with the microscope is not conclusive; only inoculation of animals gives absolutely reliable findings. Hence examination of the urine is of little aid in the diagnosis, as the course of the case confirms the differentiation before the response from inoculation can be obtained. At the same time, the research reported confirms that tubercle bacilli may be found in the urine when the kidneys seem to be entirely intact, even at necropsy. Such cases are rare, but they corroborate the dictum that bacteriologic examination of the urine alone does not permit the diagnosis of renal tuberculosis.

43. **Comparative Gravity of Lesions in Right or Left Lung.**—This communication from Leysin is based on examination of 2,000 cases. The writers had their attention attracted to this subject by noticing that in their cases of artificial pneumothorax, the left lung was the one involved in 61 per cent. of one series of 66 cases and in 77 per cent. of another series of 31 cases. Study of 2,000 cases of tuberculosis under observation for from five months to several years, confirmed the peculiar gravity of left-sided lesions. There are various anatomic reasons for this, the smaller size of the left lung, the obtuse angle formed by the left bronchus and its smaller size, and the fact that the left lung has only two instead of three lobes. The fissures aid in checking the spread of a tuberculous focus. Roentgenoscopy often shows how the interlobar cleft seems to fence in the process. In the 2,000 cases, all but 658 were men. In the 516 cases of the first degree, 142 were in the left lung and 374 in the right. Only 7.5 per cent. of those in the left lung healed, while the total healed cases in the whole group was 83 per cent. Among the 1,052 of the second period, the left lung was affected in 472, and in this group 7 per cent. have died; 14 per cent. have grown worse; in 16 per cent. the process is in a stationary phase; 53 per cent. have improved and 11 per cent. are clinically cured. In the 580 with the process in the right lung, only 3 per cent. have died; 6 per cent. have grown worse, while 63 per cent. have improved and 16 per cent. are clinically cured. There was a cavity in the lung in 323 cases, including 205 in the left lung and 118 in the right. In this group, the left side cavities proved fatal in 38 per cent.; 31 per cent. of the patients have grown worse and 20 per cent. are in a stationary condition. In the right cavity group, 27 per cent. of the 118 cases have terminated fatally; 19 per cent. have become aggravated; 15 per cent. are stationary, 32 per cent. improved and 6 per cent. are clinically cured.

45. **Femoral Hernia and Pulmonary Tuberculosis.**—Veyrassat points out that while inguinal hernia may persist for years without serious functional disturbance, femoral hernia is liable to squeeze and drag on the intestine, setting up chronic irritation and local inflammation which may seriously impair the digestive functions. This in turn may impair the general health, so that the portals are opened to disease of various kinds. His attention was called to the subject by the comparative frequency of femoral hernia in the tuberculous. He assumed at first that it was merely a casual coincidence, but finally came to the conclusion that the femoral hernia

depressed the resisting powers by its disturbance of bowel functioning, and hence paved the way for the tuberculosis. All his patients with femoral hernia had had symptoms on the part of the bowel at times, attacks of pain, nausea and vomiting indicating some transient strangulation of the intestine. Such attacks of cramps and colic, with pains in the kidney region or suggesting lumbago, returned two or three times a year or oftener or at longer intervals, and sometimes resulted in actual strangulation. In almost all his operative cases of femoral hernia there was a history of such attacks or one just before the strangulation. All these disturbances disappeared permanently after the herniotomy. Even when there are no actual attacks, the small femoral hernia may keep up a condition of defective gastro-intestinal functioning by reflex influence, like chronic appendicitis. In some cases reported in detail the cure of the femoral hernia was followed by such improvement in the general health that the patients were able to throw off an apical process. The patients were able to conquer their tuberculous process as soon as digestion became normal. On the other hand, the coughing from a tuberculous process may aggravate a hernia and set up digestive disturbances, maintaining a vicious circle. In short, he declares, there is every reason to make it a principle to correct femoral hernia whenever encountered, both in prevention and in treatment of digestive and other affections. He always operates by the Berger technic and has never had a recurrence in any instance.

46. **Treatment of Mal Perforans by Resecting the Nerve Fiber Sheath of the Femoral Artery.**—Veyrassat and Schlesinger do not attempt to explain the reason why denuding the femoral artery, according to Jaboulay, has such a favorable influence on trophoneurotic lesions below. But their experience has confirmed its efficacy not only for mal perforans but for causalgia, for Raynaud's disease and other painful affections of arterial origin. In a personal case described at length, a man of 82 with tabes in an incomplete form, with triple mal perforans of the right foot rebellious to all treatment, was treated under local anesthesia by denuding the femoral artery in the triangle of Scarpa over an extent of 6 or 7 cm. It was exposed as if to be ligated, and then the tissues were sutured in tiers. The mal perforans at once began to slough off dead tissues and by the end of a week two of the ulcers had healed; the third and last had started to heal by the eighteenth day, and the delighted patient left the hospital the twenty-fifth day. The benefit may be from the stimulus imparted by the intervention to the vasomotor fibers. The operation may induce enough vasodilatation to overcome the constricting spasm from the altered sympathetic fibers. The benefit in Jaboulay's cases was durable. The trophoneurotic lesions became rapidly modified and, so far as experience has gone to date, they did not recur. The operation is absolutely harmless, they remark in conclusion, urging its application in rebellious cases of mal perforans. This operative method of treatment is called peri-arterial sympathectomy. See Abstract 29 above.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 17, XLVII, No. 7, pp. 193-224

49 *Foreign Bodies in the Air Passages and Esophagus. E. Schlittler.—p. 193. To be continued.

50 Rapid Control of Drinking Water for Troops on a Campaign. F. Messerli.—p. 203.

51 Case of Pigmented Urticaria. Tièche.—p. 211.

February 24, No. 8, pp. 225-256

52 *Treatment of Placenta Praevia. C. M. Wirz.—p. 225.

53 *Foreign Bodies in Air Passages and Esophagus. (Fremdkörper der Luft- und Speisewege.) E. Schlittler.—p. 232. Commenced in No. 7, p. 193.

54 *Quartz Mercury Vapor Lamp in Treatment of Goiter. (Behandlung des Kropfes mit der Quarzlampe.) A. Haslebacher.—p. 243.

55 Blistering from Application of Crushed Buttercup Leaves to Cure Warts. (Dermatitis bullosa durch Hahnenfuss-Gift.) W. A. Münch.—p. 244.

56 Exvperiences in America with Autolysin Treatment of Cancer. (Zur Autolysattherapie des Krebses.) F. Dumont.—p. 245.

March 3, No. 9, pp. 257-288

57 *Traumatic and Military Neuroses. (Ueber Unfall- und Militärneurosen.) C. Strasser.—p. 257.

58 Factors in Coagulation of the Blood. (Zur Methodik gerinnungsphysiologischer Studien.) A. Fonio.—p. 274.

49. See abstract 53.

52. **Treatment of Placenta Praevia.**—Wirz cites statistics to show that more than twice as many women die from placenta praevia in the home as in institutions. He declares further that the majority of deaths from placenta praevia occur from laceration of the cervix and septic infection, and thus are direct consequences of our therapeutic measures. Our efforts therefore should be directed to prevent tears and infection. The danger of embolism is practically beyond our control. Reinhard reported from Dresden a mortality of 42 per cent. among 117 women who had been treated by tamponing the vagina. Wirz declares that no midwife is capable of tamponing the vagina aseptically, but the Prussian "Midwives Manual" enjoins them to do it. Even physicians had better not attempt it, Wirz adds, as its usefulness does not offset the dangers it offers. In France, Pinard and others condemn it, as also many obstetricians in various lands. Wirz is convinced that rest and morphin will arrest the hemorrhage so that the woman can be taken to the hospital. When there is hemorrhage toward the end of a pregnancy, placenta praevia is probably responsible for it, and he warns earnestly against internal examination. By refraining from tamponing the vagina and from internal examination, he is confident that many otherwise doomed lives will be saved. When there are good labor pains, the fetus in good position and the placenta praevia lateral, he advises puncturing the bag of waters, eventually combined with pituitary solution. The bag should never be punctured until the uterus is contracting well. In the home, combined version is to be preferred to the inflatable bag, but in the clinic the latter is justified in certain cases, as it gives a favorable prognosis for the child. Institutions show 30 per cent. more children saved with the inflatable bag. He adds that in institutions abdominal cesarean section should be applied more frequently. It materially improves the outlook for the child, while the chances for the mother are no worse than with other methods of delivery.

53. **Foreign Bodies in the Air Passages.**—Schlittler extols the advantages of endoscopy, saying that in his fourteen cases of a foreign body in the lower air passages, eleven were extracted by the direct method, and it failed only in one case. In the two others such a long interval had passed that success was practically out of the question. Fifteen of the thirty-four foreign-body cases described in detail were in children. In the five fatal cases there were febrile complications on the part of the lungs when first seen, and two others were moribund.

54. **Treatment of Goiter with Mercury Vapor Quartz Lamp.**—Haslebacher has been quite successful with vibration massage in treatment of goiter, and last year applied the quartz lamp in twenty cases. The first patient thus treated was a young woman who for some time had had symptoms of stenosis at night from her goiter. The first exposure induced considerable erythema, but there was no further tendency to stenosis, and in two weeks, with a total of four exposures, the goiter had entirely disappeared and there has been no recurrence during the ten months to date. Before this the patient had been given manual massage treatment and iodin externally and internally, but without effect. In the series of twenty cases, the symptoms of stenosis subsided first, and the goiter grew softer after two or three exposures. In three cases the patients were pleased with the results from four exposures. Another required ten, and the large cysts proved entirely rebellious. All seemed to feel better during the treatment, and no untoward by-effects were noticed in any cases.

57. **Nontraumatic Military Neuroses.**—Strasser relates that the Swiss troops have now been on guard duty at the boundary for over two and a half years. Many of the men worry over neglected home affairs, while not appreciating the necessity for this border duty. The consequence is that neuroses are comparatively frequent, ranging from neurasthenia, insomnia, hysteric attacks and chorea to gastric and cardiac nervous troubles. They are always the aggravation of some preceding disturbance. Under ordinary conditions, he says, the

military service of the male youth of Switzerland is regarded as a recreation, an honor, and fine sport. The system of military training makes comparatively small demands, and then only for a short time. There is scarcely ever a question of social and economic hardship for the individual in his brief return for service every year. On the contrary, it is looked on as a pleasant vacation from the everyday routine, and has rescued many men from impending neurasthenia and neuroses. But the monotony of these years of border duty and the pressure of home worries have in many instances fanned a predisposition into a flame. Strasser adds that the greater the physician's experience the less often he diagnoses simulation. In estimation and treatment of these neuroses, the physician must be guided by the principles of treatment for traumatic and nontraumatic neuroses of any kind, seeking a compromise between the extraordinary demands made now by the state and the needs of the individual.

Gazzetta degli Ospedali e delle Cliniche, Milan

February, 11, XXXVIII, No. 12, pp. 177-192

59 Pulmonary Tuberculosis with Rapidly Fatal Course Consecutive to a Fall Injuring the Chest. L. Manfredi.—p. 177.

February 15, No. 13, pp. 193-208

60 Rapid Development of Gas Gangrene. A. Franchini.—p. 193.

Policlinico, Rome

February 25, XXIV, No. 9, pp. 265-304

61 *Epidemic Jaundice. (Appunti epidemiologici sulla spirochetosi itterogena.) C. Moreschi.—p. 265; (Sull' ittero epidemico castrense.) F. Micheli and G. Satta.—p. 268; (Le recenti conoscenze sull'ittero infettivo.) G. Trincas.—p. 271; (Itteri infettivi e spirochetosi.) T. Pontano.—p. 277; (Ittero epidemico.) M. Merighi.—p. 280. Discussion.

January, Surgical Section No. 1, pp. 1-48

62 *Primary Epithelioma of Humerus. (Contributo clinico all'amputazione interscapulo-toracica ed istopatologico ai tumori epiteliali primitivi delle ossa.) N. Giannettasio.—p. 1. Conclusion.

63 *Transvesical Prostatectomy. P. Tasca.—p. 17.

64 Conclusions from Experimental Research as to Treatment of Perforation of Stomach and Intestine with War Wounds. A. L. Soresi (New York).—p. 29.

65 Excision of Tumor in Orbit without Appreciable Cicatrix and without Removing Eyeball. (Sopra un caso di resezione dell'ottico, per endothelioma, mediante il mio processo modificato.) S. Calderaro.—p. 40. To be continued.

61. **Infectious Jaundice.**—This entire number of the *Policlinico* is devoted to reports and discussions of infectious jaundice which has been quite prevalent not only among the troops, but in certain civilian populations. Moreschi reports experiences with it among the troops on the Isonzo front and at Voghera, the three hospitals having had 361 cases between June and December, forming about 17.5 per cent. of the total 1,299 patients in the hospitals during that period. The disease was extremely mild, all the men recovering except two. Only 48 per cent. of the cases had a febrile course; it averaged six days, the maximum twenty-two. The spirochete was found in the kidney tissues of animals inoculated from the clinical cases and the urine, both from animals and man, was found to contain them. Guinea-pigs were inoculated most reliably with urine. The kidney findings in the inoculated animals were so severe that the experimental disease seems, he says, to be an acute hepatonephritis. As the clinical cases developed usually without direct contact, he thinks it probable that some intermediate host is involved. The Japanese authors found the spirochete in rats, and Courmont and Durand have recently reported that they found the spirochete in 8 per cent. of fifty sewer rats examined at Lyons. They state that there was no disease among the rats at the time, and the Lyons district had not been invaded by the epidemic jaundice. Hence they are inclined to regard the rat as a reserve focus for the infecting agent. Some English writers have reported finding the spirochetes in six of fifteen trench rats. Moreschi states that the only measures found effectual in stamping out epidemic jaundice were the isolation of the sick, careful disinfection of the excreta, and impressing the necessity for extreme care of the person.

Micheli and Satta have encountered several hundred cases of epidemic jaundice in the military hospitals of the Turin district. All were of the Chauffard pseudocatarrhal form of infectious icterus or the Patella benign type. The blood findings were constantly negative, and animals inoculated with the blood never sickened. Probably, they suggest, the spirochetes had disappeared from the blood by the time the men reach the Turin district. In only one instance, inoculation of a guinea-pig with the urine from a patient gave positive result. Serum from convalescents, injected into guinea-pigs along with a suspension of liver tissue from other guinea-pigs that had died from the infection, protected the animal against the infection in 33 per cent. of the cases, and retarded the experimental disease in another 33 per cent. Deviation of complement tests, etc., resulted negatively. Merighi gives the clinical histories of his twenty-nine cases; all seemed to do better when they were given ordinary food in abundance. Leporini calls the disease "trench jaundice." He comments on the constant but benign involvement of the lymphatic system. Veratti relates that he made special tests for picric acid in some of the 125 cases of jaundice, he encountered, but always with negative findings. The men reached his district, Pavia, only in the later stages of the disease, and inoculation of animals with blood from the patients was always negative. But with fresh virus obtained from Moreschi at the front he reproduced constantly in guinea-pigs typical icterohemorrhagic spirochetosis which he transmitted further to rabbits and rats. One rat died, but the other animals, after a period of intense jaundice, all recovered.

Gozi stated that he has records of 1,627 cases of jaundice in the military hospitals, a few in June, 221 in July and August, 504 in September and the rest in October and November, with three deaths. He also knows of about 100 cases in the civilian populace, all in adults, rarely in the aged. The three pregnant women presenting the disease all died in less than three days. A fourth, a parturient, after lying in coma for four days, finally recovered. At necropsy of the three soldiers, he noted intense central hyperemia of the meninges and brain, in one instance with hemorrhagic fluid in the ventricles. The liver in one case resembled that of acute yellow atrophy. Carpi has found mercury and arsenic useful in treatment.

62. **Resection of the Shoulder.**—Giannettasio has operated at one sitting in two cases for extensive primary epithelioma of the head of the humerus requiring interscapular-thoracic amputation. In both the tumor straddled important veins and lymphatics, and there was no sign of the tumor's becoming encapsulated while it had invaded the surrounding muscles and glands. The danger of generalization of the malignant disease in these cases is imminent, and the fatal outcome in many cases is due to this having occurred before the operation was decided on. Mussey and Conant operated for a cancer on the hand, amputating first the thumb, then the forearm, then exarticulating the shoulder, and finally resecting the scapula and clavicle. Exarticulation of the shoulder alone is not enough to check the progress of malignant disease in the upper end of the humerus. This is conclusively demonstrated by the large proportion of the cases in which a secondary operation was done on the scapula. In both his cases the operative wound healed smoothly in a week, and in about two weeks the men left the hospital in clinically good condition. He gives microphotographs of one of the tumors, describing it as probably an adenoma of embryonal character of thyroid origin.

63. **Transvesical Prostatectomy.**—Tasca reviews his experiences in eight cases of hypertrophied prostate in which he operated by way of the bladder according to Freyer's technic. The men were all over 70 and the operation proved highly successful in all but one. This was a man of 80 with dysuria for ten years. The last two months the catheter had been constantly required for complete retention, fetid urine with pus in the sediment and occasional attacks of "urinary fever." An attack of this kind developed the day after the transvesical prostatectomy and the man died within twenty-four hours. There was tardy hemorrhage in three cases; it was easily controlled by reopening the wound and draining the bladder or by rinsing out the bladder with a hot fluid. In one case there was transient incontinence of urine after the bladder was sutured. The prostate was very large (150 gm.) in this case.

Riforma Medica, Naples

January 6, XXXIII, No. 1, pp. 1-28

66 *Medical Roentgenology. M. Bertolotti.—p. 1. To be continued.
67 *The Cardiovascular Disturbances with Kidney Disease. (Patogenesi della sindrome cardiovascolare nelle nefropatie.) T. Silvestri.—p. 9.
68 Anatomic and Functional Localization of Peripheral Nerves in Treating War Wounds. (Neuropatologia di guerra. III.) L. Ferrannini.—p. 14.
69 Treatment of Hemoptysis. (Cura dell'emottisi.) M. Landolfi.—p. 24.

January 13, No. 2, pp. 29-56

70 *Influence of Physostigmin on the Vegetative Nervous System. (Fisostigmina e sistema autonomo.) C. Quadrone and F. Dematteis.—p. 42.

January 20, No. 3, pp. 57-84

71 *Influenzal Pneumonia; Eight Cases. (Polmonite da influenza; otto guarigioni.) N. Federici.—p. 71.
72 Vocational Reeducation of the Wounded. L. Ferrannini.—p. 73.

66. **Medical Roentgenology.**—This series of lectures on the interpretation of the findings in Roentgen examination is continued through six numbers of the *Riforma*. It is accompanied by numerous illustrations. This first part is devoted to study of the normal and the pathologic spine.

67. **Causes of Cardiovascular Disturbance with Kidney Disease.**—Silvestri reviews the various theories advanced to explain the cardiovascular syndrome with kidney disease. None stands the test of facts except the Traube-Cohnheim theory that the heart becomes hypertrophied in its efforts to force the blood through the compressed or otherwise damaged blood vessels in the kidney. He thinks that this alone is enough to explain the cardiovascular syndrome. The normal products of nitrogen metabolism are enough for the purpose, independently of any abnormal endogenous products. The latter may modify and aggravate the phenomena from uremia. The kidney has to have a certain amount of blood flowing through it to accomplish its physiologic task. He says that in the course of chronic nephritis a period of inadequate function may alternate with periods of good functioning. The former grow more and more frequent until inadequate functioning becomes permanently installed.

70. **Physostigmin and the Vegetative Nervous System.**—Quadrone and Dematteis report several cases out of their more extensive experience showing the beneficial action of physostigmin salicylate on disturbances resulting from partial or general weakness of the autonomic nervous system. In the first case, after curetting the uterus after an abortion, paralysis of the bladder developed, persisting unmodified for four days, with complete retention. Within a few hours after a single injection of physostigmin salicylate the bladder resumed normal functioning. In the second case, after the woman's efforts to induce abortion the pelvic nerve stopped functioning properly; all the organs normally innervated by it felt the lack of its influence, while the heart and stomach also showed the influence of defective functioning of the vegetative nervous system. Under the injection of the physostigmin the dysuria disappeared first, then the gastrocolic distention and the rapid pulse grew normal. In four days clinically normal conditions had been restored. In these patients the disturbances were evidently the result of a traumatic shock; in some of the others typhoid, emotional stress, or failing compensation in heart disease had brought on sudden insufficiency of certain parts of the vegetative nervous system, involving the heart, lungs or digestive apparatus, or all at once. The physostigmin, they say, seems to stabilize and tone up the entire vegetative nervous system. It may act by the intermediation of hormones, as it seems to stimulate the secretions in the various endocrine glands. It stimulates the intracardiac terminals of the vagus, and one of the cases reported shows that it can sensitize the heart and render it susceptible to the action of digitalis, previously ineffectual. The symptoms from paresis of the sacral segment of the vegetative nervous system include paralysis of the bladder and colon, and meteorism suggesting ileus from paralysis. The symptoms from exhaustion or giving out of the bulbar segment of the vegetative nervous system are acute enlargement of the heart with retrosternal pain, asystole, rapid pulse, dyspnea, cyanosis, etc., gastrectasia, vomiting and inversion or disappearance of the oculocardiac reflex. The mesencephalic segment may induce drooping of the lids, mydriasis and the paradoxic pupil reaction. The association of all these symptoms indicates complete miopragia of the entire segment involved. Physostigmin acts on the vegetative nervous system, and it seems to be tolerated in direct proportion to the indications for it.

71. **Influenzal Pneumonia.**—Federici relates that the symptoms deceptively simulated bronchopneumonia in his eight cases, except that there had been two days of frontal headache and rhinitis and sore throat before the lung symptoms developed. The infection ran a seven or ten-day course and the sputum was rusty, but there was nothing to suggest the crisis of pneumonia. All the patients recovered, but they were left more prostrated than is the rule with diplococcus infection. The course was somewhat shorter in children.

Prakticheskiy Vrach, Petrograd

1916, XV, No. 44-45, pp. 312-323

73 Diphtheria of the Ear and the Pathogenesis of Sudden Deafness in Scarlet Fever. (O difterii ukha i k patogenezu vnezapnoi glukhoti pri skarlatinie.) L. T. Levin.—p. 312. Commenced in No. 42, p. 300.
74 Investigation of the Motor Functioning of the Stomach. (K metodikie izsliedovaniya dvigatelnoi dieyatelnosti zheludka.) A. Z. Bilin.—p. 314. Commenced in No. 40, p. 288.

Russkiy Vrach, Petrograd

1916, XV, No. 50, pp. 1177-1200

75 Pirogoff on Gas Gangrene and Other Serious Complications of War Wounds. (Starie dokumenti po N. I. Pirogovu, etc.) N. M. Volkovich.—p. 1177.
76 Technic for the Wassermann Reaction. (K metodologii reaktsii svyazivaniya komplimenta na sifilis.) A. A. Bogomolets.—p. 1180.
77 Present Status of Radiotherapy of Uterine Cancer. (O liechenii raka matki luchistoi energiei.) N. M. Kakushkin.—p. 1185.
78 War Wounds of Vessels. N. A. Dobrovolskaya.—p. 1188. Continuation.
79 Automatically Spring Controlled Artificial Leg. (Iskusstvennaya noga dlya usiechennikh v bedrie s avtom. zatvorom i tormazom v koliennom sustavie.) V. N. Pilkoff.—p. 1193.
80 *The Innervation of the Completely Isolated Heart. (Ob innervatsii sovershenno izol. serdtsa.) N. G. Ponirovsky.—p. 1194.
81 Hot Sulphur Springs in Amura District. G. N. Maksimoff.—p. 1196.

80. **Innervation of the Isolated Heart.**—Ponirovsky describes his method of studying the vagus and the sympathetic nerves in connection with the heart, both the trunk nerves and the finer ramifications. He gives curves showing the behavior of the heart under various influences, and says that physiologists, pathologists and pharmacologists by this means can study the behavior of the isolated heart in warm-blooded animals. His research was done on frogs, rabbits and dogs, mainly on tracheotomized dogs. The vagus and sympathetic nerve branches passing to the heart were easily isolated, under artificial respiration, and the effects of stimulation of the one or the other could be instructively studied. He thinks this simple method will prove a valuable assistance in medical lectures on the heart nerves of warm-blooded animals.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 3, I, No. 5, pp. 273-352

82 *Accommodation in the Elderly. W. Koster.—p. 276.
83 *Treatment of Paralytic Dementia. A. Q. van B. Houckgeest.—p. 281.
84 *Polycythemia Rubra. J. Lankhout.—p. 294.

82. **Accommodation in the Elderly.**—Koster remarks that in certain elderly persons the power of normal accommodation persists until unusually late in life. When this occurs he has found it always associated with presbyopic asthenopia, which seems to conflict with the accepted theories as to the mechanism of accommodation. He warns, however, that certain conditions may simulate a normal accommodation power. For instance, senile myosis may be so intense that well-lighted print can be read at almost any ordinary distance. Incipient cataract may induce a similar effect, as he describes. He gives the details of four typical cases of extraordinary good accommodation in men and women in the sixties and one man of 51. The latter had normal accommodation power in only one eye. The asthenopia in all these cases was not continuous; there was no pain except with near vision. At an age when accommodation is generally reduced, these patients were able to adjust accommodation to 3, 4 or 5 D. Koster has

no explanation to offer for this, but says that it certainly cannot be explained by the mechanism of accommodation proposed by von Helmholtz.

83. **Paralytic Dementia.**—Houckgeest thinks that tuberculin treatment is promising in treatment of not too far advanced paralytic dementia. The leukocytosis which follows may induce a salutary modification of conditions, possibly enhancing the resisting power of the tissues to the spirochetes. He combines with it intramuscular injections of mercury salicylate and 1 gm. sodium iodid internally daily. He begins with 0.01 mg. tuberculin from mixed human and bovine strains and increases to a maximal dose of 0.5 gm. The mercury salicylate dose is 100 mg. every fourth day. The details of six cases are given, all quite far advanced. They justify, he declares, treatment along these lines in all forms of syphilis of the central nervous system, repeating the courses at need.

84. **Polycythemia.**—Lankhout has encountered three cases of polycythemia which he here describes in full. The first patient was a man of 59 who complained of pain resembling lumbago. He had had more or less pain for three or four years, especially in the stomach and abdomen, coming on directly after meals and radiating to the back. It was mitigated by reclining after meals. On sitting up or walking after meals, the pain became like colic in the abdomen and there was also pain back of the sternum. By waiting for an hour after meals he can then exercise without disturbance. He is of a plethoric habit, the face purplish red with a cyanotic tinge; the fingers are of the drumstick type, the pulse 68, with high tension, and the temporal arteries are tortuous. There is no edema, no albuminuria or glycosuria. One physician ascribed the disturbances to the stomach and advised an operation; a third diagnosed the case as a pancreas affection. Lankhout was struck by the resemblance to what Ortner has described as intermittent angiosclerotic dyspragia of the intestines. There is probably also a dyspragia of the heart as well, and the man recently had an attack of typical intermittent claudication in the left leg. Ortner found at necropsy of his patient changes in the abdominal vessels which readily explained the phenomena. The patient succumbed to peritonitis after an exploratory laparotomy. This had been proposed in Lankhout's case, but was fortunately omitted. The spleen was enlarged, suggesting analogy with Vaquez' disease. The features of this are the congestion in the face, the enlarged spleen and the exceptional number of red corpuscles. In Lankhout's case the reds numbered 8,100,000, the whites 7,200. The retinal arteries are of the normal caliber, but the veins are large and tortuous as with choked disk. This is a characteristic and early sign of polycythemia rubra. The heart and lungs seem normal; the liver seems large on account of the abundance of blood in it. The congestion in the various organs is liable to induce tinnitus, dizziness, headache and pains in the legs suggesting erythromelalgia. In his case the blood findings showed excessive functioning on the part of the bone marrow. The Wassermann test was negative, and the reds were normally resistant. The blood as a whole is increased in amount, and the viscosity is abnormally high, and yet, with all this, hypertrophy of the heart is not an element in the clinical picture. In Lankhout's case the blood pressure was 160 to 175 mm. This feature of the case resembled Geisböck's polycythemia hypertonica (1904) although in this the spleen and liver are not enlarged. Lankhout reports two typical cases of this latter form in men of 51 and 60. Neither of his three cases of polycythemia offer any suggestion as to the etiology. The true nature of the trouble was not recognized in two of the cases for a long time. Two of his three patients were of Jewish families. Hemorrhages, thrombosis and apoplexy menace the patients. Withdrawal of from 300 to 500 c.c. of blood every four or six weeks, restriction to a vegetarian diet, to keep down the viscosity of the blood, and the avoidance of everything liable to injure the vessels have given most palliative benefit. Vague complaints suggesting congestion of organs, especially near the brain, and in the liver and spleen should call for examination of the fundus of the eyes. Erythromelalgic pains should suggest Vaquez' disease, and the blood findings will confirm the diagnosis.

Hospitalstidende, Copenhagen

February 7, LX, No. 6, pp. 121-148

85 *The Internal Ear with Inherited Syphilis. (Om hereditaer Syphilis i Labyrinthen.) L. Mahler.—p. 121.

85. **Inherited Syphilis and the Internal Ear.**—Mahler expatiates on the remarkable precision which the more recent functional tests of the internal ear have brought to our study of the effects of inherited syphilis on this organ. He summarizes recent literature on the subject, analyzing Alexander's experience with forty-three cases personally observed (1915), as also the experiences of Beck, Ruttin, Urbantschitsch and others. He reports also a case from his own practice, a girl of 14. The destructive lesion in the internal ear had induced total deafness on one side and nearly complete on the other. As he knows of instances in which salvarsan had reduced the small hearing capacity left, he did not venture to give salvarsan but started treatment with a course of pilocarpin, as Politzer recommends, following this with mercurial inunctions. No effect from the treatment was apparent on the internal ear. The consensus of opinion seems to be now that treatment should begin with a course of mercurial inunctions, following with salvarsan, and then a further course of inunctions. Alexander urgently commends salvarsan, having had two patients remarkably benefited among eleven given this treatment. Beck has had some patients improve under it but his later series have shown no benefit. Leidler has reported a case (1911) in which what was left of the hearing was almost completely lost after salvarsan treatment, and Wanner (1911) has had similar discouraging experiences in four cases. In Mahler's case, except for parenchymatous keratitis, there were no symptoms from the inherited syphilis outside of the internal ear. The Wassermann was positive. Heat and cold and rotation tests did not elicit any reaction, but the stronger mechanical tests induced nystagmus and vertigo. The findings were those of the so-called "fistula symptom" although there was no fistula. The fistula or pressure fistula symptom we expect to find when there is erosion or a fistula in the labyrinth and a destructive process or displacement of the contents of the fenestra ovalis. It is supposed that with normal tympanic membrane and normal middle ear or with uncomplicated suppuration in the middle ear, compression and aspiration do not induce any reaction in the static labyrinth. But in this case, although the membrane and the middle ear are normal, yet mechanical irritation elicits nystagmus and vertigo.

Hygiea, Stockholm

LXXIX, No. 3, pp. 97-144

86 *Presence of Colostrum in Mammary Glands of the Nonpregnant. (Om kolostrumförekomsten i de kvinnliga bröstkörtlarna och dess betydelse såsom diagnostiskt hjälpmedel.) W. Gårdlund.—p. 114.

86. **Colostrum in the Mammary Glands of the Nonpregnant.**—Gårdlund had his attention called to this subject by finding colostrum in both breasts of a woman of 41 who had borne four children but was not pregnant at the time. She was in the hospital to have an edematous uterine myoma removed. Colostrum was also found in both breasts of a woman of 45 under treatment for gonorrheal salpingo-oophoritis. Examination ten months later, long after complete recovery from her pelvic trouble, and months after the menopause had been under way, showed still the presence of abundant milk in the mammary glands, resembling in every respect apparently colostrum milk. In a third case a young woman imagined hereself pregnant, and colostrum was found in the mammary glands, but the suspicion of pregnancy proved unfounded. In a fourth case an unmarried virgin of 28 consulted him on account of a permanent secretion from one breast which seemed to be colostrum. It could also be expressed from the other breast. She had had a tuberculous pulmonary affection at one time, but it had been clinically healed for some years.

Gårdlund after these experiences had the mammary glands of 393 women examined as they came to the Serafimer clinic for women's diseases. Excluding from his list five girls under 15 and fifty women who had been nursing children within a year, he found colostrum in 15 per cent. of eighty-two nonpregnant nulliparae; in 46 per cent. of 127 nonpregnant women who had borne from one to several children, and in 20 per

cent. of sixty-three women in the menopause. In a further group of fifty-six pregnant women, 54 per cent. showed the presence of colostrum; the women were at the third to the ninth month of the pregnancy, and the ages ranged from 20 to 40, two thirds of the positive cases being in women of 20. In ten other women it was impossible to decide whether they were pregnant at the time or not, but colostrum was present in the mammary glands of seven. Out of the total 338 women, the findings as to colostrum were thus positive in 120, that is, in fully 36 per cent., and in 209 nonpregnant, namely, 33 per cent. The presence of colostrum therefore cannot be accepted as an auxiliary sign of pregnancy, and its coincidence with gynecologic disease is probably merely casual.

Ugeskrift for Læger, Copenhagen

January 18, LXXIX, No. 3, pp. 85-128

87 *Pyelitis in Pregnant and Parturient Women. (Om Pyelitis i Svangerskabet, under Fødselen og i Barselsengen.) S. A. Gammeltoft.—p. 85.

January 25, No. 4, pp. 129-184

88 *Technic for Determining Sugar in the Blood by Bang's Micromethod. (Undersøgelser over Bang's Mikrosukkertitrering.) R. Ege.—p. 129.

89 *Phototherapy of Pulmonary and Bone and Joint Tuberculosis. (Om foreløbige Resultater af Lysbehandling ved Lungetuberkulose og kirurgisk Tuberkulose.) V. Schmidt.—p. 138.

87. **Pyelitis in the Pregnant and Parturient.**—Gammeltoft remarks that the first manifestations of pyelitis may deceptively simulate other intra-abdominal affections, and the difficulty in differential diagnosis is still further enhanced by the widely varying course in different cases. In about 70 per cent. of the cases the colon bacillus is responsible for the pyelitis, which confirms the assumption that the intestines are the source of the infection in many cases. Constipation and slight gastro-intestinal disturbance are peculiarly common in the pregnant. The acute form may develop suddenly, with or without a chill, with fever and depression. Nausea and vomiting are common. The pains at first may suggest labor pains, or they may be diffuse for a time but after a few hours they become localized in the kidney region, usually the right but sometimes on both sides. The tongue is not dry as with abdominal trouble. There may be pains and tenderness along the ureter and bladder, also in the legs. The tenderness in the iliac fossa may be pronounced, but the symphysis generally is not or very little tender. Inquiry usually elicits that there have been lumbar pains for a time or unduly frequent urination, and the urine may have caused smarting. The urine looks turbid and usually gives an acid reaction. The putrid odor suggests colon bacillus infection, and there may be albumin. The microscope is generally sufficient, without bacteriologic examination. Sometimes the urine is entirely normal even with unmistakable signs of pyelitis, the ureter having become obstructed and only the urine from the sound kidney reaching the bladder. This is particularly liable to be the case in pyelitis in a parturient. The temperature may fluctuate abruptly from 104 F. to subnormal but the general condition usually keeps good and the pulse regular. After eight or ten days of treatment the acute phase passes into a latent or chronic stage. This latent phase may be the first manifestation and it may be overlooked, as the only symptoms may be pains in the lumbar region and rather frequent desires to urinate, all of which are apt to be ascribed to the pregnancy alone. In cases of this kind the urine should be examined both chemically and with the microscope; leukocytes and bacteria will be found in the urine although not in such numbers as in the acute form.

The ureter that has been stretched and compressed during the pregnancy may get kinked during the puerperium and set up sudden acute disturbances. These are liable to be mistaken for puerperal fever. Acute pyelitis is liable to be mistaken also for beginning pneumonia, but the pulse and respiration are not so high as with the latter, and the pains with pyelitis spread downward, both with deep breathing and with movements. It may be difficult to distinguish between pyelitis and appendicitis. Pain on compression of the descending colon from the left iliac fossa speaks for appendicitis, also rigidity of the muscle wall. The symptoms of appendicitis during pregnancy are not so clear and pronounced as under other conditions, especially the peritoneal symptoms. Differentiation often depends on the urine alone, and pyelitis may occur as a complication of acute or chronic appendicitis. Cystoscopy and catheterization of the ureters require the hospital environment, but they are conclusive and, properly done, harmless, even near term. In treatment, bed rest, moist heat to the region, and copious drinking of milk, lemonade, boiled water and weak tea, may be supplemented with salol plus sulphuric acid mixture, or hexamethylenamin can be used. He remarks that the latter is liable to induce slow and painful discharge of urine or hematuria and increase albuminuria and tube casts. The urine must be kept acid in order to get the benefit from hexamethylenamin, and Gammeltoft gives with it in a little water a tablespoonful of a mixture of 10 gm. dilute hydrochloric acid; 90 gm. syrup of raspberry and 200 gm. distilled water. He gives the hexamethylenamin or its equivalent in 50 cg. doses every four hours. Catheterization of the ureter may be necessary in case of retention, but he warns against the temptation to rinse out the kidney pelvis when the catheter is in place. This is liable to spread the infection to the kidney proper. The catheter must not be left in the ureter as this is liable to bring on hemorrhage. Turning the woman on her other side may release the ureter from pressure and put an end to the retention without further measures. Another simple measure which may prove useful is to rinse out the bladder; the reflex reaction may overcome any spasmodic contraction of the kidney pelvis. When the acute attack has subsided, but leukocytes and bacteria still are found in the urine, he lets the patient get up after she has had no fever for eight days, but salol had better be kept up, 50 cg. four times a day. The urine should be examined every week and there should be considerable intake of fluids. To ward off recurrences an autogenous vaccine may prove useful. When a parturient develops high fever, the urine should be examined without delay, and no active measures should be attempted. Infected urine soiling the vagina does not seem capable of starting puerperal infection.

Changes of position are particularly likely to aid in treatment of pyelitis during childbirth. He keeps the patient in bed till the urine is free from leukocytes at least. Bacteriuria may long persist. It should be perseveringly attacked with salol and vaccine. He warns that the bacteria may change during the course of the pyelitis, and the autogenous vaccine has to be made from the actual strain at the time. If the pyelitis drags interminably, concretions must be sought or prolapse or displacement of the uterus, or adnexa trouble. The urethra should also be examined; the bladder mucosa may protrude and lead to reinfection of the bladder urine. Achylia, colitis, chronic appendicitis or some chronic gynecologic affection may be responsible for keeping up the pyelitis.

88. **Determination of Sugar Content of the Blood.**—Ege has been applying simultaneous tests to the blood, Bang's micromethod, Riegler's and the fermentation tests. Bang's method has a wide range of error, he emphasizes, the outcome varying with the length of time the fluid is boiled and the amount of heat applied. But it can be relied on with confidence if the test is applied with uniform technic, giving a longer time for reduction and using a gas regulator.

89. **Phototherapy of Tuberculosis.**—Schmidt reports the results of treatment of tuberculous patients at the Finsen Light Institute at Copenhagen. He says that Finsen's arrangement of carbon arc lights gives rays nearest in chemical action to the sun's rays, and the results in thirty patients with pulmonary tuberculosis are recorded. The exposures were at first only thirty minutes but were gradually lengthened to a total of two and a half hours daily. The patients reclined, the lamps at a distance of about 30 inches. The total exposures averaged about 500 hours. The results were less pronounced than with surgical tuberculosis. No influence on the fever or night sweats was apparent, nor on the expectoration or bacilli in the sputum. The patients rather enjoyed the experience, and this in itself is a gain. It is evident that much longer courses are necessary for decisive effects, and that the indications for this treatment need further limitation.

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THE INTERPRETATION OF THE NEUROSES

BIOLOGIC, PATHOLOGIC AND CLINICAL CONSIDERATIONS, TOGETHER WITH AN EVALUATION OF THE PSYCHOGENIC FACTORS *

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Of recent years, views and theories have been expressed concerning the neuroses which, if allowed to stand, would hopelessly and permanently confuse and obscure the subject. The advent of psychanalysis has led the disciples of Freud to an abandonment of clinical methods. Gross facts of structural abnormalities and of actual physical illness are ignored as though these facts had no existence. The mental symptoms of the patient alone are considered, and these are uniformly ascribed to sexual traumas, to repressed complexes, in which the essential rôle is always played by the "libido." Even when freudian theories are not exclusively adhered to, it has become the vogue to assign to every neurosis a psychogenic origin; and writers have not been wanting in recent times who have maintained that a classification of the neuroses is neither possible nor necessary. Let us see how much of truth there is in this position.

It has long been known that fatigue is manifested by a group of symptoms well marked and definite. In order that their character and significance may be more readily appreciated, it may be well to consider briefly some of the facts of normal function. The exercise of function implies a nutritive change, a change which is marked in direct proportion to the degree of the activity. The fact of change is seen in the muscles, the nervous system, the digestive apparatus, the blood, the blood-making organs, the various glands, both of internal and external secretion, and in the other tissues as well.

The most striking and perhaps best known illustration is that offered by the muscles. During functional activity the latter undergo striking chemical changes. Thus, the chemical reaction, which is neutral or feebly alkaline in a muscle at rest, becomes acid, through the production of phosphoric acid, in a muscle that is active; there is also in the active state a greatly increased elimination of carbon dioxid, while the tissue consumes proportionately more oxygen; further, the active muscle contains more water, it yields an increased quantity of extractives soluble in alcohol, a lessened quantity of extractives soluble in water, and lessened quantities of substances producing carbon dioxid, of fatty acids and of creatin and creatinin, and of glycogen. Again, during functional activity the capillaries dilate, the muscle contains more blood, and the blood in its veins differs chemically from that found in its veins when at rest.

Similar facts obtain in regard to the other tissues, though our knowledge of the details is much more meager. Nerve substance, like muscle, when at rest is neutral or feebly alkaline, and when active is acid. The exchange of oxygen and carbon dioxid has not been actually demonstrated, but the facts attending vascular supply and temporary obstruction justify the inference that such changes of necessity take place, while the presence in the blood of the veins of substances the products of retrogressive metamorphosis can have but one meaning. As regards the changes observed in other structures, it may be stated as a general fact that all organs in which periods of rest alternate with periods of activity present striking differences corresponding with these periods.

The changes taking place in nerve cells, muscle and other structures during the exercise of function indicate a consumption of tissue — a consumption which depends directly on increased oxidation. Energy is eliminated as a result of this increased oxidation; further, of necessity, this elimination of energy means loss of substance. Functional inactivity, on the other hand, is accompanied by the restitution of substance. This is the storing up of energy in a latent form. Evidently in order to preserve the physiologic condition — the normal balance — there must be a due proportion between functional activity and rest.

To the foregoing facts must be added the rôle played by the products of tissue waste. It is well known to physiologists that if a frog muscle, which has been completely exhausted by electrical stimulation and refuses any longer to respond, is washed out by injecting into its artery ordinary salt solution, the muscle again reacts to the electrical current and almost as well as before. Evidently the waste products which accumulate in the muscle substance restrain or inhibit the muscular contraction. If it is true that the action of the muscles is thus inhibited, a similar truth doubtless obtains in regard to the action of waste products in other organs, notably in the nerve centers. It thus becomes evident that in fatigue we have to do with two factors: first, the consumption or reduction of substance the result of functional activity, and, second, the impeding of restraining influence of the materials resulting from this reduction.

Further, the substances resulting from the normal exercise of function play an important and beneficial rôle in the economy. They prevent, other things being equal, undue or excessive fatigue. Their probable phys-

* Annual address of the president, read before the Philadelphia Neurological Society, Jan. 26, 1917.

* Because of lack of space, this article has been shortened considerably for publication in THE JOURNAL. The complete article appears in the author's reprints, a copy of which will be sent by the author on request.

iologic action is to induce rest by retarding activity. Thrown into the circulation under normal conditions, they act as sedatives and are among the direct causes of rest and sleep. The excessive exercise of function leads primarily to the excessive consumption of tissue, and under these circumstances waste substances are present in abnormal amount. Instead of a gentle sedative or retarding influence, they now exert a toxic action. They accentuate the weakness and exhaustion and act as irritants and excitants, and, instead of inducing rest, disturb or prevent it. Moreover, excess of function, if persisted in, leads to a perversion of the chemical changes, and thus arises an additional element of toxicity. That metabolism is deranged in states of fatigue is definitely known.[1]

For us, as clinicians, the all important inference from the foregoing considerations is the fact that fatigue is a real, a physical condition, and that it is not of psychic origin. Least of all is it to be explained as an attitude or state of mind the result of infantile sexual traumas.

NEURASTHENIA

In the demands which modern civilization makes on the individual, undue expenditure of energy, an expenditure which results in overfatigue, is of frequent occurrence. Under these circumstances, a condition is established in which neither the normal amount of rest nor food suffices any longer to restore the organism to the equilibrium present in health. Gradually a well defined symptom group, a neurosis with a definite symptomatology, becomes established. Lay persons have long recognized this condition and speak of it as nervous prostration, and to it Van Deusen and later Beard applied the term "neurasthenia," while I myself have suggested, as the equivalent of the latter, the expression the "fatigue neurosis."

The first fact which impresses us is that the patient becomes readily exhausted. He is incapable of the sustained expenditure of energy. This is true whether the expenditure is physical or mental. In keeping with this fact is also that of irritability, of exaggerated response to stimuli from without; that is, along with the lessened capacity for expenditure of energy, there is also a lessened inhibition. The muscles, for instance, rapidly reveal the signs of fatigue; muscular effort very soon exhausts the patient. At the same time there is present a diminished inhibition of the tendon reflexes; quite commonly the latter are exaggerated. Again, the mental phenomena of neurasthenia are those of ready exhaustion. There is a marked diminution in the capacity for sustained mental work. There is difficulty in maintaining the attention; concentration requires a special effort. Apprehension takes place less readily, and there is a marked diminution in the spontaneity of thought. In other words, the patient becomes mentally tired after very little exertion. At the same time, there is a markedly increased irritability, that is, a diminution of inhibition. That the tired man is a cross man is well known. His self-control is diminished. He is easily excited and angered; his emotions generally are easily disturbed.[2]

The man who is chronically tired loses some of his personal force and will power. He becomes unable to decide matters of business with his usual readiness. Difficult and unpleasant matters are deferred. Things which require special effort are put off and remain undecided. Gradually this extends to matters relatively trivial and unimportant. Finally, lack of spontaneity and will power may become frankly associated with habitual uncertainty, hesitation and indecision.

Again, that a person whose nervous system is exhausted should also be morbidly afraid is not surprising; weakness and fear are naturally associated. Fear is a natural concomitant of diminished personal force, uncertainty and indecision. The fear may amount merely to a general feeling of uneasiness or anxiety, and may be more or less continuous; or it may come on in paroxysms, in sudden attacks generalized in character, which I have described as attacks of spontaneous generalized fear.

Neurasthenia presents itself as a well defined syndrome. While the picture is somewhat varied in different cases and often complicated by the appearance of secondary symptoms, its essential and underlying features are always those of chronic exhaustion, a persistent fatigue. There is always present a ready exhaustion, both physical and mental, together with the secondary outgrowths of this condition. The symptoms which I have here outlined are those of an exhaustion affecting an organism otherwise normal; that an entirely normal, non-neuropathic person may from overwork or other nervous overstrain develop nervous exhaustion need hardly be stated. It is this condition to which I have applied the term "neurasthenia simplex," and it is to this condition that the term neurasthenia simplex should be limited.

PSYCHASTHENIA

That the clinical picture must be more or less modified when the organism has been previously neuropathic would seem probable on *a priori* grounds, and this the facts prove to be actually the case. As just stated, a person who is not neuropathic may under given conditions develop nervous exhaustion; if he happens to be neuropathic, special symptoms are developed which by their prominence dominate the clinical picture; indeed, often to such an extent that the factor of the nervous exhaustion may be lost sight of.

The general symptoms resemble those encountered in simple neurasthenia. Lack of sustained effort and spontaneity are here also present, and may become much exaggerated. Together with this the patient has a sense of powerlessness, insufficiency, inadequacy. He is hesitating, irresolute, timid, fearful. He reveals his condition both in his actions and in his mental operations. Merely the idea of having something to accomplish may frighten him, so convinced is he of his powerlessness to achieve a result. He can do nothing like the rest of the world; sometimes he feels that he cannot make a single gesture freely and with ease. This feeling of inadequacy usually becomes exaggerated if the task is new or if the patient happens to be in the presence of strangers or in public. Sometimes this feeling is so pronounced as to lead to discouragement and hopelessness or even to a profound inertia. There is an impairment of the will, uncertainty and doubt, and, added to this, there is a diminished inhibition. The patient is easily upset, excited and disturbed, and he is also the victim of fear continuous or coming on in attacks.

Hesitation and lack of decision may become so pronounced that they develop into a folie de doute, a

1. A consideration of the rôle played by the internal secretions in fatigue would take us too far afield. Suffice it to say that it is alike important and interesting.

2. For a systematic presentation of the subject, the reader is referred to the unabridged reprint of this paper; to the chapter on Neurasthenia in "Nervous Diseases by American Authors," edited by the author, Philadelphia, 1895; to "A Clinical Manual of Mental Diseases" by the author, Philadelphia, 1914, and to "Rest, Mental Therapeutics and Suggestion" by the author, Ed. 2, to be published.

veritable insanity of indecision; weakness of will may lead to a pronounced abulia; and the fears may develop into special phobias, obsessions or anxieties. How some of the latter may arise can be readily understood. For instance, a patient has a spontaneous attack of generalized fear. If he is suffering merely from a simple neurasthenia, that is, if he has not previously been neuropathic, the attack of fear passes off without any after-effects; but if the patient is neuropathic, a pathologic association may be formed in his mind so that the emotion of fear becomes definitely linked to certain relations of the environment. Thus, a patient happens to have a spontaneous attack of fear while alone; immediately there is formed in his mind an association between the attack of fear and the fact of being alone, and a monophobia results. Time will not, of course, permit of further discussion of this interesting subject, but it is necessary to point out briefly the character of those defects of inhibition to which English writers have applied the term insanity with irresistible impulse, the French, obsessions with irresistible tendencies, and the Germans the expression *Zwangsneurose*, compulsion neurosis. Here are included the various tics, tic convulsif and the impulsive movements and actions generally.

The brain, under normal conditions, is constantly eliminating impulses. These impulses are the result of the interaction of the mind — its previously acquired memories, associations and activities — with the environment. These impulses are normally controlled, restrained, inhibited; they may be diffused or they may be directed into special channels. As a rule they are useful to the organism; they may enable it to accomplish a definite object, or they permit the harmless and pleasurable release of energy. If the patient is neuropathic and at the same time neurasthenic, first, inhibition is diminished and, secondly, the discharge takes place in accordance with such pathologic associations as have been formed in the patient's mind. Time will not permit us to trace here the origin of the latter. Suffice it to say that they may be linked with fears and obsessions, with the memory of unpleasant experiences, ideas which excite abhorrence, disgust and dislike, or they may be entirely normal associations which reach the surface with pathologic ease; such, for instance, as the oaths and expletives which the tired man uses but which in neurasthenic-neuropathic states find their way to the surface both out of time and out of place.

The neurasthenic-neuropathic states, I have at various times described under the general caption of the neurasthenoid states, a term which includes the same group of cases to which Janet later applied the term "psychasthenia." Clearly the foregoing considerations enable us to separate out of the group of the neuroses, first the neurasthenic and secondly the neurasthenic-neuropathic states; namely, neurasthenia and — to employ the term of Janet — psychasthenia. Let us now turn our attention to a third, namely, hysteria.

HYSTERIA

Our knowledge of hysteria has been of slow and gradual evolution. The early Greeks believed that the explanation of the phenomena which they witnessed was to be sought in the behavior of the uterus. They believed that during a hysterical attack the uterus becomes detached from its moorings and goes wandering about the body seeking sexual satisfaction. We cannot pause to trace the history of this wandering uterus, which extends from the days of Plato and Hippocrates down to our own time. Suffice it to say that it was revived as late as 1816 by Louyer-Villermay. For us the chief interest in the uterine theory of hysteria lies in the fact that it has served to fasten the name "hysteria," derived from hystera (ὑστέρα), the Greek word for uterus, on the affection. It is interesting to note that while the crude theory of the wandering uterus has been abandoned, ideas as to the sexual origin of hysteria have persisted, in modified forms, to the present day. Unsatisfied passion, unrequited love, genital irritation and, lastly, repressed memories of sexual peccadillos in childhood — advocated by the freudian school — have in turn served to befog the subject, to surround it with a veil of mystery and to lend it a prurient interest.

It was Charcot who finally led the way in the direction of clinical study. Here he was closely followed by his pupils Paul Richer and Gilles de la Tourette. We are all familiar with the elaborate descriptions of the hysterical attack and the elaborate chartings of the interparoxysmal period which ensued, and, for a time, it seemed as though a definite symptomatology of hysteria had been established. Logically and inevitably, however, these studies led to the discovery of the final truth, a truth as revolutionary as it was unexpected and astonishing. Charcot clearly divined something of the nature of hysteria, when he drew an analogy between hysteria and hypnosis. Moebius, however, appears to have been the first to maintain that all of the symptoms of hysteria were of psychic origin. He pointed out that the hysterical person without being hypnotized reacts like a subject under hypnosis. It remained, however, for Babinski to make the next great advance, which was the recognition of the fact that the symptoms owe their origin to suggestion. We all recall Babinski's results in his 100 cases of hysteria, not previously examined by physicians, in which he failed to elicit the symptom of hemianesthesia in a single instance, and how this hemianesthesia is usually found on the left side of the patient because the physician making the examination is usually right-handed and, facing the patient, directs the patient's attention to the left side and suggests the very hemianesthesia he is trying to discover. The hemianesthesia is an artefact. It had no previous existence in the patient and was directly produced by the medical examination. What is true of hemianesthesia is true of all the other phenomena of hysteria. All are the result either of medical or of other suggestion.

Another point now becomes evident. If, testing a healthy or normal person for hemianesthesia, the physician makes at the same time free use of suggestion both direct and indirect, he invariably fails to develop the symptom. In other words, the normal person repels, the hysterical person accepts the suggestion. This vulnerability to suggestion is one of the most striking facts of the neuropathy of hysteria. The latter always preexists, is always innate in the individual.

Just as the reaction of the hysterical person to suggestion is so excessive as to be pathologic, so is his reaction to emotional stimuli excessive and pathologic. Exaggerated emotional reaction, exaggerated emotional expression, general emotional instability, are therefore likewise features of the hysterical neuropathy. In keeping with this fact, the hysterical person reacts inordinately to fright, joy, annoyance, anger, disappointment, mortification, fancied slights or wrongs,

shame and kindred incidents. It follows as a physiologic corollary that the outward expression, the physical reaction, is excessive. Time alone forbids a detailed consideration of hysteria, but the latter may be safely defined as an innate neuropathy, the essential feature of which is a feebleness of resistance to mental impressions and an emotional instability; in other words, there is a pathologic vulnerability to suggestion and an exaggerated emotional reaction. Again, hysteria is a neuropathy of degeneracy. Hysterical persons are relegated with few exceptions to the ranks of the incapable. The hysterical woman makes an inefficient servant, an inefficient wife and housekeeper, an inefficient mother; the hysterical man, an inefficient workman, an inefficient provider for his family, an unsuccessful member of the community. Finally, hysteria presents a large element of heredity. Indeed, Charcot and his pupils regarded hysteria as always inherited; all other causes, to use Charcot's expression, have merely the value of *agents provocateurs.*

HYPOCHONDRIA

Out of the group of the neuroses we have now separated three well defined states: (1) neurasthenia; (2) psychasthenia, and (3) hysteria. A fourth now claims our attention, namely, hypochondria. Though Hippocrates does not use the term "hypochondria," it is quite old. Galen speaks of morbus hypochondriacus; other writers speak of hypochondriasis and associate the conditions with complaints of the stomach and of digestion. It was not, however, until the latter part of the eighteenth century that it was more definitely recognized. In 1765 Robert Whytt of Edinburgh, in his treatise on the nervous, hysterical and hypochondriac disorders, clearly separated it from the other two affections. He says: "The complaints of the first of the above classes may be called *simply nervous;* those of the second, in compliance with custom, may be said to be *hysteric,* and those of the third, *hypochondriac.*" We have here an instance of remarkable clarity of vision. In the middle of the nineteenth century French writers, beginning with Georget, recognized the mental character of the symptoms. German writers, Romberg, Griesinger, Schuele, Mendel, Jolly and many others followed. Time will not permit an analysis of the various views. For a time, hypochondria was confounded with hysteria and again with neurasthenia. Von Hoesslin was one of the first to differentiate it clearly from the latter affection, and in this he was followed by Mueller, Bouveret and others. Medical writers on the whole, however, have been loath to grant to hypochondria a definite position in our nosology, evidently for the reason that hypochondriacal states may occur in other affections, such as the prodromal periods of melancholia or of paranoia, or may complicate other mental diseases. On the other hand, hypochondria bears no relation to the nosophobia of neurasthenia nor to the suggested visceral phenomena of hysteria. Its symptoms owe their origin to a change in the general sense of bodily well-being, a change which gives rise to a more or less fixed conviction of illness.

The patient has a feeling of not being well, a feeling simetimes slightly pronounced but often so vivid as to dominate for the time being his life and actions. He usually seeks an explanation of his condition in the disease of one or more organs; most frequently he complains of manifold and distressing symptoms. The most careful clinical examination, it need scarcely be added, fails to reveal anything of moment.

Hypochondria occurs without the presence of a single symptom of the fatigue neurosis or of a single hysterical stigma. It occurs independently of melancholia, of paranoia or of the various demented states. Its symptom group occurs alone and pursues its own course. It is the expression of a diseased personality, of an abnormal condition inherent in the individual.

NEURASTHENIA SYMPTOMATICA

The foregoing considerations show that the neuroses resolve themselves into neurasthenia, psychasthenia, hysteria and hypochondria. A few words are demanded by the nervous symptoms which now and then accompany visceral disease. Serious bodily disease, of course, weakens the entire organism, and that various signs of nervous weakness should be present is but natural. The symptoms, however, are never those of the fatigue neurosis, of simple neurasthenia. For convenience, I have applied to them the term "neurasthenia symptomatica." The fact that bodily weakness is commonly associated with visceral disease has led some physicians to the erroneous conclusion that all neurasthenia is symptomatic, a position which the clinical facts, of course, abundantly disprove.

If neurasthenia is a physical condition, and if psychasthenia, hysteria and hypochondria are innate neuropathies, extraneous factors play no rôle in their causation. That, however, psychogenic factors may, especially in psychasthenia and hysteria, play a rôle in the details of the individual symptoms there can be no question. A psychogenic factor can play on or influence only a preexisting neuropathy. It cannot produce the latter. When a hemianesthesia is suggested in a case of hysteria, the suggestion is the psychogenic factor which develops the symptom; the suggestion, as we have seen, finds a ready soil in the hysteria and, in the absence of such a soil, fails of effect, that is, it fails to develop hemianesthesia in the normal person. That the psychogenic factor of suggestion frequently results in multiple symptoms and in special and often complex clinical pictures in hysteria there can be no doubt.

In psychasthenia, the special symptoms may consist merely of profound exaggerations of the general symptoms encountered in simple neurasthenia. The diminished force of the neurasthenic may express itself in a neuropathic subject as a profound impairment of will, an abulia; the lessened spontaneity and lessened ease of decision may amount to a pathologic indecision, a folie de doute; the lessened inhibition may result, as I have pointed out, in special movements, gestures and tics, while the timidity and general fear may result in special fears and obsessions. As in the case of hysteria, psychogenic factors cannot produce the neuropathy of psychasthenia, but, as in hysteria, they may result in the production of special symptoms and of complex clinical pictures.

The foregoing consideration of the neuroses leads to a simple and natural classification, a classification which, as we have seen, was largely anticipated by Robert Whytt over a century and a half ago. The neuroses arrange themselves naturally into neurasthenia, psychasthenia, hysteria and hypochondria. Neurasthenia is the result of exhaustion; psychasthenia of exhaustion occurring in a neuropathic subject; hysteria and hypochondria are both innate neuropathies, each defined by its own special characteristics.

Psychogenic factors play no rôle whatever in neurasthenia. In psychasthenia and hysteria they may lead to the production of symptoms which feature the indi-

vidual case. In hypochondria they play little or no rôle, the symptoms being almost altogether autogenous. In conclusion, it should be emphasized that the neuroses are physical, biologic and neuropathic in origin, and that psychogenic factors, when they play a rôle, do so merely in the surface manifestations.

1719 Walnut Strect.

RADIUM IN THE TREATMENT OF CARCINOMA OF THE BLADDER AND PROSTATE

REVIEW OF ONE YEAR'S WORK *

B. S. BARRINGER, M.D.

NEW YORK

FOREWORD BY DR. KEYES

The results achieved by Dr. Barringer in the control of malignant disease of the prostate and bladder by the application of radium (unconfirmed though they be by the lapse of a number of years) arc nevertheless striking and offer a prospect of amelioration and a possibility of cure for early and circumscribed neoplasms such as has not before been claimed for any physical agency.

In view of the skepticism which will naturally be aroused by these claims, I feel the obligation of intruding my concurrence.

The condition of Prostatic Cases 1, 3, 9 and 10 has been observed by me, both before and after treatment by radium. The condition of Prostatic Cases 5, 8 and 12 I have noted only after treatment. These observations, though few, are sufficient to justify Dr. Barringer's claim to have checked the growth of prostatic carcinoma in apparently incipient cases for periods varying from a few months to a year. Whether this check has amounted in any of these cases to a total destruction of the carcinoma within or about the prostate, or whether there has simply been a temporary regression, cannot be known at the present time. We know only that the major lumps have been absorbed, and that in many instances the remaining irregularities in the prostate are such that they cannot be distinguished from scars. Moreover, the improvement in the condition of these patients, as evinced by the relief of pain and the increase in weight, is truly remarkable.

I have also observed a regression in three cases of bladder carcinoma, all of which had been vainly treated by fulguration, two of which (Cases 6 and 16) were at the time of treatment flat and sloughy in type, and all of which had been diagnosed as carcinoma by pathologic examination of pieces removed by the cystoscopic forceps, after the last fulguration.

E. L. KEYES, JR., M.D.

RESULTS OF RADIUM TREATMENT

The least that can be said of the result herewith published of radium treatment of carcinoma of the prostate is that radium has produced a marked relief of the symptoms and diminution in the growth, if not a total disappearance of it in certain cases, and this in cases in which the carcinoma had exceeded the limits of the prostate gland — a condition in which it is recognized that surgery is impotent.

The superiority of radium in the treatment of carcinoma of the bladder is not so clear because of the cures that have been alleged from surgical treatment of this condition in its various stages. But with radium we have obtained local cures of flat, sloughy carcinomas of the bladder which, according to the surgical theories of today, would have required resection of the bladder for their removal. Unless these cases promptly recur (which they have not done up to the present) we are therefore in a position to state that we have with the placing of a tube of radium in the bladder for a few hours achieved as much as the surgeon does by a capital operation.

YEAR'S WORK IN CARCINOMA OF THE PROSTATE

1. Radium treatment has caused with surprising regularity the reduction or disappearance of carcinomatous nodules of the prostate. Striking results have been obtained both in early and in advanced cases (Cases 1, 3, 5, 8, 9, 10 and 12). The early cases, those in which the carcinoma is fairly well confined to the prostate and in which there is little or no perivesicular infiltration, all show a shrinkage of the carcinoma.

2. The reduction which occurs in carcinomatous lobes is, as far as has been observed, permanent. One case has been followed ten months; two for six months, and more recent cases but one or two months after the reduction.

3. The symptoms in those cases in which the carcinoma has been reduced generally show striking improvement (Cases 1, 3, 8, 9, 10 and 12). This symptomatic improvement is evidenced in increase in weight and strength, decrease in frequency of urination, and return of or improvement in erections. One patient of 74 years, on whom a suprapubic exploration showed carcinoma of the prostate, and who was treated but once with radium, gained 8 pounds, and reported five months later that he was then "doing a full day's work on steam boilers." He narrated on questioning that a full day's work was from 5 a. m. to 11 p. m. Another (Case 1) who had had no erections for one and one half years, had a permanent return of this function. This patient, who had been invalided, gained from 16 to 18 pounds, started in mild work "shoveling snow and lifting ash cans," and now is doing a full day's work in a machine shop, one year after his first treatment.

4. I have not departed from the technic used in my first case one year ago. Different strengths of radium have been used, but the application is the same. The radium is placed in the end of a needle extending from the tip from 1 to 1½ inches along the shaft. These needles[1] are from 4 to 6 inches long, and are inserted through the perineum into the prostate or further into the perivesicular sheath. Anesthetization of the perineum and the prostate with 0.5 per cent. novocain and epinephrin makes the insertion of these needles practically painless. Little or no pain is felt during the sojourn of the needle (about twelve hours), and the patient can either urinate or be catheterized. This means at most but twenty-four hours in the hospital.

The radium so used is practically unscreened, but *the maximum effect of the radium takes place directly in the center of the carcinomatous nodule.*

The patient usually has pain in the prostate and urinary frequency, beginning about three days after irradiation, and lasting a number of days. In some of the cases in which I have used large doses the reaction has been severe and has lasted several weeks. I believe that lesser doses are about as effective and not so painful. Nearly all of my patients have been irradiated only once in two or three months and no second treatment is given until the effect of the first is entirely over.

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* From the service of the Memorial Hospital.

* Read before the Genito-Urinary Section, New York Academy of Medicine, Nov. 15, 1916.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of a number of case reports. These will be included in the reprints, a copy of which will be sent by the author on request.

1. I am now having gold needles made. These will form a better screen than the steel needles.

5. The primary effect of the radium may be to increase the amount of the residual urine. The ultimate effect of the radium application on residual urine is probably nil, the amount neither increasing nor decreasing. Hence those patients who have chronic retention of urine require either the catheter or operation in addition to irradiation. It would seem wiser not to operate until the carcinomatous prostate had at least been given one dose of radium.

6. No sloughs have resulted from the radium needles.

7. Radium apparently has a selective action on carcinoma. I conclude this from descriptions by Dr. James Ewing of carcinomas examined after radium treatment, and from my own experience.

I have used radium on a hypertrophied prostate with absolutely no effect, neither burning nor shrinkage occurring; yet the same amount of radium would markedly reduce a carcinomatous lobe. I have had a similar experience in a case of chronic contractive fibrosis of the corpora cavernosa, barring the fact that the radium caused a superficial burn of the penis.

8. The pathologic examination of a prostate removed five months after irradiation is of interest (Case 5). The prostate was removed because of retention of urine. Only one treatment was given this patient because he was old and very feeble. The prostate had been considerably reduced in size following the radium treatment. At operation the prostate shelled out like a nonmalignant adenoma. Dr. Ewing's report is as follows:

> Material consists of several lobulated opaque portions of prostate making a mass as large as a hen's egg. Much of this has the honeycomb appearance of chronic prostatitis. But some areas are very firm and solid. Two such areas, size of bean, were sectioned. The main tissue of the gland shows lesions of chronic prostatitis with dilated glands and feeble epithelial proliferation. The solid areas show fibers of muscle tissue separated by rows of small epithelial cells with hyperchromatic nuclei. The appearance is that of diffuse carcinoma in a state of fibrosis. One area of adenocarcinoma is found in the center of a fibrosed area. There is no necrosis.
>
> In view of the history the diagnosis may be made of carcinoma, diffuse and adeno, arising on prostatitis, and undergoing atrophy and fibrosis from radium.

9. As far as I have observed, clinically all of the cases treated are of about the same degree of malignancy. There is a class of cases of prostatic carcinoma, however, of marked malignancy. In these the primary focus in the prostate is often overlooked, and the patient comes to be treated for his secondary focus. There have been two such cases at the Memorial Hospital in both of which there was a large carcinoma of the neck, and it was only by routine examination in one case and necropsy in the other that the primary focus in the prostate was found. Such cases are apparently very malignant, and it is a question if we would ever get them early enough for any treatment to count.

10. Very large carcinomas accompanied by cachexia and loss of weight on the part of the patient are beyond radium and any other treatment.

11. The first year's work has not revealed what, if any, cases have been cured. Time alone will answer that question. To carry my work further, therefore, with the hope of really curing some cases, I am attacking the paths of metastasis, the perivesicular lymphatics with longer needles which are inserted through the perineum and prostate high up along both seminal vesicles.

SUMMARY OF PROSTATIC CASES

Seventeen cases of prostatic carcinoma have been treated. The seventeen cases may be roughly divided as follows:

Advanced Cases.—Eight of the cases (2, 4, 7, 8, 9, 10, 11 and 13) were hopeless; in two of these (Cases 8 and 9) the carcinoma had invaded the bladder. Two patients have died (Cases 2 and 4). Two (Cases 7 and 11) are going down hill. One has been lost track of; seven months after a single treatment, however, I heard that he was up and working. Three (Cases 8, 9 and 10) are improved. In two of these the diagnosis was confirmed by microscopic examination (Dr. Ewing). In the first, the prostatic carcinoma has almost disappeared and the carcinomatous lump which projected into the bladder has about gone. The second patient has gained about 14 pounds in weight, goes from four to six hours without urinating, has good erections, and his carcinoma, with the exception of a small lump remaining in the right vesicle, has disappeared. The third patient looks well, urinates less frequently at night, and has no residual urine, as against from 2 to 3 ounces before the radium treatment.

Early Cases.—Nine of the seventeen cases (Cases 1, 3, 5, 6, 12, 14, 15, 16 and 17) were, roughly speaking, fairly early. This does not mean that they were suitable for operation. As a matter of fact, because of the initial success of radium treatment I now take the stand that no patients with prostatic carcinoma should be operated on. The diagnosis of carcinoma was confirmed by microscopic examination in four of these nine cases. Five of the nine have been too recently treated to report in detail. The remaining four (Cases 1, 3, 5 and 12) have much improved as far as the prostate goes, and three have improved symptomatically. One has gained 16 pounds, and has no night frequency, as against from three to four times, and works a full day, as against no work. One gets up at night not at all as against from three to four times, and has had no catheterization since the radium treatment (eight months ago); whereas before treatment he had one or more attacks of acute retention. One has gained 5 or 6 pounds, and has come back to a full day's work (from 5 a. m. to 11 p. m.) on steam boilers. The fourth patient did not improve symptomatically because of his urinary retention. This patient's prostate was removed five months after irradiation, and he is now recovering from his operation.

BLADDER CARCINOMA

My statistics in bladder carcinoma, viewed from different points of view, are both good and bad — bad because five of sixteen patients treated have died[2] and three are rapidly getting worse. The fact that in the first year I have treated nearly every patient sent to me, and that thirteen of the sixteen cases were advanced carcinoma, explains these statistics.

I consider the results good because four cases of carcinoma of the bladder (three advanced, one early, Cases 2, 6, 10 and 16), three confirmed microscopically as carcinoma (Dr. Ewing), have been cystoscopically proved cured, one for ten and one half months, one for five months, and two recently.

These few cases have so impressed me that I believe the cure[3] by radium of carcinoma of the bladder

2. Two as a result of transplantation of the ureters because of intolerable pain.

3. Cure as far as the bladder is concerned; it is too early to speak of permanent cure.

depends on two conditions: first, to get cases early enough, and, second, actually to apply the radium to the carcinoma.

Application of Radium in Bladder Carcinoma.—The technic of the application of the radium has been outlined in my preliminary report.[4] A capsule of screened radium (0.6 mm. of silver and 1 mm. of rubber) from 100 to 200 mc. is placed in the bladder through the sheath of the cystoscope and allowed to remain there from six to ten hours. As 90 per cent. of bladder tumors are on the bladder base, the radium so inserted is in close contact with the tumor. If the carcinoma is on the vault or lateral walls, the patient lies on his abdomen or on one or the other side. After the treatment the radium is removed through the urethra by a linen thread attached to the tube.

In my year's work I have seen no reason to depart from this technic. The initial pain experienced is only that of the cystoscopy. The after-burn varies from none at all to more or less severe pain beginning a few days after treatment and lasting from one day to several weeks.

In extensive carcinoma involving the bladder, sphincter irradiation may greatly increase both the pain and the urinary frequency. It is to be used in these cases with caution.

CASE REPORTS OF PROSTATIC CARCINOMA[5]

CASE 1.—J. C. D., aged 59, complained chiefly of loss of flesh and strength, and night urinary frequency, from three to four times for four months. He had had pain in the right thigh for five years. Prostatic examination (with Dr. Keyes) revealed a large, hard, fixed, irregular prostate, each lobe of which was about as large as an English walnut; the left lobe was more prominent than the right, and there was little extension toward the seminal vesicles. Radium treatment was given, Oct. 20, 1915, 50 mc. for six hours in each lobe.

November 17, the patient reported that he had considerable burning after the treatment, and that he had a number of erections since (erections had been lost for one and one-half years). The prostate felt the same.

Jan. 14, 1916, the patient had gained about 10 pounds; he felt fine; erections had diminished. Examination of the prostate (with Dr. Keyes) revealed marked shrinking of the carcinoma. Dr. Keyes said that it was more the slight irregularity of the prostate than anything else that suggested carcinoma. I gave the patient 60 mc. of radium for four hours in both lobes.

January 31, he had gained about 6 pounds more, making 16 in all. He had had no pain from the radium, and rose once at night to urinate.

February 18, he did not get up at all at night to urinate, and had gained 2 pounds in weight. There was slight induration at the base of the prostate, and the right lobe was treated for eight and one-half hours with 38 mc. of radium.

April 4, treatment with 75 mc. was given the right lobe for four hours, and then the left lobe for four hours.

November 7, he had been working in the machine shop for six months, and had lost a couple of pounds. He had had some burn after the radium, which had caused an increase in night urination (from three to four times). In the center of the left lobe there was a small, fairly hard lump, and a slight, hard ridge in the right lobe. The patient's condition was fine.

CASE 9.—M. H., aged 65, had a sloughy, pedunculated carcinoma removed from the neck of the bladder by Dr. Keyes. This grew from the prostate, no removal of which was attempted. The pathologic examination (by Dr. Ewing) was thus reported: "The section is from a mass of tumor tissue 1.5 cm. in diameter. It shows a solid carcinoma composed of small and large groups of compact tumor cells, with very little stroma. The cells are of medium size, polyhedral, with hyperchromatic nuclei. The vessels are scanty. There is no necrosis. It is impossible to state from the section whether there is any infiltration of the bladder wall. In structure the tumor is a fully developed carcinoma."

June 6, the right lobe of the prostate, which had a hard ridge, was treated with 93 mc. of radium.

July 5, there was slight burning after the radium; the lump in the prostate was the same.

September 12, the patient did not have to rise at night. He went from four to six hours without urinating. He had gained 15 pounds. The lump in the right lobe was about gone. Drs. Keyes and Jeck saw it as infiltrations running up into the right vesicle. This is to be treated with radium.

CASE 12.—F. S., aged 74, was operated on at Mount Sinai Hospital, and carcinoma of the prostate was found. When I first saw him he had a night frequency of three times, and the right lobe of the prostate was small, hard and irregular.

June 29, this lobe was treated with a radium needle of 86 mc. for four and a half hours.

October 29, the patient still urinated from three to four times at night; he had a good appetite, had no pain, and worked from 5 a. m. to 11 p. m. on steam boilers. He reported having had but little burn from the radium. The prostate was flat and somewhat irregular with some induration beyond the prostate across the bladder base. No carcinoma was palpable in the prostate. (Examination was made with Dr. Keyes.)

CASE REPORTS OF BLADDER CARCINOMA[6]

CASE 2.—C. A. G., woman, aged 69, complained chiefly of urinary frequency for the past year, at night three or four times, during the day every three or four hours, and pain following urination. She had been passing bloody urine for the past four months. A number of months before I saw her, cystoscopic examination had been made, with a diagnosis of inoperable carcinoma. Cystoscopy revealed a large red carcinoma with necrotic patches on the left side of the bladder obscuring the left ureteral orifice. The tumor was probably as large as a half dollar. The specimen removed was thus described (by Dr. Ewing): "The section is of a small mass of tumor tissue 2 mm. in diameter. It shows the structure of a small alveolar carcinoma, much inflamed, with dilated blood vessels. The cells are cleared, irregular in size, with large hyperchromatic nuclei, and arranged in small groups. The stroma is scanty."

Jan. 19, 1916, 100 mc. of screened radium were placed in the bladder and allowed to remain for eight hours.

February 4, she reported that she had had some frequency and severe bladder pain for two days; then everything was normal. Cystoscopy (performed with Drs. Keyes and Jeck) revealed that the tumor had gone, the area was covered with normal mucous membrane, and the ureter was visible.

July 6, she had gained from 4 to 5 pounds, and had a slight cystitis due to a cystocele, but there was no tumor.

December 19, she had a stellate white scar over the place occupied by the tumor. No tumor was visible.

CASE 6.—C. T., man, aged 59, eight months before being seen had occasional painless hematuria. Cystoscopy revealed papilloma near the left ureter. This was burned with the high frequency current four times in about six months, but had always recurred. Dr. Keyes saw it in January, 1916, when it was an ulcerated area with carcinomatous looking lumps. A piece removed was thus described (by Dr. Ewing): "The section is from a mass of tumor tissue 5 mm. in diameter. It presents a small alveolar and diffuse carcinomatous structure. The cells are extremely atypical, and some are of very large size, with very hyperchromatic nuclei. The outer portions are hydropic, the central areas show fibrosis, and here the tumor cells run in narrow rows or small groups."

Feb. 11, 1916, 214 mc. of screened radium were inserted for seven hours.

May 2, cystoscopy revealed normal mucous membrane over the space occupied by the carcinoma. The patient had had seven or eight erections since treatment, while he had been practically impotent for ten years before.

4. Barringer, B. S.: The Treatment by Radium of Carcinoma of the Prostate and Bladder, THE JOURNAL A. M. A., Nov. 11, 1916, p. 1442.
5. Treated from October, 1915, to October, 1916.
6. Treated from October, 1915, to October, 1916.

In July, he had gained 10 pounds. Cystoscopy (by Dr. Ballenger) was negative.

November 8, Dr. Ballenger reported that he "had passed no more blood. Cystoscopy about a month ago showed only a reddened place where the growth was. There has been a rather persistent cystitis."

Case 16.—J. A. H., man, aged 62, had had two attacks of total hematuria, one month and eight days before he was seen. There were no night frequency and no loss of weight. Dr. Keyes saw by cystoscopy a red, lobulated, rather flat carcinoma above the right ureter; he burned it with the high frequency current and advised radium. The patient went to another physician, who fulgurated the tumor and decided against both operation and radium. About three months later he returned when (on examination with Dr. Keyes) a flat carcinoma, sloughy in part, two or three times the original size, was revealed, extending from the bladder neck to a point 2 cm. above the right ureter. It had raised, thick, indurated edges. A specimen removed revealed carcinoma (Dr. Ewing). Two tubes of screened radium (one 90 and one 89 mc.) were left in the bladder six hours.

Two months later the patient returned, when redness of the right side of the bladder was seen and a small ulcer back of the ureter (well away from where the tumor was) probably due to radium burn. *No other lesion was seen.*

SUMMARY

Three out of eight patients with advanced carcinoma of the prostate have been markedly improved. In three out of four early cases the patients have been relieved of their symptoms, and the growth has so far shrunken as hardly to be appreciable by the finger. Moreover, four patients with bladder carcinoma appear to be cured by the use of radium. Of course I use the word "cured" in a restricted sense, but radium has done for these patients what no other agent short of operation could possibly have done, while for the prostatic patients it has done much more than operation could have done.

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THE ABSORPTION OF APOMORPHIN AND MORPHIN THROUGH THE CONJUNCTIVA *

DAVID I. MACHT, M.D.

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While surgeons, gynecologists, and even authorities on internal medicine have on frequent occasions looked with little faith on the efficiency of drug medication, an attitude of drug nihilism cannot be imputed to the ophthalmologist. Indeed, some of the most important pharmacologic contributions have been in the field of ophthalmology, and some of the most strikingly beneficial therapeutic effects have been produced in the treatment of eye conditions. We need but mention the employment of atropin, cocain, physostigmin, epinephrin and many other mydriatics, miotics, astringents, analgesics and antiseptics.

When we consider the highly developed blood and lymph supply of the eye and its appendages, especially the patent tear ducts, it is surprising that so few cases of drug absorption and intoxication through them are on record. So few are the cases found in the literature that many physicians deny the possibility of such absorption through the conjunctiva and the lacrimal apparatus, and attribute the poisoning in such cases to the careless administration of the drugs and to their absorption through the mouth of the patient.

A careful examination of the literature, however, will soon establish the authenticity of such poison cases. Thus, for instance, systemic poisoning by cocain through absorption from the eyes has been not infrequently observed. An interesting summary of such cases has been published by Falk.[1] That author collected reports of twenty cases of such poisoning. In one of them, a boy, aged 14 years, was severely poisoned by the instillation of 1 drop of 1 per cent. solution of cocain. In another case, a man, aged 40, suffered a collapse and respiratory failure after the instillation of 2 drops of a 4 per cent. solution.

Systemic symptoms from instillation of atropin into the conjunctival sac are even more frequent than those from cocain, and have been reported by Feddersen,[2] Lewin,[3] von Jaksch,[4] Blyth,[5] Kunkel[6] and other toxicologists as well as by many ophthalmologists.

In connection with pharmacologic investigations on opium alkaloids, which I have been conducting for some time past, an interesting observation was made which strikingly establishes the fact that certain drugs can be quickly absorbed through the conjunctiva.

If a few milligrams of apomorphin hydrochlorid are sprinkled into the eye of a dog and the animal is held still for a minute or two in order to allow the drug to dissolve, emesis follows in from two to five minutes.

The same phenomenon is produced by the instillation of a few drops of a 1 or 2 per cent. solution of apomorphin hydrochlorid. I have been able to produce a state of vomiting by the instillation or dusting of apomorphin into the conjunctiva, in every case in which it was tried. In all the experiments, care was taken to eliminate any possibility of the animal's absorbing the drug by licking. Furthermore, the experiments were repeated also on animals under anesthesia, and in a moribund state after prolonged operations; even in those cases retching movements followed the administration of apomorphin through the eye.

As vomiting is produced in dogs almost as easily with morphin as with apomorphin, experiments were also made with instillations of morphin solutions and insufflations of morphin powder into the conjunctival sac; here again emesis followed, although after a somewhat longer interval (five or more minutes).

It may be well to call attention to the fact that in the experiments described above, which were made on normal dogs, no cruelty was practiced, as I have quantitatively shown, in my work with Johnson and Bollinger,[7] that the opium alkaloids have a slightly analgesic, local effect on mucous membranes.

I have had no experience with local applications of apomorphin or morphin on human subjects, nor do I recommend such practice. The foregoing experiments, however, should serve to emphasize the possibility and importance of drug absorption through the conjunctiva, and to render the ophthalmologists more cautious in the employment of toxic alkaloids.

Further experiments now in progress seem to indicate that the absorption of the foregoing drugs takes place through the blood and lymph channels, and not altogether through the nasal duct. The full data will appear in due time in the *Journal of Pharmacology and Experimental Therapeutics.*

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* From the Pharmacological Laboratory, Johns Hopkins University.

1. Falk: Therap. Monatsh., 1890, **4**, 511.
2. Feddersen: Diss., Berlin, 1884.
3. Lewin: Nebenwirkungen der Arzneimittel, 1910.
4. Von Jaksch: Die Vergiftungen, 1910, p. 471.
5. Blyth: Poisons, 1906, pp. 358, 385.
6. Kunkel: Handbuch der Toxicologie, 1901, p. 706.
7. Macht, Johnson and Bollinger: Jour. Pharmacol. and Exper. Therap., 1916, **8**, 451.

LUMBAR PUNCTURE FOR THE RELIEF OF DELIRIUM IN LOBAR PNEUMONIA

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In pneumonia, delirium is usually a symptom indicative of a severe infection. The respiratory and vasomotor systems are as a rule, though not necessarily, also affected by the severity of the toxemia, of which the delirium is the most obvious manifestation. The control of this delirium in most cases is necessary in order to avoid throwing a greater strain on the heart than would occur under ordinary circumstances in the infection. A wild, uncontrollable delirium is dangerous, not only because it presumably indicates a severe toxemia, but also because it may rapidly exhaust the patient through muscular exertion. In spite of the exhausting effects of delirium, the usual remedies recommended for its control are distinctly depressant. Such an effect may be desirable, as in delirium tremens when the delirium is not associated with a virulent infection, such as pneumonia, which may overwhelm the patient at any time. To give depressing drugs when the chief indication for treatment is to support and maintain the patient seems irrational. The usual methods advocated by various authorities[1] on pneumonia for the control of delirium include hydrotherapy primarily, and if this fails, drugs, such as bromids, chloral and the like. Morphin is advocated only in the severe types of delirium, though it probably has a less depressing and harmful effect than the former drugs. In none of the standard works could we find lumbar puncture advocated, nor in a review of the current medical literature for the past four years could we find any reference to it as a measure to control delirium in pneumonia, though it has undoubtedly been employed. Roger and Baumel,[2] however, recommend it for the alleviation of headache in pneumonia. The relief of delirium by lumbar puncture is naturally suggested by the results that have been achieved in delirium tremens. In this condition there is a marked increase in intraspinal tension, as shown by Schottmüller and Schumm.[3] Assuming this to have some relationship to the delirium, Steineback[4] systematically employed lumbar puncture for the treatment of delirium tremens with excellent results. Lumbar puncture apparently not only relieves pressure but also removes a certain amount of toxic substances. The author recommends a further dilution of these substances by injection of physiologic sodium chlorid solution in amounts equivalent to the fluid removed. Another factor is that in delirium tremens there is a greater hydration capacity of the brain than normal.[5] Presumably the removal of the fluid under pressure within the meninges lessens the possibility of greater absorption of fluid, and consequently decreases the production of delirium.

1. These authorities include:
Hare, H. A., in Musser and Kelly: Practical Treatment, Philadelphia, 1911, p. 277.
Ortner: Treatment of Internal Diseases, Philadelphia, 1913, p. 309.
Musser and Norris, in Osler: Modern Medicine, Philadelphia, 1907, p. 566.
Osler, W. A.: Principles and Practice of Medicine, New York, 1912, p. 101.
Goodall: Index of Treatment, London, 1916, p. 363.
2. Roger and Baumel: Rev. de méd., 1915, **33**, 42.
3. Schottmüller and Schumm: Neurol. Centralbl. 1912, **31**, 1020.
4. Steineback: Deutsch. med. Wchnschr., 1915, **41**, 369.
5. Nuzum, Frank, and Le Count, E. R.: The Ability of Brain Tissue to Take up Water in Delirium Tremens and Other Conditions, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1822.

By analogy with delirium tremens, the rationale of removal of excess spinal fluid in pneumonia may be justified. It appears that the most common theory of the pathogenesis of delirium in delirium tremens is that the increased intraspinal pressure is responsible for the delirium rather than cerebral congestion, for example. In pneumonia there is no evidence of bacterial invasion of the meninges, excepting, of course, when there is a true pneumococcic meningitis; the fluid is sterile when cultures are taken. It is presumable that in a certain number of cases the pneumococcic toxins may have a greater affinity for the spinal membranes than in other cases. Such cases respond to the irritation of this toxin by the secretion of increased amounts of fluid by the choroid plexus. As a result of this the usual channels of escape are blocked up and the increase of pressure causes changes in the brain cells with the subsequent delirium. To relieve this it is obvious that lumbar puncture is indicated.

In the series of cases reported, this result was promptly and immediately attained. Large amounts of fluid were withdrawn in only two cases, and it is fair to presume, therefore, that in addition to the relief of pressure, as in delirium tremens, there was the added factor of escape of toxins probably more or less concentrated.

CLINICAL NOTES

During December, 1916, and January, 1917, an unusual number of lobar pneumonia patients were admitted to the men's medical ward of the Presbyterian Hospital. Several were delirious on admission or developed delirium soon after entrance to the hospital, and it is this series of cases that particularly interested us.

The first patient was wildly and uncontrollably delirious on entering the ward, and at the suggestion of Dr. Sailer, to whom we are indebted for permission to report these cases, we were led to attempt a spinal puncture in an effort to control the delirium. The puncture was done, fluid flowed under marked pressure, and within an hour or two the patient became quiet, his delirium diminished greatly, and he was able to sleep intermittently.

Stimulated by this success, we continued treating the delirious pneumonia patients by lumbar puncture, and without any exception brought about a marked diminution if not an absolute cessation of their delirious condition.

The patients who developed delirium after admission to the hospital did so gradually, the delirium being preceded by increasing nervous symptoms. The patellar, biceps and triceps reflexes were always increased, and in one case Kernig's sign was present. The gradually increasing restlessness and irritability developed into delirium, which became more marked as the disease progressed. Although the nervous signs led us to watch for delirium, we always waited for the delirium as an indication for the puncture.

It was our habit to attempt to control the restlessness preceding the delirium by sedatives, morphin as a rule, usually with only partial success. After a puncture, however, the patient became quiet, was able to sleep, and sedatives could be dispensed with. The puncture in itself, contrary to our expectations, caused the patient only slight discomfort. Only a few complained of pain, and these were not markedly upset by the procedure. None of the patients showed any immediate untoward effects as a result of the operation.

At first the fluid came from the needle under pressure, often flowing in a steady stream which rather rapidly decreased to a normal flow. We did not limit ourselves to a definite amount, but allowed the fluid to escape until the rate reached normal.

In one case the delirium apparently began to return, leading us to repeat the puncture; here there was no excessive pressure to the flow, and only a small amount was withdrawn. The symptoms increased no further, and the patient went on toward recovery.

It is interesting to note that in the seven cases of delirium, four patients died, two developed empyema, one of these showing also myocardial weakness, and the remaining one had unresolved pneumonia with a greatly prolonged convalescence. In the cases which terminated fatally, death seemed to be the result of an overwhelming toxemia rather than a cardiac failure. The cases in which the patients recovered were extremely severe in type, and during the course of the disease the prognosis was so unfavorable that a successful termination was not expected.

REPORT OF CASES

CASE 1. (H-64017).—The patient was admitted to the ward, Dec. 19, 1916, with lobar pneumonia of the left lower lobe of four days' duration. He was delirious on admission to a wild and maniacal degree. Two days after admission, lumbar puncture was performed. The fluid was under considerable pressure; 30 c.c. were removed. No laboratory report was made, as the test tube was broken. The delirium greatly diminished, changing from a wild, active type to a low muttering. The patient died, Dec. 23, 1916.

CASE 2 (F-64061).—The patient was admitted, Dec. 22, 1916, with lobar pneumonia of the right middle and lower lobe of two days' duration. He developed a marked delirium four days later and a severe headache. Lumbar puncture was performed on the eighth day of the disease; 65 c.c. of clear fluid were removed under great pressure. The laboratory reported that it was sterile, with negative Noguchi and Rivolta tests. The delirium was almost immediately relieved, and improvement in the general condition was marked. The patient developed empyema, was operated on, and was cured.

CASE 3 (C-64074).—The patient was admitted, Dec. 25, 1916, with no obtainable history. There was lobar pneumonia of the left upper lobe. He was widly delirious on admission. Lumbar puncture was performed three days later; 35 c.c. of clear fluid under marked pressure were removed. The laboratory reported that it was sterile, with negative Noguchi and Rivolta tests. A note made on the day after rachiocentesis said: "Immediately after tap patient quieted down. He is now semiconscious, sleeps intermittently and is neither restless nor delirious. General condition not improved." Death occurred, Dec. 30, 1916.

CASE 4 (C-64128).—The patient was admitted, Dec. 29, 1916, with lobar pneumonia of the right middle lobe of two days' duration. January 3, he was very restless and irrational; spinal puncture was performed, and 30 c.c. of clear fluid under pressure were removed. The laboratory reported that it was sterile, with faintly positive Noguchi test and negative Runeberg. Four hours after puncture, the patient was much less restless and was sleeping. There was no further delirium. The pneumonia was unresolved for several weeks, but eventually cleared up.

CASE 5 (H-64151).—The patient was admitted, Dec. 31, 1916, with pneumonia of the right upper lobe of one day's duration. He was irrational and delirious, the next day. Lumbar puncture was performed, January 3, as the delirium showed no improvement; 30 c.c. of clear fluid were removed under considerable pressure. The laboratory reported that it was sterile, and the Noguchi test negative. The patient's condition the next day was worse, but he was entirely rational and much more quiet. Death occurred, Jan. 5, 1917.

CASE 6 (A-64200).—The patient was admitted, Jan. 6, 1917, with pneumonia of the right lower lobe of one week's duration. He had been irrational and delirious for two days preceding admission. Lumbar puncture was performed, the day following admission; 25 c.c. of clear fluid were removed under slight pressure. It was sterile, and the Noguchi test positive. Runeberg was negative. The patient was quiet after the rachiocentesis, and the delirium disappeared. He slept well. He died in coma, Jan. 13, 1917.

CASE 7 (A-64).—The patient was admitted, Jan. 14, 1914, with lobar pneumonia of the left lower lobe, of three days' duration. Wild, noisy delirium developed two days after admission. Spinal puncture was performed twelve hours later; 45 c.c. of clear fluid under considerable pressure were removed. The laboratory reported a culture of *Staphylococcus albus* (contamination?) grown from the fluid; the Noguchi test was positive. After the rachiocentesis, the patient quieted down markedly. Two days later, restlessness and delirium returned with the appearance of parotitis. Spinal puncture was repeated, and 4 c.c. were removed, not under pressure. The patient improved steadily in his general condition from this date on, but developed an empyema which required operation.

SUMMARY AND CONCLUSION

In seven cases of pneumonia associated with severe delirium, relief of the delirium promptly followed spinal puncture. The mortality rate was high, but as delirium is usually an indication of a severe infection, we feel that lumbar puncture offers a ready aid in controlling one of the symptoms which may so aggravate the patient's condition that what little chance he may have of surviving the infection would be lost were it not for this procedure. Lumbar puncture is suggested as a measure to control a severe symptom, and not for any direct curative purposes.

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THE RELATION BETWEEN DIABETES MELLITUS AND CLINICAL SYPHILIS

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The recent work of Warthin and Wilson[1] has stimulated interest in the question of coincidence of latent syphilis and diabetes. They report that in six necropsies in cases of diabetes, all presented histologic changes of syphilis; in four of them, spirochetes were found in the myocardium, and in one of these cases, in the pancreatic lesions. They also report that the pancreas in forty-one cases of latent syphilis already reported by Warthin[2] showed marked changes, and conclude that "latent syphilis" is the chief factor in the production of the form of pancreatitis most frequently associated with diabetes, but that diabetes is not always coincident with severe degrees of this type of pancreatitis.

For several years, I have been interested in the possible relationships between clinically demonstrative syphilis and diabetes, and have studied the cases of diabetes encountered in practice in regard to this relationship. The data are presented in this paper.

It is quite possible that syphilis might cause diabetes by producing a specific lesion of the brain, especially of the medulla. Syphilitic arterial disease with secondary nervous lesions in the region of the fourth ventricle, or a gumma in this part would also be capable of producing diabetes. Again, syphilis might produce diabetes by causing disease of the blood vessels of the

1. Warthin, A. S., and Wilson, U. F.: Am. Jour. Med. Sc., 1916, **152**, 157.
2. Warthin, A. S.: Am. Jour. Med. Sc., 1916, **152**, 508.

pancreas and secondary disease of pancreatic gland tissue.

Von Noorden[3] mentions cases of glycosuria reported to have been cured by treatment with mercury and iodids.

F. Hirschfeld[4] found that 6 per cent. of his cases of diabetes could be claimed to be on a syphilitic basis. Von Noorden[5] discovered 1.2 per cent. of male diabetics, under 20 years, were syphilitic, 7.1 per cent. of male diabetics, over 20 years, and 2.3 per cent. of female diabetics, of various ages. Sarra's[6] statistics are about the same. Scheinmann,[7] Neumann,[8] Ehrmann[9] and Lombroso[10] have also published reports on the relation between diabetes and syphilis.

Ord[11] has recorded several cases in which glycosuria has been found in patients presenting the ordinary general symptoms of constitutional syphilis.

Feinberg[12] has reported three cases of diabetes and one of glycosuria which were apparently of syphilitic origin. These were all cases of nerve involvement and were under antisyphilitic treatment; recovery occurred in one of the cases, improvement in the other two, but in the case of glycosuria no definite improvement followed.

Williamson,[13] in 100 cases of diabetes, obtained a history or indication of previous syphilis in six cases, and found in these no reason to regard syphilis as the cause of the diabetes. Walker and Haller[14] reported seven positive Wassermann reactions in eighty-nine cases of diabetes, and obtained a history of syphilitic infection in a majority of these seven cases.

The accompanying table shows that of the sixty-two cases of diabetes mellitus studied, there is positive evidence of syphilis in seven, or 10.3 per cent. Five of these seven patients were persuaded to take syphilitic treatment. There was no increase in tolerance for carbohydrate in any of these cases after treatment.

3. Von Noorden: Die Zuckerkrankheit, 1898, p. 160.
4. Hirschfeld: Deutsch. med. Wchnschr., 1909, **35**, 137.
5. Von Noorden: Die Zuckerkrankheit, Berlin, 1912, p. 78.
6. Sarra: Gazz. d. osp., 1909, **30**, 729.
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8. Neumann: Syphilis, Vienna, 1899, Ed. 2, p. 622.
9. Ehrmann: Deutsch. med. Wchnschr., 1908, **34**, 1303.
10. Lombroso: Ergebn. d. Physiol., 1910, **9**, 1.
11. Ord: Brit. Med. Jour., 1889, **2**, 965.
12. Feinberg: Berl. klin. Wchnschr., 1892, **39**, 119.
13. Williamson: Diabetes Mellitus and Its Treatment, 1898, p. 113.
14. Walker, I. C., and Haller, D. A.: Routine Wassermann Examinations of Four Thousand Hospital Patients, THE JOURNAL A. M. A., Feb. 12, 1916, p. 488.

RESULTS OBTAINED IN A STUDY OF SIXTY-TWO CASES OF DIABETES MELLITUS IN RELATION TO A POSSIBLE EXISTING SYPHILIS

Case No.	Sex	Age	Age When Diabetes Was First Discovered	Wassermann Test	Luetin Test	Constitutional Signs of Syphilis
1	Female	21	20	Negative	Negative	Absent
2	Female	46	44	Negative	Negative	Absent
3	Female	50	40	Negative	Negative	Absent
4	Female	26	23	Negative	Negative	Absent
5	Male	50	46	Negative	Negative	Absent
6	Male	44	44	Positive	Positive	Syphilitic myelitis
7	Female	56	53	Positive	Positive	Husband syphilitic
8	Female	60	52	Negative	Negative	Absent
9	Male	49	48	Negative	Negative	Absent
10	Female	60	57	Negative	Negative	Absent
11	Female	53	49	Negative	Negative	Absent
12	Male	50	45	Positive	Positive	Absent
13	Male	49	48	Negative	Negative	Enlargement of liver and spleen
14	Male	69	65	Negative	Negative	Absent
15	Male	48	44	Negative	Negative	Absent
16	Male	62	58	Positive	Positive	Absent
17	Female	45	43	Negative	Negative	Aortic sclerosis
18	Female	70	60	Negative	Negative	Absent
19	Male	45	45	Positive	Positive	Absent
20	Male	60	50	Negative	Negative	History of chancre
21	Female	38	38	Negative	Negative	Wife (absent) diabetic
22	Male	45	44	Negative	Negative	Absent
23	Female	46	43	Negative	Negative	Absent
24	Female	48	48	Negative	Negative	Absent
25	Male	58	44	Negative	Negative	Absent
26	Male	69	67	Negative	Negative	Absent
27	Female	58	54	Negative	Negative	Absent
28	Male	44	41	Negative	Negative	Absent
29	Female	48	46	Negative	Negative	Absent
30	Male	50	43	Negative	Negative	Absent
31	Male	54	52	Negative	Negative	Absent
32	Female	36	35	Negative	Negative	Absent
33	Male	43	40	Negative	Negative	Absent
34	Female	68	66	Negative	Negative	Absent
35	Male	41	39	Negative	Negative	Absent
36	Female	55	53	Negative	Negative	Absent
37	Female	43	41	Negative	Negative	Absent
38	Male	46	45	Negative	Negative	Absent
39	Male	42	41	Negative	Negative	Absent
40	Male	62	56	Negative	Negative	Absent
41	Female	55	52	Negative	Negative	Absent
42	Male	58	57	Negative	Negative	Husband (absent) diabetic
43	Female	25	22	Negative	Negative	Absent
44	Female	55	51	Negative	Negative	Absent
45	Male	45	44	Negative	Negative	Absent
46	Female	64	63	Negative	Negative	Absent
47	Male	60	54	Negative	Negative	Absent
48	Male	62	52	Negative	Negative	Absent
49	Female	59	56	Negative	Negative	Absent
50	Male	31	28	Negative	Negative	Absent
51	Female	47	46	Negative	Negative	Absent
52	Male	60	55	Negative	Negative	Absent
53	Male	55	53	Negative	Negative	Absent
54	Female	62	52	Negative	Negative	Absent
55	Male	33	31	Negative	Negative	Absent
56	Male	39	38	Negative	Negative	Absent
57	Male	52	44	Negative	Negative	Absent
58	Male	60	52	Negative	Negative	Absent
59	Male	51	49	Positive	Positive	Cardiosclerosis
60	Female	52	49	Negative	Negative	Absent
61	Male	54	44	Negative	Negative	Absent
62	Male	38	36	Positive	Positive	History of chancre

On this account, it cannot be stated definitely that the diabetes was due to the syphilis. It is, however, logical to think that they exist as independent conditions, at least in the cases that are presented in this paper.

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A NOTE ON THE INTESTINAL ACTION OF ADSORPTIVE AGENTS *

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During recent years certain adsorbents, notably kaolin and fullers' earth, have come into use in the treatment of diarrhea. Kaolin (bolus alba) has been favorably recommended by the Austrian medical officers, who used it extensively in checking the diarrhea of cholera when that disease was prevalent early in the war.

Hess,[1] working with the diarrheal conditions of infants, advocates the use of fullers' earth rather than kaolin; the latter he found of no value. Fullers' earth checked the diarrhea, indeed caused constipation when continued for any length of time; it diminished the vomiting and seemed without harmful effects of any kind.

It is recognized that any therapeutic action of these substances will result from the physical property of adsorption, and Fantus[2] has suggested that they be standardized for use on such a basis. Fantus has studied particularly the value of fullers' earth as an adsorbent of various alkaloids, a phenomenon that may have considerable value in an antidotal capacity. The suspension of fullers' earth carries a positive electrical charge and is therefore most effective as an adsorbent of the negatively charged colloids and, selectively, of the lipoids, whence the derivation of the name. Kaolin, on the other hand, is practically amphoteric, possibly not an unimportant factor in the explanation of the weak activity developed as an adsorbing substance.

We can conceive the effect of such agents in the gastro-intestinal tract as influencing a variety of factors: Toxic substances may be adsorbed and thereby their systemic effect removed; ferment activity may be altered or, finally, the bacterial flora influenced. Apart from the work of Fantus, Friedberger and Kumagai[3] have published data indicating that such agents adsorb the larger molecular aggregates more readily than the lower split products of the proteins. An intoxication depending, therefore, on the absorption of the higher split products of proteins through a damaged bowel wall might conceivably be modified through the introduction of adsorptive agents. As the gastro-intestinal tract of infants is particularly susceptible to faulty absorption of such character, a large part of the therapeutic action may be developed along these lines by the administration of absorptive agents. Test tube experiments have shown that no marked influence is exerted on the growth of the ordinary bacterial flora of the intestine when such adsorptives are introduced. There remains, then, the possibility that the therapeutic effect may be due to an alteration in the ferment activity of the intestinal juices. In order to study this possibility the following experiments were made:

EXPERIMENTAL WORK

Human duodenal and upper jejunal contents were obtained from fresh postmortem material (supplied by Dr. E. R. LeCount). The intestinal contents were diluted with about three volumes of physiologic sodium chlorid solution and then filtered through several layers of gauze.

A. The influence on the rate of proteolysis of the intestinal contents when fullers' earth and kaolin were added is shown in Table 1.

TABLE 1.—RATE OF PROTEOLYSIS

Intestinal Contents	Noncolloidal Nitrogen	
C.c.	Mg.	
7.5	17.5	
7.5	25.0	(48 hours digestion)
7.5 (with 0.2 gm. fullers' earth)	20.0	(48 hours digestion)
7.5 (with 0.2 gm. kaolin)	23.2	(48 hours digestion)

With fullers' earth the digestion was reduced to 33 per cent. and with the kaolin to 78 per cent. of the normal amount.

B. The diastatic activty was also decreased, as indicated in the following experiment: Five c.c. of intestinal contents were each mixed with 0.1 gm. of kaolin and of fullers' earth, incubated for thirty minutes, then centrifuged and the supernantant clear fluids titrated for diastatic activity. The portion treated with fullers' earth showed no diastase, while the diastatic activity of the kaolinized sample was reduced one half.

C. The lipolytic activity of the supernatant fluids gave the results shown in Table 2.

TABLE 2.—ACIDITY DEVELOPED FROM 1 C.C. ETHYL BUTYRATE

Intestinal Contents	Hundredth-Normal Sodium Hydroxid
C.c.	C.c.
1	15
1 (with kaolin)	9.3
1 (with fullers' earth)	1.5

RESULTS

As this well recognized effect on ferment activity represents the only demonstrable change induced by the adsorptive agents, we must consider its possible relation to the therapeutic results observed. Two possibilities present themselves:

It is probable that in diarrhea, with its rapid sweeping of the intestinal contents through to the lower levels of the intestinal tract, some of the partially hydrolyzed protein split products are absorbed in this more permeable portion, with resulting intoxication. An inhibition of proteolysis, induced by means of the adsorptive agents, might counteract this.

Considering that the bacterial flora of the intestinal tract depends primarily on the nature of the substrate offered the bacteria for growth, which in turn is dependent in a large measure on the ferment activity of the intestinal secretions, it is conceivable that these agents affect the bacterial content indirectly. The greater the degree of hydrolysis of the starches and proteins, other conditions being equal, the more favorable the medium for bacterial development. If, therefore, the intestinal digestion is retarded, the rapidity of bacterial growth and the actual intestinal level of maximum bacterial activity may be appreciably modified. As clinical experience has found these adsorbents to be of value chiefly in the bacillary diarrheas, the latter supposition seems most probable.

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2. Fantus, Bernard: Fullers' Earth: Its Adsorptive Power, and Its Antidotal Value for Alkaloids, THE JOURNAL A. M. A., May 29, 1915, p. 1838.
3. Friedberger, E., and Kumagai, T.: Ztschr. f. Immunitätsforsch., orig., 1912, 13, 127.

FOREIGN BODY (BONE FRAGMENTS) IN THE BRONCHUS

TWO CASES TREATED EXPECTANTLY

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The aspiration of a foreign body into the bronchus is by no means a rare occurrence. The two cases reported herewith could not be called extraordinary instances. But the value of the experience lay in the failure to give due credit to the suspicion that a foreign body in the bronchus might be responsible for the intense disease reaction which subsequently arose in the lung.

Each patient, an adult, inspired a piece of bone into a branch of the right bronchus. Secondary lung processes were well developed before the patients were seen at the sanatorium. They were both treated expectantly with varying diagnoses until the bone fragments were spontaneously expelled. Then, with rapid recovery taking place, the diagnoses for the first time became clear.

What might have been done is speculative; but a discussion of the possibilities, anticipating similar future experience, seems worth while because the expectant treatment as carried out in the two cases cited was far from satisfactory.

In earlier years the expectant treatment was practiced with the hope that the patient would bring up the foreign body by coughing. Kuhn[1] collected reports of 374 cases, and the hoped for result occurred in only eighty-three. Garrè[2] states that the expectant treatment, with luck, may bring about inflammatory softening in the vicinity and may make the foreign body mobile again so that later it will be expectorated; on the other hand, we shall by this means expose many patients to the danger of serious pulmonary lesions with their less favorable prognosis.

Pneumonotomy has a dark record in Tuffier's[3] eleven cases, resulting fatally in four, and successfully in two, and without the foreign body being found in five. Garrè[4] recommends this operation only if the foreign body has penetrated far into the periphery of the lung or when it is wedged into a branch of the third degree; and then it is indicated only when bronchoscopy promises no more hope of success, and furthermore only when the Roentgen ray accurately ascertains the position of the foreign body. Halstead[5] found that with the use of bronchoscopy the trachea and bronchial tree down to the third subdivision of the bronchus are as open to ocular inspection as is the interior of the nose through the nasal speculum.

Discussing Tuffier's figures, Killian[6] believed that the seriousness of these data called emphatically for furthering the Killian method of bronchoscopy.

Killian,[7] in 1907, reported thirty-one cases in which the foreign body consisted of a piece of bone and which was observed through the medium of bronchoscopy. He had six such cases himself, and in every case he was successful in removing the piece of bone. While it appeared important to remove the inspired bone fragment as soon as possible, he found that three quarters of his cases were old ones.

With the development of direct bronchoscopy it would now seem a serious fault to make merely the diagnosis of lung abscess, bronchiectasis, or lung gangrene when there is even the least suggestion in the patient's history of the aspiration of a foreign body. Lord[8] states that "foreign bodies should be suspected in all cases in which there is circumscribed bronchopneumonia, bronchiectasis, abscess or gangrene of uncertain origin, and especially when the right lower lobe is involved.[9] Of great importance in diagnosis is the use of the bronchoscope."

The lung disturbances in our two cases were located in the inferior lobes on the right side, the common side. Garrè[10] found that the right side was usually elected, in a ratio of 100:78, because of the shorter right bronchus with its steeper course and somewhat larger lumen. Foreign bodies are therefore more easily inhaled into the right bronchus.

REPORT OF CASES

CASE 1.—J. A. S., man, aged 56, Nov. 29, 1911, was eating some pork, and was about to put his hand to his mouth to take out a piece of bone when he started to laugh. The piece of bone was inspired. He coughed hard for two hours. There was no pain or streaked sputum. Nothing much happened for the next two weeks except that he felt some shortness of breath on exertion. Then cough and expectoration began. He continued at his work, that of stationary engineer and fireman. About one month after the accident, expectoration increased in amount. The patient had to sleep in a chair in a semirecumbent position. He could lie only flat on the stomach, cough being persistent if he tried to lie on his back. There was irregular vesperal fever and malaise during January and February. He had poor appetite because on eating solid food he would cough and vomit. The weight declined from 145 to 127 pounds in four months; March 18, 1912, he was obliged to give up work on account of weakness. Cough would come on quite suddenly following slight exertion, and several times daily and nightly he would raise a quantity of thick, foul-smelling sputum. He complained of "heart weakness," and wanted to sit still, fearing the slightest move. The sputum was examined several times during March at the sanatorium and always was negative for tubercle bacilli.

On March 25, 1912, the patient raised about 1 teaspoonful of blood following a severe coughing fit. Soon afterward he coughed again, and the piece of bone landed on his tongue. On examination this fragment appeared to be roughly of cubical form. There was a small hooklike projection at one corner which, with handling, soon broke off. The composition was of spongy and cortical substance. The dimensions of the larger fragment were 15 by 10 by 11 mm. The detached smaller segment was about 3 by 1 mm.

For the next two or three days after expectorating this bone, the patient suffered considerable pain in the lung at a point about opposite the fifth rib just at the right of the sternum. It felt "like a boil coming to a head." The pain stopped on the third day when the patient suddenly expectorated several cupfuls of very foul, putrid, yellowish sputum.

After this event there was a rapid and steady improvement in the patient's condition. Cough and expectoration ceased. June 1, 1912, he was able to return to work. He regained all the weight lost before the end of the year. He has worked steadily up to this time, and is now in excellent condition, although he complained occasionally of "heart weakness."

A month or so after the trouble began, the patient sought medical advice. The common diagnosis appears to have been

1. Kuhn, cited by Latham and English: A System of Treatment, 1915, **3**, 803.
2. Garrè, Karl, and Quincke, Heinrich, Surgery of the Lung, 1913, p. 228.
3. Tuffier, cited by Killian, Gustav: Ztschr. f. Ohrenh., **55**, 334.
4. Garrè and Quincke: Surgery of the Lung, p. 231.
5. Halstead, Thomas H.: Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1909, **15**, 399.
6. Killian: Ztschr. f. Ohrenh., 1908, **55**, 334.
7. Killian: The Treatment of Foreign Bodies in the Respiratory Tract and Esophagus, Tr. Am. Laryngol., Rhinol., and Otol. Soc., 1907, **13**, 73.
8. Lord, F. T.: Diseases of the Bronchi, Lungs, and Pleura, p. 34.
9. Lord: Diseases of the Bronchi, Lungs and Pleura, p. 35.
10. Garrè and Quincke: Surgery of the Lung, pp. 20-21.

"bronchitis." The patient was not satisfied with this opinion, since his cough "came on too quickly." He was examined five or six times by as many physicians. The latter evidently gave little credit to the patient's statement regarding the inspired piece of bone, and one told him that he would surely have coughed it up long before.

The patient was seen by a consultant at the sanatorium, March 30, 1912. The lung signs were those of lung abscess and associated bronchiectasis in the right lower lobes. The roentgenogram taken shortly afterward showed the abscess cavity in the right inferior lobe near the root of the lung with considerable surrounding infiltration.

Case 2.—S. C., woman, aged 37, married, admitted to the sanatorium, April 20, 1916, was eating, Nov. 30, 1915, when a piece of lamb bone slipped down her throat and was inspired when she started to talk. There was a history of immediate cough and shortness of breath. During the five months' interval there developed malaise, weakness, severe cough and expectoration, loss of appetite, and loss of weight to the extent of 15 pounds. Two small hemoptyses had occurred. In February, 1916, she gave birth to a child. On admission to the sanatorium, examination showed lung disturbance pretty well limited to the lower right lobes. The apexes were clear and also the entire left lung. The lower two thirds of the right thorax was practically immobile and was flat on percussion. The sharp demarcation at the third interspace front from good resonance to flatness was extraordinary. In the midback, bronchial breathing was heard with moist râles diminishing on cough, while the breath sounds were absent at the base. Fremitus was increased over this whole area.

There were vesperal fever and rapid pulse rate. The sputum, 8 ounces per twenty-four hours, was negative for tubercle bacili on admission, and in all subsequent examinations. Specimens were put through the shaking machine, antiformin preparations, and guinea-pigs. Urine examination revealed the presence of a chronic interstitial nephritis. Blood count revealed 22,000 white blood cells and 3,200,000 red blood cells.

This patient remained a bed case in the ward about all summer with fever, severe cough and expectoration. Pain in the right side of "a scalding nature" was complained of. Her indispositions showed acute exacerbations with high fever, attendant rapid pulse rate and prostration. A feeling of suffocation was prominent. Fluid or pus being suspected at the base of the right lung, an attempted paracentesis was carried out with negative result.

Sept. 6, 1916, not quite ten months after the aspiration of the foreign body, the patient coughed up two pieces of bone. The larger fragment was of rough triangular form and measured 19 by 7 by 8 mm. Two of the angles were blunt, and the smaller fragment fitted approximately to one of these. The third angle was sharp. There appeared to be no recent cleavages other than the one to which the smaller fragment fitted. In composition the bone was cortical and spongy. The smaller fragment was only a spicule about 1 by 3 mm. in dimensions. Soon after the patient had brought up this bone her symptoms began to clear up. Oct. 14, 1916 she was discharged from the sanatorium against advice. She has since continued to improve in spite of the poor home surroundings into which she went.

COMMENT

Killian[11] states that cubical bodies are more difficult to remove. Bruenings devised a sharp hook forceps for this purpose. The pieces as a rule[7] are flat in shape, 14 by 15 mm. long and 8 by 9 mm. wide, lying with their long diameter corresponding to the axis of the bronchus.

In Case 2, roentgenoscopy was not performed. It is perhaps needless to state that had there been opportunity for a roentgenogram at the time of the patient's admission to the sanatorium, much valuable information would have been gained and there would have been less need of guesswork.

It is admitted[8] that the Roentgen ray is less valuable for the actual demonstration of bone and ivory substance than for metallic foreign bodies in the bronchi, a positive result being obtained among forty of the former sort in only four.

Garrè[12] states that while there is a shadow cast by the aspirated piece of bone, it is generally not sufficiently large or intense to differentiate from other parts of the skeleton. After a while the surrounding infiltration and the formation of cicatrices or abscesses will give the necessary information.

Killian[13] concluded that without bronchoscopy the presence and nature of the foreign body could not always be ascertained. The illness was often considered only an obstinate case of bronchitis. In many a slowly developed suppuration of the lung of uncertain origin finally a foreign body is discovered.

In America the use of the bronchoscope has been successful in the extraction of foreign bodies from the bronchi.[14] Yankauer[15] was obliged to have three roentgenograms taken before finding an indistinct shadow in the region of the left bronchus, attributable to an inspired prune stone which was extracted by the use of the bronchoscope.

Chevalier Jackson[16] states that the bronchoscopic removal of foreign bodes from the bronchi bloodlessly through the mouth has 96 per cent. successful results. Of 482 cases of aspirated foreign bodies, only four were recorded in which an upper lobe bronchus was invaded. Jackson's case was one of these four.

The contraindications are few,[17] namely, aortic aneurysm and severe cardiac decompensation.

The published descriptions of this good work, and especially of Killian's six cases,[7] in each of which a piece of bone was observed and eventually removed by bronchoscopy, furnish marvelous examples of the cleverest technic. The comparison between this method of treatment and the expectant treatment as experienced in our two cases has seemed to be worthy of general attention.

11. Killian: The Treatment of Foreign Bodies in the Respiratory Tract and Esophagus, Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1907, **13**, 74.

12. Garrè and Quincke: Surgery of the Lung, p. 218.
13. Killian: Ztschr. f. Ohrenh., **55**, 115-116.
14. Jackson, Chevalier: The Dilatation of Bronchial Strictures, The Journal, A. M. A., Sept. 21, 1912, p. 1123.
15. Yankauer: Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1911, **17**, 308.
16. Jackson, Chevalier: Tr. Am. Laryngol., Rhinol. and Otol. Soc., 1915, **21**, 241.
17. Lord: Diseases of the Bronchi, Lungs and Pleura, p. 37.

A Night and Day Camp.—The St. Louis Tuberculosis Society, according to the *Journal of the Outdoor Life* (April, 1917), has established what is called a Night and Day Camp, said to be the only preventorium for adults in the United States, and one of the few in the world. It is designed as a home for self-supporting girls over 14 years of age who have to stop work because of ill health. No cases of tuberculosis are admitted, but it is a place where girls who are threatened with tuberculosis may go for convalescence from an attack of some disease, or where one who is worn out and nervous may rest and recuperate. The features of the institution are rest, outdoor life and good food. There are no charges, the camp being supported by the tuberculosis society, from the sale of Red Cross seals and otherwise. Since February, 1913, when the camp was started, it has taken care of 182 girls, of whom 160 have been discharged. The average stay at the camp has been three months and twenty-eight days, the average gain in weight of the girls has been 11 pounds and 14 ounces, and the average cost per day per patient has been 74 cents.

TRAUMATIC ASPHYXIA

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Traumatic asphyxia (pressure stasis, ecchymotic mask) is a condition of sufficient rarity to justify reporting the following case:

REPORT OF CASE

W. L., man, aged 35, bridge builder, was injured, Oct. 21, 1916, while helping to make the connection between the top chords of a new truss which were being placed in final position. He was squeezed between the ends of the chords, which doubled him up and brought his head down on his knees. It was estimated by the patient that the weight of the end which came down on him was at least 7 tons. No accurate statement of the time this chord was pressing on him could be obtained. When I first saw him, within an hour from the time of the injury, he presented marked ecchymosis and swelling over the head and forehead and down to the malar bones. This area was dark purple and clearly delineated by an abrupt margin where the healthy color of the skin joined the swollen discolored part. Pressure did not affect the discoloration. There was a subconjunctival hemorrhage on each side which was bright red, contrasting strongly with the purplish discoloration of the adjacent tissues—a striking appearance. Rupture of each ear drum with hemorrhage from the ear canal was noted. Bleeding also occurred from the nose. There were a bruise of the right shoulder, slight bruises over the chest and abdomen of insignificant extent, and a fracture of the seventh rib on the right side. There was slight boss of the spine in the lower dorsal region, which was probably occupational, although the possibility of its having resulted from the injury was considered. There were no other evidences of spinal injury to confirm such a diagnosis. The patient was fully conscious and the reflexes were normal, with no evidence of cerebral injury. The pupils were equal and responsive to light and accommodation.

The diagnosis of traumatic asphyxia was confirmed by the subsequent history of the case. The discoloration of the skin cleared up promptly in three or four days, that under the conjunctivae persisting much longer. The patient recovered without untoward incident, leaving the hospital, November 8.

COMMENT

The pathology of these cases varies only in extent and degree, and depends largely on the amount of compression and the length of time it continues. It consists in discoloration of the skin from venous distention or hemorrhage in varying degree; subconjunctival hemorrhage, rupture of the eardrum with hemorrhage from the canal, epistaxis, and swelling of the skin. The latter and the discoloration also are limited to places which are not subjected to supporting pressure, and usually extend no lower than the clavicle, although in rare instances there is some discoloration in the axilla. Discoloration in the soft tissues disappears in the course of a few days; that of the conjunctivae at times persists for several weeks. Coincident injuries, of course, make the other pathologic changes different in each case.

The prognosis is usually favorable, recovery taking place in most cases quite promptly. It will depend, of course, to a large degree on the amount of pressure and the length of time which it is applied, as well as the gravity of coincident injuries. From the nature of the injury and its manner of occurrence, surgical aid can rarely be had immediately; when possible, however, the immediate use of artificial respiration and oxygen should be employed. Usually shock is slight, except when the accompanying injuries are severe. The subsequent treatment should consist in combating shock if it is present, keeping the patient at rest, and meeting indications as they arise.

Fourth and Chestnut Streets.

HERNIA OF THE BLADDER

REPORT OF A CASE OF STRANGULATED RIGHT FEMORAL INTRAPERITONEAL CYSTOCELE ASSOCIATED WITH AN ENTEROCELE *

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The large majority of bladder hernias are of the paraperitoneal variety. The relative proportion of the intraperitoneal and extraperitoneal varieties is difficult to estimate, as the different statistics undoubtedly show great variations. It is uncommon to diagnose bladder hernia before operation, and even at operation the condition is often not recognized until the bladder is injured. Such injury must be looked on as serious.

REPORT OF CASE

History.—R. L. T., woman, aged 54, white, housewife, married, entered the hospital, March 6, 1916, at 2 a. m., complaining of strangulated right femoral hernia. She had had eleven children, the oldest 30 and the youngest 7 years of age; all labors were normal. She had suffered from constipation for many years. Four years before she had noticed a lump in the right groin. It was not painful, felt soft and was about the size of an English walnut. When first noticed, the lump could be easily pushed back. She paid no attention to it. Six months before admission, the lump had increased in size, and felt tender, especially after physical exertion; but she was always able to reduce it after lying on her back. She had no urinary disturbances at any time.

When admitted to the hospital the patient was under the influence of morphin, and not in the mental state to render a recital of her history. The following was obtained from her husband and her physician: March 3, the patient had no bowel movement; March 4, she complained of abdominal pain, felt ill, and vomited whatever she swallowed; March 5, she took a dose of magnesium sulphate but threw it up and with it a large amount of bile; the colicky pains continued; the constipation remained and the lump in the groin was so tender as not to allow her clothes to touch it. The following day, she showed the following general symptoms of strangulation: anxious expression; sallow features; absolute constipation; vomiting; colicky pains; tympanitis; abdominal tenderness; moderate shock, and exhausted vitality. The voided urine was scanty and highly colored and was reasonably attributed to the intestinal obstruction. Hot applications and taxis failed to relieve the strangulation.

The patient's temperature on admission was 97, the pulse rapid and feeble, and the blood pressure 120. Examination revealed a lump situated under the right Poupart's ligament and below and to the outside of the spine of the right pubis. It was globular and about the size of a small hen's egg. It was hard, tense, tender, dull, completely irreducible, and the expansile impulse absent. The abdomen was tender, distended and tympanitic. No cystoscopic examination was made, as bladder symptoms were wanting. There was no strangury or hiccup. On catheterization 4 ounces of highly colored urine were drawn.

Operation.—I made an oblique incision 2½ inches long through the skin, beginning 1 inch above Poupart's ligament and extending over the inner and lower end of the hernial swelling, and unexpectedly exposed the hernial sac. Despite

* Abridged from a paper read before the Pasquotank-Camden-Dare County Medical Society, N. C., Nov. 1, 1916.

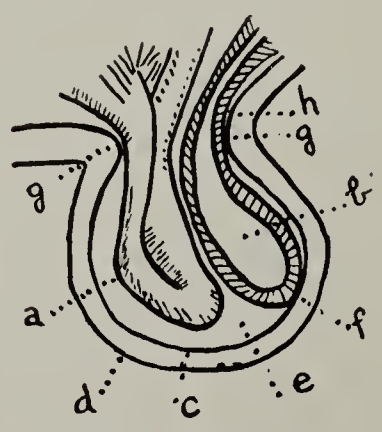
a careful search, I failed to find the usual coverings of the hernial sac—the cribriform fascia, the femoral sheath, and the septum crurale. Two points aided me in recognizing the exposed structure to be the sac: first, on drawing it gently down I could trace its neck into the abdominal cavity; second, I was able to insinuate cautiously the point of a director along it into the peritoneal cavity. The sac was rounded and dull, so dense that its contents could not be seen through it, and so tense that it could not be made to glide over its contents. No mass of extraperitoneal fat was present in the upper or inner portion of the sac. When the sac was pinched up and nicked, clear amber colored fluid escaped and was mopped away. When this nick in the sac was enlarged, an escape of clear straw colored fluid took place. This made me suspect that I had encountered a rare variety of femoral hernia in which two sacs had developed or a dividing sac was present. On further examination, however, the escaped fluid proved to be urine, and the edges of the wound revealed that the bladder was present in the sac and partially adherent to it. Its wall was accidentally wounded by curling over the edge of the director when the nick in the sac was enlarged. I swabbed the wound with sterile gauze soaked in ether and closed the wound of the bladder by a double layer of catgut sutures after freeing it from its adhesion to the sac.

The presenting intestine had the form of a small, tense knuckle. It was smooth, moderately shiny, deeply red, spotted with slightly purplish patches, and its vessels could be emptied by pressure.

The division of Hey's ligament and the bands of fibers which form part of the deep crural arch did not render the hernia reducible. The strangulating agent was the mouth of the sac, itself, which was found to be greatly thickened. In dividing this thickening I accidentally again wounded the bladder, and had to suture it after cleansing the wound with ether.

In the treatment of the sac and the closure of the crural canal I followed Bassini's method.

There is no sign of relapse of the hernia.



Diagrammatic drawing of hernia; *a*, intestine; *b*, bladder; *c*, sac; *d*, skin; *e*, serous exudate; *f*, point at which the bladder was adherent to the sac and was wounded in the first place; *g*, the strangulating agent, a thickening of the mouth of the sac; *h*, point at which the bladder was wounded in the second place.

COMMENT

This case is of interest because of:

1. The rarity of cases of femoral intraperitoneal cystocele.
2. The difficulties in recognizing the hernial sac, owing to the absence of its usual coverings.
3. The strangulating agent, which was a thickening of the mouth of the sac itself — a very rare seat of strangulation in femoral hernia.
4. The accidental wounding of the bladder in two places.
5. The reliance on ether as a valuable antiseptic, making the introduction of a drainage tube in the hernial wound unnecessary.

Cancer of the Mamma in a Man.—A. H. Roffo describes in the *Prensa Medica Argentina,* 1916, **3,** 81, the third case of this kind that has been published in Argentina. The man was a painter, a hard drinker, and eleven years before there had been intense pain around the left nipple, with much swelling and tenderness. These symptoms subsided under fomentations but returned at the same spot after an interval of eight years, much more intense, and an incision released pus. A hard tumor developed and ulcerated and in the course of three years showed malignant characteristics, with metastases in the liver. Eighteen illustrations show the microscopic and four the macroscopic findings in the case.

RADIUM THERAPY IN CANCER*

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The various steps in our knowledge of the physical and chemical properties of radium which have led to its use in the treatment of cancer, and the successive improvements in its mode of application are of much interest; but since they are not essential to the present purpose, detailed reference to them may be omitted. For the therapeutist the most important question concerning radium today is not how many cases of cancer this agent has cured, but whether it has in any sense a specific action on tumor tissue.

On cellular tumor tissue the action of radium is selective and specific, in the sense that tumor tissues are from four to seven times as sensitive as most normal tissues. Without notable inflammation of the skin, without extensive necrosis of tumor tissue, and without destruction of the normal elements involved, tumor cells may be made to disappear, and the tissue returns to its normal state. This view, first stated by Wickham in 1908, has been supported by many later observations, which have also shown that the result depends partly on the nature and condition of the tumor, but chiefly on the dosage of radium.

The morphology of the changes in tumor tissue following successful radium application is also specific. At least I have not seen such series of changes taken as a whole under any other circumstances; and when they are present in undisturbed course, it is possible to recognize a tumor tissue which has been treated by radium.

CHANGES FOLLOWING APPLICATION OF RADIUM

From material gathered in a series of uterine cases at different intervals, including two in which the organ was removed some weeks after treatment, the following changes leading to the disappearance of epidermoid carcinoma of the cervix may be traced: Within from three to five days after the application in the cervical canal of 300 mc. of radium emanation in a platinum tube, there is hyperemia of the tissues, beginning exudation of lymphocytes and polymorphonuclear leukocytes, and swelling of all the cells. In the second week the cords of tumor cells present a characteristic appearance. The nuclei are swollen, homogeneous, and hyperchromatic. The cell bodies are enlarged, the cells loosened, hydropic vacuoles appear in the cytoplasm, and fusion giant cells form. In the third week the number of cells is greatly reduced. Many appear to suffer liquefaction necrosis. Others are invaded and mechanically broken up or compressed by lymphocytes and proliferating stroma. From the fourth to the fifth weeks only pyknotic nuclear fragments or an occasional giant cell are visible, or no traces whatever remain. Meantime the stroma has been active and appears to take an important part in the process. Leukocytes become overabundant, the capillaries proliferate actively, and the stroma is transformed into granulation tissue in which numerous new capillaries penetrate and excavate the tumor cell nests. The gathering of leukocytes, lymphocytes, plasma cells and polyblasts in the later stages of radium reaction may be extremly profuse, and in this respect the reaction is somewhat specific. Eventually the site of the tumor

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* Read before the American Association for the Advancement of Science, Section on Physiology and Experimental Medicine, Dec. 29, 1916.

is occupied by granulation tissue from which slight serous and cellular exudate is discharged. Later, epithelium grows over the denuded surface, completing the repair. All manner of variations occur in the reaction of tumor tissue to radium. Complete simple necrosis follows overaction of radium. Bulky tumors may present large areas of simple necrosis in which cysts form by liquefaction. The stroma as well as the tumor may be destroyed, in which event extensive scarring will result. In the foregoing scheme of changes it would appear that just enough radium had been employed to cause slow degeneration of tumor cells and stimulate regenerative growth of granulation tissue.

It is important to note that the best effects of radium do not consist merely in the killing of cancer cells, but that it may excite a slow and complex process in which stimulation of capillaries and fibroblasts and exudation of lymphocytes are prominent and even essential factors in the healing process, while the tumor cells may be slow to yield their places. Some of the most surprising and satisfactory results follow a single application of radium, although the patient may show little improvement for weeks or months. On the other hand, if repeated strong applications have destroyed the blood vessels and converted the base of the lesion into dense cicatricial tissue into which capillaries and leukocytes cannot penetrate, groups of tumor cells may resist the direct action of radium and become the source of recurrence. Under some circumstances it appears that the reaction of the normal tissues is a more essential curative factor than the direct action of the rays on tumor cells.

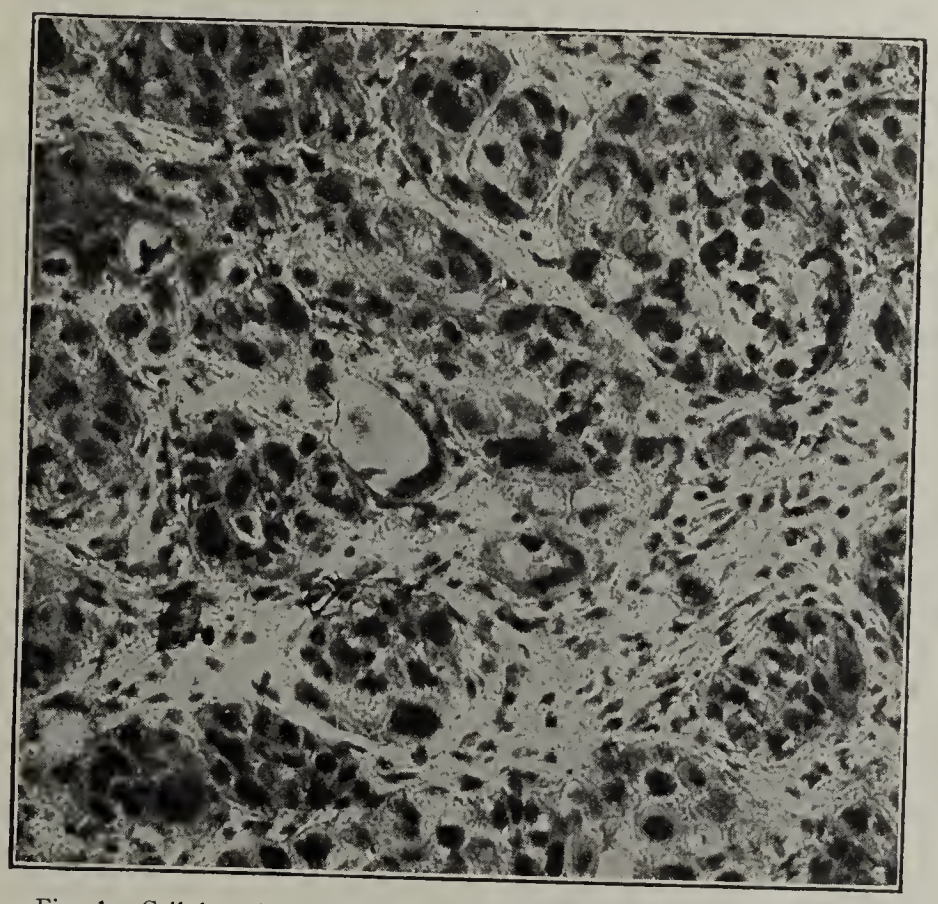


Fig. 1.—Cellular changes following radium: structure of epidermoid carcinoma of cervix uteri ten days after treatment; the changes consist chiefly in swelling and hyperchromatism of nuclei.

Another interesting feature of the healing process is the absence of scarring when the dosage is exactly adjusted. It is a rule that a tissue infiltrated by carcinoma cells is condemned to permanent damage from the desmoplastic property of the carcinomatous process. The smooth, supple tissues remaining in many healed cases present an exception to this rule and offer further evidence of the specific nature of the action of radium. It is of theoretical and practical interest also that bulky cellular tumors, as the abdominal metastases of carcinoma of the testis, may rapidly melt away in a few days without producing any sign of intoxication from the absorption of large quantities of tumor proteins.

The action of gamma rays obtained from heavily screened radium resembles a mild and prolonged beta ray effect, and depends of course on the intensity and duration of the exposure. The latent period may extend over from seven to ten days, the hyperemia increases slowly, degeneration of cells is gradual, the exudate is slight, necrosis of normal tissues is often avoided, and regeneration is prolonged often over several months. Numerous observations show much variation in the behavior of different tissues, lymphoid, and other cellular structures being most susceptible. The lymphocyte, the young fibroblast, capillary endothelium, and multiplying cells are the ones regularly attacked by heavy dosage.

Of the mode of action of radium, little is definitely known. It is a reasonable assumption that the gamma rays absorbed while traversing the tissues give rise to secondary beta rays, electrons, which act on the cells. That the action is electrical, accelerating cell ferments, ionizing gases, altering lipoid emulsions, etc., may be further conceived, but is not demonstrated. These questions may well serve to stimulate and aid in the study of the physics, chemistry and finer morphology of the cell.

Interpreted from the pathologic standpoint, the observed changes in cell morphology indicate an action directly on the tumor cell, and especially on its nuclear mechanism, with profound and progressive chemical changes in the nuclear proteins, attended by the formation of acid products and by the absorption of material, probably water. The appearance of the cell cytoplasm suggests hydrolytic cleavage of cell proteins, and these seem to excite leukocytic emigration. The growth of capillaries may be explained as a regenerative process following a loss of tissue equilibrium, or it may involve a direct stimulating action of the radium on endothelium and fibroblasts. In any event the process is very complex, and in many cases there are strong hints at a restoration of normal resistance of the connective tissue against lawlessly proliferating tumor cells. Several observers have noted that in the slow healing of epidermoid carcinoma there is a phase in which the malignant tumor approaches the architecture of a benign papilloma.

Lazarus-Barlow considers that the absorption of tumor cells affected by radium may establish a true immunity against their growth. The most pronounced traces of artificial immunity produced against tumors have followed the absorption of living tumor cells in the body. Radium induces such an absorption of living tumor cells.

Turning now to the practical aspects of our subject, it is necessary to ask what the advent of this highly remarkable physical agent has accomplished in the treatment of cancer, what the limitations of its use are, and what its future development seems likely to be. For as scientists we are not permitted to rest in

the pursuit of the highly interesting theoretical problems which radium thrusts on our notice, but some of us, especially medical men, must endeavor to enlarge the theoretical knowledge and apply it effectively to human needs. The great practical value of radium therapy, especially in cancer, has undoubtedly been the impetus for the study of the action of radium on animal tissues, and it should lend a peculiar zest to the much needed solution of many purely scientific problems in radium physics.

A glance at the position of research in the treatment of cancer by radium reveals that this study is pursued under peculiar difficulties which are wholly unknown in the scientific laboratory. While in some quarters unwarranted hopes have possibly been aroused by the initial results of radium treatment, I am able to find in recent accredited medical literature no exaggerated statements of its value. On the other hand, the public has repeatedly been warned against radium in the treatment of cancer, with serious damage to patients undergoing such treatment, and to others who might benefit from it. These warnings have regularly come from persons who have had little experience in the use of radium. To inform the public that radium has failed in the treatment of cancer is to misstate the facts, and entails a direct and serious responsibility. It is not too much to ask that the merits and demerits of radium be worked out within the medical profession, and that statements likely to reach the public should be carefully censored.



Fig. 2.—Cervical acanthoma two weeks after treatment, showing swelling and hyperchromatism of nuclei, with hydropic degeneration and fusion of cell bodies.

It is now some years since the value of radium in cancer was so fully demonstrated that, with the approval of leading physicians, numerous European cities began to devote public funds to provide their municipal hospitals with a working supply of this precious metal. Unless they have made a grave blunder, the American profession is behindhand in recognizing the actual position of radium, for which the American public will suffer.

The condition laid down by surgical opinion that radium must be tried out on inoperable cancer has generally been accepted, and on the whole is a wise restriction, especially for those beginning the use of this agent. With advanced and inoperable cancer of many varieties radium has more than justified the hopes aroused by its success with cutaneous tumors. Few clinics with sufficient radium and adequate experience have failed to secure some complete clinical regressions in apparently hopeless cases. Some surgeons who have witnessed the results obtained in advanced carcinoma of uterus, lip, tongue, rectum and prostate have determined to reduce the scope of operability in these fields and trust to radium as preferable to a mutilating and hazardous operation. Yet most workers with radium are not oversanguine of the capacity of radium to benefit permanently very advanced cancer. The effects of radium are confined to a limited territory; it cannot be expected to influence widely extended disease, and it has no effect on disseminated tumors. Moreover, the attempt to control a large territory leads to the use of excessive dosage, which may cause severe painful destruction of tissue, so that unfortunate results have sometimes followed the effort to deal with really hopeless cases. It is highly important that the limitations of radium in this group of cases should be recognized, that its failures in this field should not prejudice its claims elsewhere, and that only palliative efforts should be attempted when there is no possibility of reaching all the invaded tissues.

From the reports of cases now available in the literature, many of which I have seen duplicated at the Memorial Hospital, I am led to believe that the following indications for the use of radium in inoperable cancer may safely be stated when considerable quantities of the agent are available in the hands of an experienced operator:

Radium should not be withheld from rapidly growing deep seated and bulky tumors, for the cellular structure of many such tumors is just that most susceptible to the action of large amounts of radium applied at a distance from the skin and over long periods.

In those forms of cancer in which operation yields particularly unsatisfactory results, as in uterus (cervix), prostate, tongue, pharynx, antrum, and in lymphosarcoma, the scope of operability should be reduced and radium treatment preferred or employed in combination with a limited operation.

Cautious palliative treatment only is usually the safest limit in efforts to deal with very advanced cases of any type.

The untoward effects of overtreatment of inoperable cases may greatly aggravate the patient's sufferings, adding to the original condition severe and prolonged pain, sloughing of tissues, perforation of hollow organs, hemorrhage, infection and general intoxication. It is from such ill advised efforts that much of the current distrust of radium has arisen, and not from its proper use in suitable conditions. The combination of radium and surgery has been employed in many

clinics with encouraging results in borderline or inoperable cases, and offers an important field of research for the progressive surgeon.

THE TREATMENT OF OPERABLE CANCER BY RADIUM

Since radium has accomplished a clinical cure in certain advanced cases of cancer, why should it not be employed in operable conditions? The objections to this policy must be frankly stated and clearly recognized. They are, mainly, that all new methods of cancer therapy have inevitably failed, and only the knife has proved reliable; that certain so-called clinically cured cases have relapsed within a few months, and that it is morally unjustifiable to sacrifice the patient's chance from operation for an experiment by any new method.

The validity of these objections depends today entirely on the extent to which the ability of radium completely to destroy localized cancer has been demonstrated.

The capacity of radium to eradicate cutaneous carcinoma was early demonstrated and is now a routine experience in all large radium clinics, so that in many circles radium is the method of choice in dealing with rodent ulcer and epidermoid carcinoma of the skin. In certain derivatives of basal cell carcinoma, as the mixed tumor of the salivary glands, radium has had notable success. and should usually be employed in preference to operation. Yet there are many conditions in which cutaneous carcinoma may prove refractory. Among these may be mentioned recurrences after operation, carcinoma following lupus, invasion of bone, location near eye or nasal sinuses, or in thin skin over bony prominences, and after repeated ineffectual exposures.



Fig. 3.—Cervical acanthoma three weeks after treatment, showing excavation of degenerating tumor cell masses by cellular granulation tissue.

In carcinoma of the cervix uteri the results of radium treatment have impressed several well known and conservative gynecologists as highly favorable, and some say they are more favorable in borderline cases than the results of operation (Döderlein,[1] Bumm, Kronig and Gauss,[2] Schauta,[3] Chéron and Rubens-Duval,[4] Doppert,[5] Rupp,[6] Clark,[7] Miller,[8] and Kelly and Burnam[9]). Although the opportunity for such a demonstration is rare, it has been shown that radium is capable of destroying all traces of fully established or advanced cervical carcinoma. Schauta[3] showed it in eight badly overtreated cases. Chéron and Rubens-Duval[4] and Schmitz[10] each report one case fully studied microscopically one or two years after treatment in which no trace of carcinoma could be found in the pelvis. I can report two cases in which the uterus removed four and six weeks after treatment of well established carcinoma showed no traces of tumor cells in serial sections of the uterus. More conclusive still is the steadily increasing number of complete local regressions of advanced uterine cancer now being reported from many clinics. Since one of the chief advantages of radium therapy is avoidance of mechanical dislocation of tumor cells, the use of various adjuvants to radiotherapy, as preliminary cauterization, ligation of vessels, curettage, and subsequent extirpation of the uterus, seem to me wholly unnecessary or distinctly contraindicated. Rarely it may be wise to extirpate slumbering tumor cells from the outskirts of regressing cancer, but radium-treated tissues are unfavorable for surgery, and postoperative recurrences give poor results with radium. Yet this is a matter to be determined by clinical experience.

Chéron and Rubens-Duval[4] report 158 cases of uterine cancer, mostly inoperable, treated by massive doses of radium, with 93 marked regressions. Among these were 77 complete regressions, of which 22 have remained complete for from one to four years; 15 more date from less than one year, while 9 patients disappeared when well. There were 31 local recurrences, chiefly among those first treated, while 12 became operable and operations were performed, with results not stated.

Döderlein[1] reports on 153 cases, mostly inoperable and recurrent, of which 31 patients he regards as clinically well one year or more after cessation of treatment; 19 of these 31 were operable cases, and 12 were wholly inoperable. He used a maximum of 300 mg. of radium for twenty-four hour periods repeated once or twice at intervals of two weeks. He states that if these results prove permanent, operation on uterine cancer has played its main rôle.

Kelly and Burnam[9] report that of 327 inoperable uterine cases 20 per cent. gave complete clinical regressions, but the period of observation of many of these

1. Döderlein: Zentralbl. f. Gynäk., 1915, p. 185.
2. Kronig and Gauss: Deutsch. med. Wchnschr., 1914, pp. 740, 893. Gauss: Strahlentherapie, 1915, p. 379.
3. Schauta: Zentralbl. f. Gynäk., 1914, p. 961.
4. Chéron and Rubens-Duval: Strahlentherapie, 1915, p. 80.
5. Doppert: Zentralbl. f. Gynäk., 1914, p. 975.
6. Rupp: Deutsch. med. Wchnschr., 1914, p. 51.
7. Clark: Ann. Surg., **64**, 682.
8. Miller: Surg., Gynec. and Obst., **22**, 437.
9. Kelly and Burnam: Tr. Am. Gynec. Soc., 1916.
10. Schmitz: Med. Rec., New York, 1916, **90**, 100.

is short. Yet 13 have been under observation more than three years.

Schmitz[10] had 11 clinical cures in 35 inoperable uterine cancers.

Scherer[11] reports that 48 out of 58 uterine cancers treated by operation and radium were free from recurrence after three years.

Rupp[6] had 16 clinical cures of advanced uterine cancer.

Futh and Ebeler[12] report complete clinical regressions in all of 10 operable cases, and in 6 of 13 inoperable cases. With 10 recurrent cases they had rather poor results. The Ransohoffs[13] report 11 clinical recoveries out of 25 treated.

On the other hand, M. Hoffmeier[14] saw rapid extension of an operable cervical "glandular carcinoma" after seventeen days' treatment with 50 mg. of radium bromid, but it may be doubted if this observer understood either the use of radium or the nature of the tumor with which he had to deal.

Legueu and Chéron[15] report a complete anatomic cure of advanced carcinoma of urethra and vagina, the patient dying after two and one half years from a cosmetic operation.

Finally, Abbe,[16] the American pioneer in radium therapy, has a case of early cervical carcinoma in which the patient is well eleven years after treatment by curettage and radium.

I am much impressed by the conclusions of Doppert,[5] an experienced worker in Petrograd, who reports forty-eight uterine cases and recommends for (1) early localized cases, radium; (2) established or borderline cases, operation, because radium treatment is long and in such conditions uncertain; (3) inoperable cases, radium, and (4) advanced cases, neither radium nor operation. When such results as those now recorded may be obtained in advanced cases of uterine cancer, the testing of radium in early operable cases becomes inevitable.

Since the adenocarcinomas are more susceptible to radium than the epidermal tumors, and corpus carcinoma tends to spread widely over an accessible mucosa before infiltrating, there seems to be no good reason for excluding the 50 per cent. of surgical failures in this disease from the benefit of radium treatment. The danger of mechanical dissemination of tumor cells during hysterectomy must always be considerable. I once found tumor cells squeezed entirely through the uterine wall and lodged in the subserous lymphatics during vaginal hysterectomy for a fundus adenocarcinoma no larger than a 5 cent piece, the patient succumbing to recurrence, and I have never since been able to feel that surgery is particularly well adapted to deal with this disease.

The rectum stands fifth in the list of primary seats of cancer, and while carcinoma of this region has less frequently been subjected to radium therapy, there are satisfactory indications that it may be favorably influenced and sometimes controlled by radium. The majority of these tumors long maintain the form of a superficial fungating or papillary growth of wide dimensions, and may be reached by rectal applications, while demanding wide excision of an inaccessible and very necessary structure. Yet the rapid change from this comparatively benign process to the cicatrizing and infiltrating form converts a simple into a very difficult problem both for surgery and for radium, so that much care in application and judgment in the selection of cases are essential to success. In the Memorial Hospital series there are five complete clinical regressions of rectal cancer from radium, one of two years' duration, while four cases were improved, sixteen advanced cases were unimproved, and five are still under treatment.

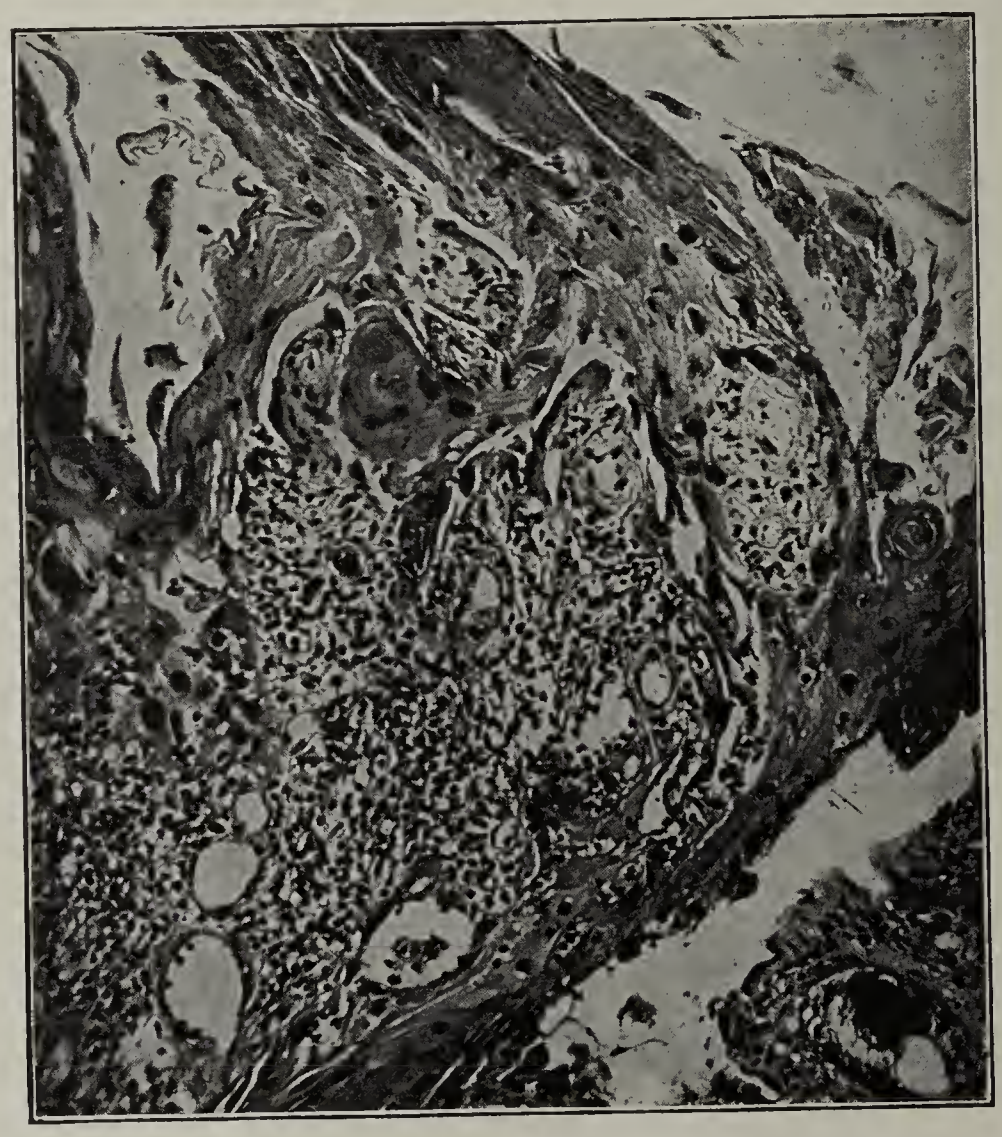


Fig. 4.—Acanthoma of skin; excavation of tumor cell masses by cellular granulation tissue.

Buccal and lingual cancer resisted the earlier attempts at radiotherapy, owing to the difficulties of application pointed out by Wickham in 1912. The anatomic characters of carcinoma in these locations reveal many formidable difficulties to be met. There are broad superficial papillary growths which are ominous looking but yet localized, and there are small ulcerating and rapidly infiltrating lesions with early involvement of lymph nodes. The two forms of the disease present wholly different therapeutic prognoses. The former may be made to yield striking improvement and sometimes complete local regression by radium therapy. That infiltrating carcinoma of the tongue can be controlled by radium may for the present be doubted, but the external lesion may often be healed and the general course of the disease apparently retarded by careful use of this agent. On the tonsil, the pharynx, and the floor of the mouth, established cancer is usually beyond

11. Scherer, cited by Van de Velde: Zentralbl. f. Gynäk., 1915, p. 313.
12. Futh and Ebeler: Zentralbl. f. Gynäk., 1915, p. 217.
13. Ransohoff, Joseph, and Ransohoff, J. L.: Ann. Surg., 1916, **64**, 298.
14. Hoffmeier, M.: Zentralbl. f. Gynäk., 1915, p. 1.
15. Legueu and Chéron: Rev. prat. mal. génito-urin., 1914, No. 62.
16. Abbe: Med. Rec., New York, 1914, **86**, 909.

the reach of surgery and presents the same difficulties for radium as lingual cancer. Complete clinical regression of buccal and lingual carcinomas are reported by Heinatz,[17] Wickham, Dominici[18] and Morton.[19] In the Memorial Hospital series there are now ten such clinical regressions out of seventy-two cases treated, but the period of observation is too short to determine how permanent the result will be. Local recurrence or lymphatic metastases are to be anticipated in all the infiltrating cases. Yet since they were practically all inoperable, the results obtained are of considerable significance.

Labial cancer is favorably situated for radium therapy by cross firing, and many workers report successful results with this form of the disease. Some of them are now of sufficient age to be pronounced probably anatomic cures (Czerny and Caan,[20] Lit). Perthes has reported one case in which the patient has remained well for five years.

Lymphosarcoma and rapidly growing embryonal or anaplastic carcinomas as a rule melt away rapidly under the action of adequate quantities of radium, but since these diseases are usually constitutional or widely disseminated, the effects in general are to be classed as palliative.

One of the most distressing and fatal forms of malignant disease is osteogenic sarcoma, while its surgical treatment is extremely unsatisfactory. Pfahler's experience shows that these tumors may be strongly affected by the Roentgen ray, and there is good reason to believe that they may be more powerfully influenced by radium. Pearce Gould[21] reports a successful result in a periosteal tumor the exact nature of which has been questioned, while three other cases were only partially controlled. This field calls for further attention from radium workers. Benign giant cell sarcoma responds readily to radium.

In mammary carcinoma, Barcat[22] reports that he has had complete clinical regression in five inoperable cases. In esophageal carcinoma the difficulties of application are great, but several observers have had encouraging palliative results, and Hill reports one clinical cure of four and one half years' standing.



Fig. 5.—Nearly complete replacement of epidermoid carcinoma of cervix by very cellular granulation tissue.

17. Heinatz: Russk. Vrach, 1907, No. 10.
18. Dominici: Comp. rend. Acad. de Sc., **140**, No. 26.
19. Morton: Brit. Med. Jour., 1911, **1**, 429.
20. Czerny and Caan: Handbuch der Radium-therapie, Wiesbaden, 1913.
21. Gould, A. P.: Brit. Med. Jour., 1914, **1**, 219, 274, 340.
22. Barcat: Strahlentherapie, 1915, **5**, 51.

Space forbids the full review of the results of radium therapy in many other forms of malignant tumors. Enough data have been reviewed to show that radium is capable of dealing successfully with many cases of accessible localized carcinoma, and has already done so in several of the most important types of the disease. Not all cases of localized cancer, however, yield to radium, possibly because the dosage is not properly adjusted.

LIMITATIONS OF RADIUM THERAPY IN CANCER

The difficulties in the way of successfully employing radium are numerous, and have greatly retarded the recognition of its value. Chief among these has been the frequent effort to cure hopeless cases by resorting to the caustic effects of the agent. Schauta's experience establishes a record for openly acknowledged mistakes, but has doubtless been duplicated by other beginners. In fact, it has been the usual story that a new worker with a modest supply of radium starts out by doing more harm than good. Hence the habit of lending a little radium to inexperienced persons who wish to see what it will do is to be deprecated as against all the interests concerned. Of Schauta's first thirteen patients with uterine cancer, eight suffered from necrosis of tissue, fistulas, and diphtheritic inflammation of rectum, bladder and ileum. In his third series of similar cases, eight of eleven were clinically cured.

Another prime obstacle is the failure to recognize that each case is a problem in itself, that very different types of cancer occur in the same organ, and that successful application of radium as a strictly local agent requires accurate knowledge of the anatomy of cancer in general and of each patient's tumor in particular.

Never has the present unpopularity of a knowledge of pathologic anatomy been so painfully exposed as in the published discussions in the past decade on the radium treatment of cancer. A knowledge of the natural history and anatomic features of different malignant tumors is a sine qua non for a really successful worker with radium. Yet many of the workers appear never to have dissected in the dead body any one of the tumors they elect to treat. Until this knowledge is provided by the operator, a fair test of radium cannot be obtained. Recently these considerations have been strongly emphasized by Heiden-

hain, Döderlein[1] and Bayet.[23] Hoffmeier's[14] report, previously quoted, is an excellent illustration of the unfavorable results which may follow the indiscriminate use of radium in uterine cancer. A treatment effective with the ordinary form of epidermoid cervical carcinoma, which Aschoff likens to rodent ulcer, may well be powerless against a deep seated and disseminating glandular carcinoma. The radiologist has to consider the influence of anatomic relations, histologic structure, biologic type, duration of growth, and secondary complications in the tumor which he treats, as well as the physical condition of his patient. If radium had done nothing else than impress the necessity of a close analysis of tumor and patient, its advent in the field of cancer therapy should be welcomed.

The somewhat complex physical laws governing the action of radium, the variations in quantity, duration and distance in the dosages of different operators, the wide range of filters employed, the varying effects of alpha, beta, gamma and secondary rays, the conflict of opinion and advice between enthusiasts and uninformed critics, all have contributed a share in the confused history of radium therapy to date. What radium therapy most needs is the active cooperation of the workers and clinics, the standardization of methods and the concentration of the work as far as possible in large clinics thoroughly equipped with radium, technicians and trained medical specialists. The emanation has many advantages over the fixed tube of radium salt, and the standardization of methods will be greatly facilitated when the use of emanation becomes generally adopted.



Fig. 6.—Destruction of fragment of epidermoid carcinoma of cervix by leukocytes and granulation tissue.

The mechanical difficulties in the way of accurately applying the proper quantity of radium to an ulcerating lesion of tongue, tonsil, esophagus, rectum, etc., are great, and call for extreme ingenuity on the part of the operator. Fixed tubes of radium salt are poorly adapted for such purposes. Small tubes of emanation are also difficult to apply with precision. The various expedients used to protect the normal tissues are still far from uniformly effective. Owing to all these technical hazards, the radium treatment of any tumor of a mucous membrane should be undertaken only by an experienced operator after careful study of the case. In not a few situations it is practically impossible to obtain a satisfactory application. In this direction lie the chief practical limitations of the method and a legitimate ground for the general feeling that radium is a dangerous agent in the hands of a tyro.

Acceleration of the growth capacity of inadequately treated tumors has been reported by some observers. Active growth of outlying cell groups which have escaped the lethal action is doubtless facilitated by the edema, exudation, and loosening of the tissues on the edges of the tumor; and the extent of ulceration may widen rapidly from necrosis of tissue due to the caustic action; a true stimulation of cell division, however, is not thereby to be assumed. The experimental studies of the Hertwigs[24] and Lazarus-Barlow and Beckton,[25] have shown that mitosis is inhibited by anything beyond extremely small dosage. Lazarus-Barlow speaks of an initial stimulation of tumor growth by radium and Roentgen-ray treatment, but I have never observed any such result, while the reparative growth of connective tissue in regressing carcinomas of which he speaks is a reactive growth following injury of cells. Wood and Prime[26] have endeavored to show that radium-treated mouse tumor cells when transplanted may grow more rapidly than controls, but their results were quite inconstant, and the extirpation of the exposed cells removed them from the attack by lymphocytes and granulation tissue, which are the main agents of tumor destruction set to work in the curative process excited by radium.

A more serious objection to the use of radium in advanced cases is found in the failure of long inflamed granulation tissue to heal after the tumor cells are destroyed. It appears to be necessary to attack the tumor before it has laid down much dense connective tissue; otherwise the normal reaction by cellular granulation tissue fails to occur, while the tumor cells resist the direct effect of the rays. Extensive deposit of cicatricial tissue following repeated applications of radium produces an indolent ulcer which refuses to heal, interferes with muscular and joint mobility, constricts vessels, nerves and hollow organs, and leaves an intolerably painful and distressing condition. The susceptibility of normal tissue to repeated applications of radium seems to increase, while the sensibility of tumor cells seems to diminish after several exposures. Hence the best effects in advanced lesions often follow a single massive dosage. The tendency to injure normal tissues by long exposure to large doses heavily screened is likely to place a limit on the successful treatment of deep tumors (compare Bayet[23]). In some forms of epidermoid carcinoma, streptococcus infection is an early and persistent feature of the disease. It is seldom favorably affected by radium. In fact, secondary infections in the edematous tissues about

23. Bayet: Strahlentherapie, **5**, 205.

24. Hertwig, A.: Arch. micr. Anat., **77**, 301. Hertwig, O.: Ibid., **77**, **82**.

25. Lazarus-Barlow, and Beckton: Arch. Middlesex Hosp., 1913; Brit. Med. Jour., 1914, **1**, 1001.

26. Wood and Prime: Ann. Surg., 1915, **62**, 751.

radium-treated tumors may completely prevent a successful result.

Recurrences after radium treatment have been rather notably frequent, and this fact should be kept in mind in estimating the significance of any series of cases

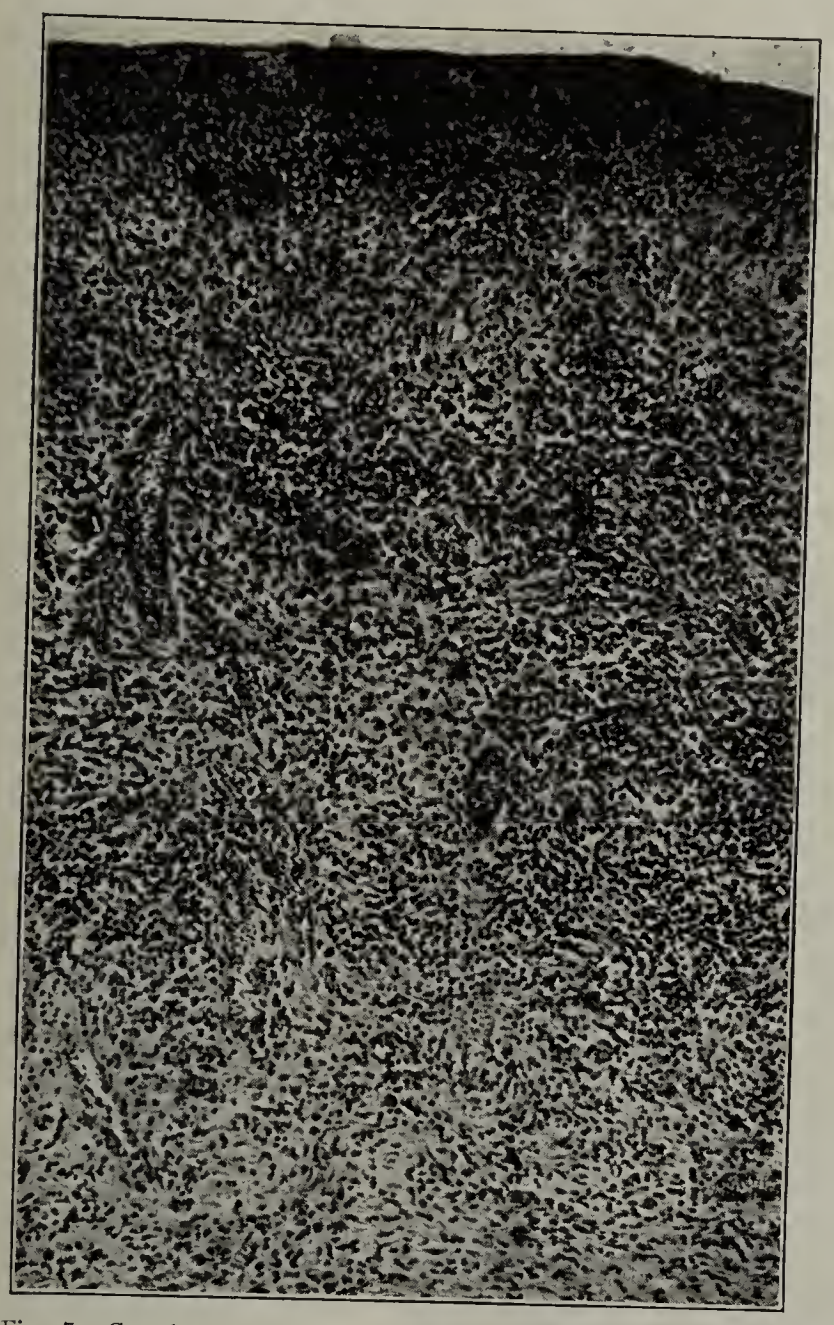


Fig. 7.—Complete replacement of site of epidermoid carcinoma of cervix by very cellular granulation tissue; the cells are chiefly lymphocytes and plasma cells.

recently treated. Among Chéron's seventy-seven complete clinical regressions of inoperable uterine cases there were thirty-one recurrences. They may appear promptly or be delayed for two years. Their source has often been traced in the persistence of islands of tumor cells lying on the outskirts or beneath the healed surface of the treated lesion. Many such cell groups probably become incarcerated in scar tissue and suffer gradual atrophy; but in advanced infiltrating lesions more distant groups often escape the effects of the usual dosage. A large proportion develop in distant lymph nodes which should either be treated with radium or excised. Considerable distrust of radium has been based on these recurrences, which may appear after apparently complete regression; but it should be recalled that they have been observed, with few exceptions, in advanced inoperable cases, and that there is no means of comparing their frequency with those following operation in less advanced cases. Their chief significance is in emphasizing the need of the usual period of observation before pronouncing any case a cure. They lessen but do not efface the great value of radium as a palliative agent, and many of them have been controlled by subsequent treatments.

Radium intoxication is a term applied to the phenomena sometimes following long exposure to large amounts of radium. The patients suffer from nausea and vomiting, extreme muscular weakness, feeble pulse and diminished urine. These symptoms rarely occur unless there is considerable necrosis of tissue, and bacterial infection, to which the intoxication must chiefly be referred. Brandt[27] observed symptoms of intoxication only in advanced cases, and regards it as a prognostic sign of the extent of dissemination of the disease. It is certainly more frequent in advanced and cachectic cases. Kolde and Martens[28] observed a fall in red blood cells for three days after long applications of mesothorium, and they recommend that time be given for the blood to recuperate. Prolonged radiation of the stomach or the vagus nerve is commonly followed by nausea and vomiting. Rapid absorption of large cellular tumors, however, may be accomplished without the slightest trace of intoxication, and large amounts of radium may be applied over the chest without any disturbance. The sources of intoxication must therefore be sought chiefly in factors apart from the direct action of radium.

It is thus apparent that the practical limitations to the use of radium in cancer are numerous and formidable, that in any but experienced hands it is a dangerous agent, and that until these difficulties are widely recognized or overcome a general recommendation of the use of radium, especially in place of competent surgery, is inadvisable. While the available supplies of the metal are so limited, and the indispensable skill in application so restricted, it would be



Fig. 8.—Site of cervical epidermoid carcinoma five weeks after radium: persistence of many lymphocytes and plasma cells in stroma, with beginning epidermization.

specially unwise to spread among the general public the impression that radium is ready to supplant surgical treatment of operable cancer. On the other hand, these precautions should not be permitted to stand in

27. Brandt: Zentralbl. f. Gynäk., 1914, p. 1441.
28. Kolde and Martens: Strahlentherapie, 1915, 5, 127.

the way of the normal and legitimate extension of the radium treatment of cancer.

THE PROBABLE FUTURE OF RADIUM THERAPY IN CANCER

The progress of radium therapy in cancer has been so rapid, many of its results so paradoxical, and the time test of their permanency so important, that it is difficult to conceive just what position this method will eventually occupy. The possession of an agent which brings about the destruction of tumor cells without seriously injuring the contiguous normal tissue is a matter of great biologic interest, probably the most important single contribution of modern cancer research.

Radium, however, is only a locally acting agent, and it is difficult to see how it can be made to exert a universal action over the body or to affect the constitutional element in cancer. It is not, therefore, the ideal cancer cure which some have conceived and many demand before they will pay attention to new treatments for cancer.

The intravascular injection of radium deposit in salt solution is said to have favorably influenced lymphosarcoma, but there are no indications that a safe dosage in the blood can affect the more resistant types of disseminated tumor cells. There are, however, definite grounds for assuming, as well as some clinical proofs, that by increasing the quantity, the length of exposure, and the distance from the skin, many deep and locally extensive tumors may be inhibited and some may possibly be destroyed. Since bone absorbs but little of the gamma rays, a location within the chest, skull or bone marrow is no bar to this action, although carcinoma invading bone usually resists radium. A similar method of treatment of large superficial tumors completely eliminates the caustic action of radium and may prove sufficiently active to control the growth. Deep cancerous lymph nodes have already been strongly affected in this way, and certain large cellular pelvic and abdominal tumors have been found to yield promptly and, it would seem, completely, to the action of large amounts of radium at a distance. By such applications it appears not unlikely that the field of radium may be extended to certain tumors of the fasciae, muscles, bones, stomach and breast.



Fig. 9.—Persistence of groups of tumor cells incarcerated in fibrosing lymphatics of parametrium in epidermoid carcinoma of cervix, after radium treatment.

A constantly recurring question will be the propriety of employing radium in operable malignant tumors. Having long since demonstrated its capacity to control superficial cutaneous tumors, having justified its use as a palliative in advanced cancer and produced a considerable list of clinical or anatomic cures in cancer of uterus, rectum and lip, it would seem that radium deserves a trial in all accessible and strictly localized carcinomas. In this field it will be well to limit the trial to cases in which there is some contraindication to operation. In regions like the tongue and buccal or pharyngeal mucosa, where operation is mutilating and highly unsatisfactory, radium certainly deserves a careful trial in experienced hands. It must, I think, be frankly admitted from the demonstrable action of radium that as a rule the same conditions that are favorable for operation are also favorable for radium, and the sooner the comparative test of the merits of the two methods is made, the better it will be for medicine and for humanity. It is my opinion that the future position of radium is not to be merely as a palliative in advanced or recurrent cancer, in which capacity it is of great value, or as an adjuvant to surgery with which it may be used to advantage, but as an agent for dealing with certain forms of early and strictly operable cancer in which for particular reasons it may be found on the whole more satisfactory than surgery. One such field, the uterus, seems already to be defining itself. In stating this general opinion, I wish to emphasize that it is in the nature of a prediction for the future and not an estimate of the present position of radium. A direct inference encourages this belief. Early cancer is a localized disease and radium is a locally acting agent with a specific action on tumor cells.

It has been the experience of many workers with radium that they have first employed it in inoperable cases, then they have reduced the scope of operability, next they included operable cases in which there was some contraindication to operation, and finally, as their success grew and their skill and confidence increased, they have treated strictly operable tumors. Is, or is not, this a legitimate course to pursue?

In an important economic aspect radium offers a subtle advantage over the knife, which is the mental attitude of the cancer victim toward the treatment of his disease.

In 1805, Young of London wrote: "So long as the extripation of scirrhus of the breast is performed by the knife, so long shall we have the disease fostered in secret. For the operator may argue until doomsday ere he shall persuade his patient that cutting the breast with a knife is a mere nothing." Although this statement comes from the days before anesthesia and when nearly all patients died of recurrence, it is probable

that the fear of an operation still induces many oversensitive persons to hide the early signs of cancer until the disease is too far advanced for any hopeful treatment. If then, a simple application of radium can, in a certain proportion of cases, replace operation, and physicians can safely so inform their patients, there is little doubt that many more early lesions will be brought to light. Against the wisdom of such a radical step stands the obvious danger that any relaxation in the rule of early operation might be abused. I am far from recommending such a step at the present moment, but I believe that this consideration is one which we cannot afford to ignore in estimating the value of radium therapy.

Almost equally important as a cause of failure in the cure of cancer is the hesitation and delay practiced by many physicians in dealing with early lesions of doubtful nature. It is just in this field of precancerous lesions, hypertrophies, atypical inflammatory overgrowths, warts and polyps of mucocutaneous junctions, numerous leukoplakias, cervical erosions, nevi, and many accessible benign tumors, that radium is both efficient and comparatively free from danger. There need be no hesitation in recommending the employment of this agent by experts in such conditions. To what extent radium may establish itself in the treatment of operable cancer it remains for the future to decide. Radium therapy is in its early stage of evolution. During this evolution those who know what radium can do, who have a background of knowledge of what other methods can accomplish, and who are ready to enlarge or alter those methods if necessary, may safely be trusted to tell us when and how radium is to be used in cancer.[29]

477 First Avenue.

29. In addition to the references already given, the following will be found of interest:
Hardy: Jour. Physiol., 1903, p. 29.
Löwenthal and Edelstein: Biochem. Ztschr., 1908, **14**, 484.
Molisch: Wien. Akad. Wissensch., 1912, **121**.
Chambers and Russ: Proc. Roy. Soc., 1912, **5**, 198.
Perthes: Wien. klin. Wchnschr., 1914, p. 593.
Finzi: Lancet, London, 1911, **1**, 1339.
Hill: Brit. Med. Jour., 1914, **2**, 1017.

After-Care of Poliomyelitis.—Oct. 1, 1916, there were in the state, outside of New York City, 2,582 patients recovered from poliomyelitis. A plan for the care of these children was outlined in accordance with that carried out by the State Board of Health of Vermont, under the direction of Dr. Robert W. Lovett, Boston, who has supervised the work in New York. Up to January 1, fifty-three clinics had been held in various parts of the state, and 1,590 patients had been examined. Of these 182 were paralyzed prior to 1916; forty-nine had other orthopedic conditions, and no paralysis was evident in 186 cases. In sixty-six cases some form of operation was necessary in order to restore function. There were 352 health officers and 580 other physicians present at the clinics. For the purpose of providing follow-up care, the state was divided into eight districts, each in charge of a supervising nurse, four of whom had received special instruction in muscle training at the Children's Hospital in Boston, and four of whom had been trained by actual experience in clinics.

SOME FACTORS ALLEGED TO INFLUENCE THE DURATION AND SEVERITY OF VACCINIA *

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This paper gives the results of some experiments undertaken to determine what influence would be produced on the duration and severity of vaccinia by the use of different preparations of vaccine, and various methods of treating the vaccinia vesicle.

TECHNIC OF VACCINATION AND COURSE OF RESULTING VACCINIA

In order to secure uniformity, the following technic, discussed at length in a former paper,[1] was employed throughout this series:

The arm in the region of the deltoid insertion was washed with alcohol and dried with sterile cotton. A small chisel provided with a carbon steel point was sterilized by dipping in alcohol and flaming. Three circular scarifications, each 2 mm. in diameter, were made through the epidermis by rotating the chisel edge against the tightly drawn skin. A sterile toothpick was used to transfer a drop of smallpox vaccine from its containing vial to the three scarifications, and to rub it into the exposed derma. The site of the vaccination was then covered with a square of sterile gauze held in place by adhesive tapes on one of which was stamped the return date, five days subsequent to the day of vaccination.

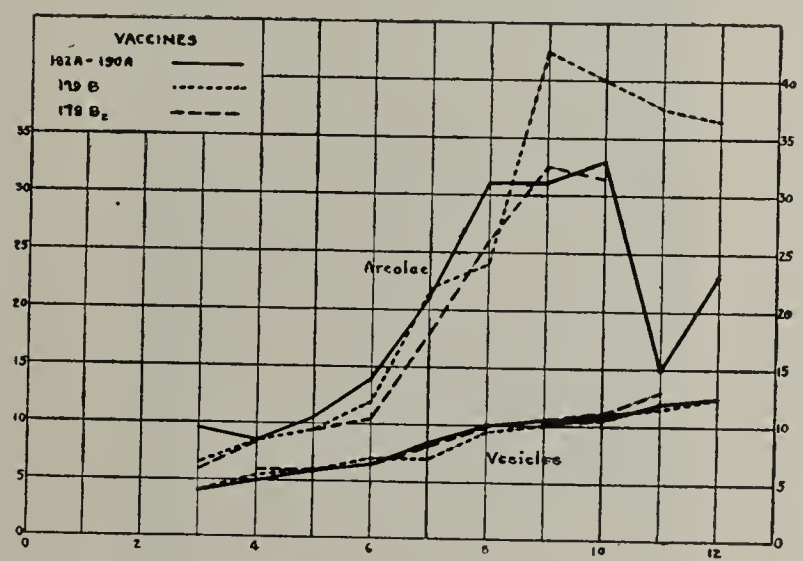


Fig. 1.—Comparative measurements of vaccinia lesions.

The vaccinia produced by this technic follows a fairly constant course. In a group of about 300 vesicles measured on the fifth day, the minimum diameter was 3.5 mm., the average fell between 6 and 6.5 mm., the maximum was 9 mm., while 70 per cent. were between 5.5 and 7.5 mm. The vesicle attains its maximum development on the eleventh day with an average measurement of 12 mm. Between the eleventh and the fifteenth day, the vesicle rapidly dries and shrinks to a brown scab which, in at least 60 per cent. of the cases, becomes loose enough to be easily detached by the twentieth day. The areola surrounding the vesicle closely parallels its growth until the seventh day, when it increases rapidly in size from an average of 10 mm. to an average of 40 mm. This sudden increase of the areola marks the rise of antibody formation; the vaccine organisms are digested, their toxic products give rise to the constitutional symptoms of fever and headache, while the change from vesicle to pustule marks the end of the vaccine colony. The areola rapidly shrinks to the size of the scab and gives color to the fresh scar, which averages 11 mm. in diameter.

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1. Force, J. N.: An Investigation of the Causes of Failure in Cowpox Vaccination, THE JOURNAL A. M. A., May 9, 1914, p. 1466.

VACCINIA LESIONS

Produced by Various Preparations of Smallpox Vaccine.—In order to determine whether the lesions following vaccination were influenced by the method of preparation of the vaccine, a comparison was made of the average daily measurements of vaccinia lesions, produced in three groups of persons by three preparations of smallpox vaccine:

Vaccines 182 A and 190 A, after being ground in glycerin in the customary manner, were incubated at 37 C. (98.6 F.), in order to secure the development of contaminating spores and the subsequent destruction of the resulting organisms by the glycerin. Vaccine 179 B was exposed to the action of ether for two and one-half hours after being ground in glycerin. The ether was then driven off by a current of air and the vaccine held for two weeks, pending the result of the tetanus test. This vaccine had a high bacterial count when finally released for our use. Vaccine 179 B_2 was exposed to ether for three hours, and was practically sterile when released for our use.

The comparison of the lesions produced by the three types of vaccine resulted in the following conclusions, as shown in Figure 1:

1. The development of the vaccinia vesicle is remarkably constant, irrespective of the preparation of vaccine employed.
2. There is little choice between incubated and etherized vaccine, as far as local reaction is concerned.
3. The maximum areola formation was slightly greater in the vaccine with the highest bacterial count, but this excess was not enough to suggest that it might be due to the action of pyogenic cocci contained in the vaccine.
4. It would appear that a vaccine capable of passing the tetanus test might be released without reference to its total bacterial count.



Fig. 2.—Vaccinia: upper vesicle produced by vaccination with ordinary glycerinated smallpox vaccine, lower by etherized vaccine; no marked difference in lesions.

Produced by Vaccinating Each Person in a Series with Two Preparations of Vaccine.—In order to determine whether the lesions following vaccination of the same person with two preparations of vaccine would show constant differences in favor of one or the other preparation, a comparison was made of the daily average measurements of vaccine lesions, produced by vaccinating each person in a series with the following preparations of smallpox vaccine:

Vaccines 156 B and 157 B were etherized as described above. Vaccines 156 A and 157 A were not incubated after grinding, but were stored until a satisfactory minimum bacterial count was obtained.

A comparison of the measurements listed in the accompanying table showed that there was no reduction in severity of local reaction, as would have been indicated by consistently smaller areolae obtained by the use of etherized vaccine. Figure 2 reproduces a photograph taken at the height of one of these vaccinias, and shows that there was no marked difference in the lesions produced by the two preparations of vaccine.

Comparison of Treated and Untreated Vaccinia Lesions.—Several methods have been suggested for reducing the amount of inflammation, shortening the course, and lessening the chances of secondary infection in vaccinia. Schamberg and Kolmer[2] advocate painting the vesicles at the end of forty-eight hours with a 5 per cent. alcoholic solution of picric acid.

DAILY AVERAGE MEASUREMENTS OF VACCINIA LESIONS PRODUCED BY ETHERIZED AND UNETHERIZED VACCINE IN EACH PERSON OF A SERIES

Days after Vaccination	Vesicles		Areolae	
	156A-157A	156B-157B	156A-157A	156B-157B
	mm.	mm.	mm.	mm.
4	4.5	4.0	5.5	6.0
5	5.5	5.0	8.5	8.0
6	6.0	7.0	8.5	11.5
7	6.0	5.0	8.5	8.0
8	9.5	10.0	27.5	25.0
9	9.5	9.5	23.0	25.5
10	9.5	9.5	19.5	20.5
11	10.0	11.0	33.0	37.0
12	12.0	11.5	21.0	20.0

Dyer[3] asserts that the proverbial "sore arm" is prevented and the scar reduced to a minimum by painting the vesicles, as soon as they appear, with tincture of iodin, clipping the top with sterile scissors, and cauterizing the base with a 6 per cent. solution of silver nitrate.

As soon as the vesicles appear, Unna[4] applies a mixture of eight parts of zinc oxid ointment with one part each of calcium carbonate and sulphur lotum. This, he says, prevents redness and swelling, and shortens the duration of the vaccinia.

In order to compare the results of these three treatments with the results of our usual technic, the methods of Schamberg, Dyer and Unna were employed for the treatment of vaccinia lesions beginning on the fifth day following vaccination. Measurements of the areolae, vesicles and scabs were taken whenever the subjects returned for dressings. A series of untreated lesions was measured as a control. The daily averages of all measurements were plotted (Figure 3) as well as the daily percentages of persons dismissed (Figure 4). A study of these charts brings out the following:

1. The course of a normal vaccinia is fairly constant; the maximum development of the antibody occurs on the tenth day, while the maximum scab separation takes place on the twentieth day after vaccination.
2. The average daily measurements of lesions resulting from multiple small insertions of smallpox vaccine were practically constant, whether the lesions were untreated or treated by any of the three methods described.
3. By the twentieth day after vaccination, 64.5 per cent. of seventy-eight untreated persons, 63.5 per cent. of seventy-five treated by the method of Unna, 70.5 per cent. of ninety by the method of Schamberg, and 72 per cent. of twenty-five by the method of Dyer were dismissed with the scabs off.

2. Schamberg and Kolmer: The Treatment of the Vaccination Site with Picric Acid Solution, Lancet, London, 1911, **2**, 1397.
3. Dyer: The Way to Vaccinate, Am. Jour. Trop. Dis. and Prev. Med., 1913, **1**, 425.
4. Unna: Naessende Ekzeme, Berl. klin. Wchnschr., 1915, **52**, 281.

4. It does not appear that any of the three methods tested possesses any great advantage over our method, so far as decrease in redness and shortening of the course of the vaccinia are criteria for judgment.

COMMENT

The experiments described above show that the duration and severity of vaccinia are not influenced to any marked degree by variations in the methods of preparing the vaccine or by treatment of the vaccinia vesicle. We are forced, then, to conclude that the vaccinia of long duration and marked severity is a result of improper vaccination technic.

At the opening of each semester at the University of California, a number of new students from distant portions of the state apply to the infirmary for treatment of the lesions following vaccinations by their home physicians. Observations, extending over several years, of the methods employed and results obtained in these vaccinations have convinced us that the subject of vaccination technic has not been completely mastered. The cross-scarified site, covered by corn plaster, vaccination shield, or even tightly drawn adhesive tape, represents the beginning of an improperly performed vaccination, as surely as a 6-weeks-old, dollar-size, slowly granulating ulcer typifies its close.

The first step in securing efficient vaccination is to acquire a more general knowledge of the pathology of vaccinia. For many years, the manufacturers of smallpox vaccine have been striving to give us a product which would be practically free of bacteria and yet retain its potency. The manufacture of a product of this character has no doubt been stimulated by a disposition on the part of vaccine users to attribute unfortunate results of faulty technic to "something in the vaccine." An English manufacturer was convicted some years ago of adding croton oil to his smallpox vaccine. His defense was that physicians demanded a sore arm on revaccination and, as the vaccine alone would not cause it, he was endeavoring to supply the demand. A better understanding of the normal course of secondary vaccinia, or vaccinoid, would have made such a demand impossible.

Smallpox is a septicemia. If the infection is severe, we have a true hemorrhagic condition with no tendency for the organism to become localized; if less severe, the smallpox organism is arrested in the skin and there destroyed. Pus is formed in the smallpox lesion as an end-product of the struggle between the antibodies and the arrested organisms. Its production is not influenced by the pyogenic cocci, present normally in the skin.

Only in the late stages was Roger[5] able to demonstrate bacteria in smallpox pustules, and their appearance then was by no means constant. According to Ashburn,[6] we may assume that the same relationship exists between smallpox and vaccinia as between the "street" and "fixed" virus of rabies. We should, therefore, expect to find a certain amount of pus normally in the vaccinia lesion, even when we employ a bacteria-free vaccine. Any excess over this normal amount would represent the results of secondary infection, not necessarily, from the pyogenic cocci, normal to the skin, since Roger asserts that they may be disregarded; not ordinarily from the vaccine, since Francis[7] has demonstrated the impossibility of conveying even tetanus to monkeys by means of artificially contaminated vaccine; but, from outside infection, made possible by a combination of faulty vaccination technic and improper care of the resulting lesions. This secondary infection is not the worst chapter in the whole disgraceful story. The victim, finally recovered from his "awful arm," secure in the belief that he is protected by a "good take," often falls a prey to smallpox, for the secondary invaders have destroyed the vaccine organisms, and his big scar is only evidence of a sloughing ulcer. However, he has not suffered in vain, for is not his history preserved in the archives of the antivaccinationists as another example of the "failure of vaccination to protect against smallpox"?

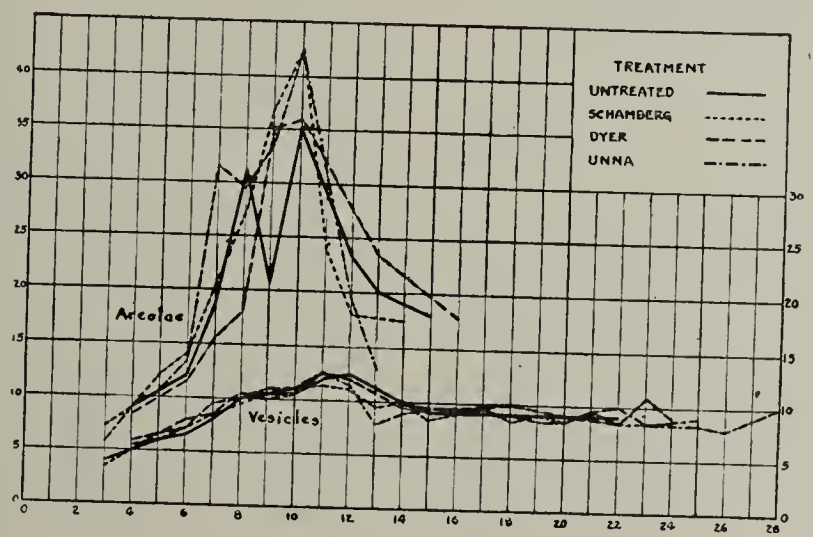


Fig. 3.—Comparative measurements of vaccinia lesions.

THE USE OF SMALL MULTIPLE SCARIFICATIONS

Given a smallpox vaccine of proved potency, we believe that, in persons previously unvaccinated, uniformly successful vaccinias, uncomplicated by secondary infection, may be secured by the use of small multiple scarifications. Although we read Jenner's "Inquiry," many years ago, it was only recently that we saw a photographic reproduction of his drawings of vaccinia, and we were much gratified to note the strong resemblance of our lesions to his "half pearl on a rose leaf." Since the vaccine colony grows only in unbroken skin, we wish to confine this growth to the smallest possible area for any one insertion. While Jenner was a consistent advocate of the small scarification, he was content to produce a single scar. Our choice of three points of insertion is in accord with the following statements made by McCollum, in a letter to Cody:[8]

> I am thoroughly convinced that there should always be three insertions of virus. Three reasonably good scars is a fairly sure indication of protection, but the mistake must not be made of thinking that because a person has a large scar it is an indication of successful vaccination.

During the Liverpool epidemic of 1902-1903, Hanna[9] made careful measurements of the scar areas of persons who had been vaccinated in infancy. His subjects were divided into two groups: persons who had never had smallpox, and smallpox patients. This study showed that the average scar area in persons who had never had smallpox was, for all ages, greater than the scar area of smallpox patients for corresponding ages.

5. Roger: Infectious Diseases, New York and Philadelphia, Lea Brothers & Co., 1903, p. 265.
6. Ashburn, P. M.: The Relationship of Variola and Vaccinia, THE JOURNAL A. M. A., April 19, 1913, p. 1220.
7. Francis: Laboratory Studies on Tetanus, Bull. 95, Hyg. Lab., U. S. P. H. S., 1914.
8. Cody: Vaccination Efficiently Performed, Boston Med. and Surg. Jour., 1914, **170**, 369.
9. Hanna: Studies in Smallpox and Vaccination, William Wood & Co., New York, 1913, p. 27.

Also, the average scar area of the group of smallpox patients was greater, for all ages, than the average scar area of those members of the same group who had confluent or fatal cases of smallpox. The maximum average scar area among persons who had never had smallpox was 1 1/10 square inch. The vaccination instructions of the Local Government Board of England call for one-half square inch of pitted surface

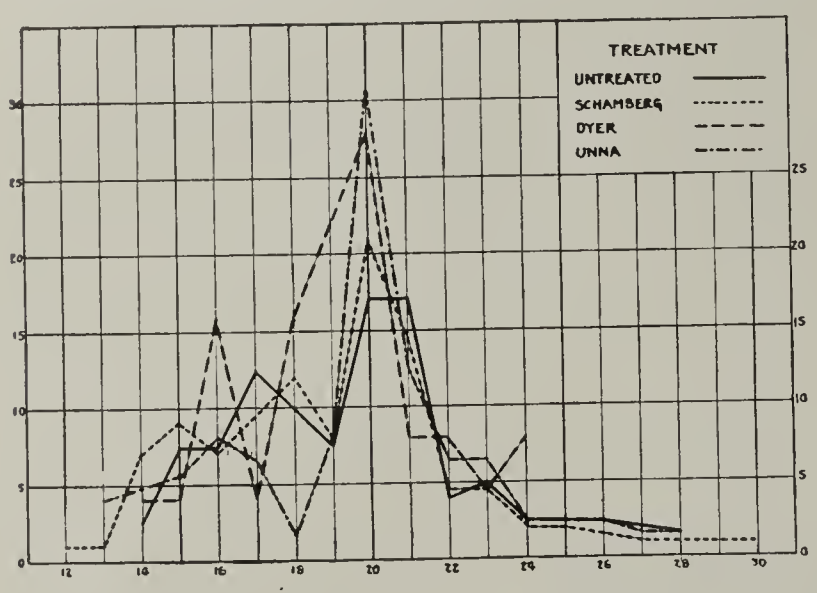


Fig. 4.—Dismissals.

(3 square centimeters), an amount which is approximated by the sum of the areas of the three scars produced by our method.

In sharp contrast is the result produced by a single cross-scarification. The exuding serum tends to form a crust which furnishes anaerobic shelter for possible secondary invaders, as tetanus spores; the large rambling vesicle is easily broken, and, since the vaccine growth is outside the central crust, there is every tendency for it to be cut off from nourishment. Here are combined in one lesion the possibilities of infection under the crust, infection of the skin beneath the broken vesicle, and a central slough with resulting slowly healing ulcer. Although the vaccination shield has a tendency to macerate the skin, through the action of confined moisture, there is some excuse for its use to protect the large rambling vesicle resulting from cross-scarification, since this vesicle is very easily broken. On the other hand, the small vesicles produced by our vaccination seem remarkably tough, and we employ a dressing which does not tend to delay the drying.

CONCLUSIONS

1. Severity of local reactions following vaccination is apparently uninfluenced by the method of preparation of the vaccine or the bacterial count at the time of release (Fig. 1).

2. The course of a primary vaccinia is apparently uninfluenced by treatment with antiseptics (Figs. 3 and 4).

3. The prevention of secondary infection following smallpox vaccination depends essentially on the use of small multiple scarifications which, when inoculated, give rise to small vesicles which are not easily broken, and do not foster anaerobic conditions and a central slough.

Progress in Society.—The gradual and steady improvement of social conditions and of all social and governmental institutions, and the gradual elimination of conditions which impede progress are the only sure bases of future progress.—Burdette G. Lewis.

THE ELECTROCARDIOGRAPH AS AN AID IN THE DIAGNOSIS OF CARDIAC VALVULAR DISEASE*

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NEW YORK

Although the electrocardiograph has been much used in the diagnosis of the arrhythmias and of myocardial disease, yet the use of the information which it gives in regard to the hypertrophy of the various chambers of the heart has been considerably neglected. It is my present aim to call attention to this information and to show how it can be made use of in the examination of the heart, and especially to show of what value it may be as an aid in the diagnosis of valvular lesions.

Each valvular lesion leads to the hypertrophy of one or more of the chambers of the heart, and this hypertrophy has an effect on the electrocardiogram of the individual. Hypertrophy of the auricle is shown by an increase in the height of the wave P, over 2 mm., as seen in Figure 1, being abnormal. Hypertrophy of the right ventricle is also shown in Figure 1, the electrocardiogram having the R wave turned downward by Lead I and upward by Leads II and III. Hypertrophy of the left ventricle is shown, as in Figure 2, by a record having the R wave of Lead III turned downward, while it is turned upward by Leads I and II.

Perhaps it might be well to define the term "lead." It is the method of leading off the heart's current from the body to the galvanometer. For Lead I the right arm and left arm are connected to the instrument; for Lead II the right arm and left leg, and for Lead III the left arm and left leg. By each of these leads there is obtained a slightly different curve, even from a normal heart, as is seen in Figure 3; but the curves are all alike in showing a small wave, P, due to the auricle, and a tall, sharply pointed wave, R, and smaller peak, T, both due to the ventricle. In records from normal hearts the R wave is directed upward in all

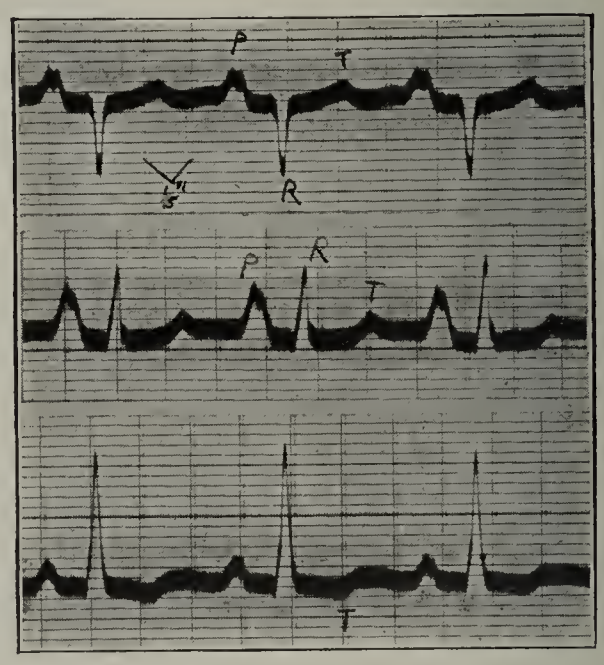


Fig. 1.—Record from a patient with mitral stenosis. In this and the succeeding records the time interval between the corresponding line of successive pairs of ordinates is one fifth second. The distance between abscissae—1 mm. in the originals—represents 1/10 millivolt. Records are to be read from left to right.

three leads, and in such hearts it has been found that the relation of the weight of the left ventricle to that of the right ventricle varies from 2:1 to 1.5:1. If

* From the medical services of the New York Hospital, and the Department of Medicine of Cornell University Medical College.

either the right or left ventricle becomes hypertrophied, this proportion is disturbed, and the R wave of the electrocardiogram will vary accordingly, as has been described above.[1]

Dilatation does not disturb this mass relation of the ventricles, and therefore does not have this effect on the R wave — an evident means by which we are aided to distinguish hypertrophy from dilatation.

Suppose, then, that a mitral stenosis is suspected. The electrocardiogram should show the effect of the resultant hypertrophy of the right ventricle in a downward RI,[2] or perhaps of the hypertrophied auricle in an abnormally large P wave. If this sign of right side hypertrophy is absent, it should be considered as evidence against the presence of the mitral lesion. Figure 1 is from a case of mitral stenosis, and shows typically both of these signs — really the results — of this lesion.

When there is suspicion of an aortic regurgitation, we should expect to find, if the aortic leak is present, the downward RIII of left ventricular hypertrophy as in Figure 2, while the absence of this sign would point to the absence of the lesion.

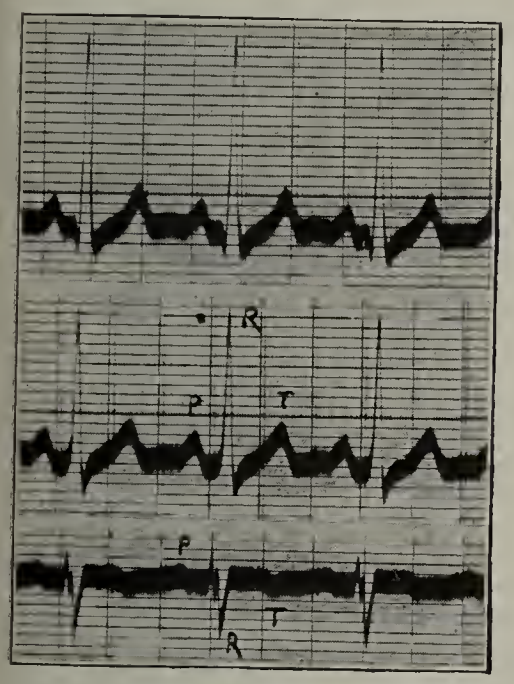


Fig. 2.—Record from a patient with aortic regurgitation.

Mitral regurgitation also leads to a hypertrophy of the left ventricle, so that a suspicion of this type of valvular disease would be confirmed by the finding of a downward RIII. Figure 4 is from an early case of this type, and shows a very small downward RIII, indicative of a slight degree of left ventricular predominance. When mitral regurgitation is of marked degree or of long standing, the left ventricle, even aided by the hypertrophy and dilatation which takes place, is unable to pass along the blood fast enough to prevent pulmonary stasis. This makes more resistance for the right ventricle to overcome, so that this also undergoes a hypertrophy. The result, then, is that, both ventricles being hypertrophied, the heart as a whole shows what might be called a balanced hypertrophy, and the mass relation of the ventricular weights is brought within normal limits. Figure 5 is typical of this, and shows, as is usual in such cases, an upward R wave in all three leads.

So much, then, for the simple cases with only a single valvular defect. When there is more than one lesion present it is necessary to consider the effect on the heart of each lesion separately, and to view the electrocardiogram in the light of this knowledge. When mitral stenosis and aortic regurgitation occur together, each acts to cause hypertrophy of one of the ventricles, so that the result is that a balanced hypertrophy is produced and the electrocardiogram is of the normal type. If a heart with evident mitral stenosis shows signs, such as a heaving apex beat, enlargement downward or an indefinite basal diastolic murmur, which cause us to suspect an aortic leak, then the finding of a downward RI will be evidence against this lesion, while if the R waves are all upward its presence

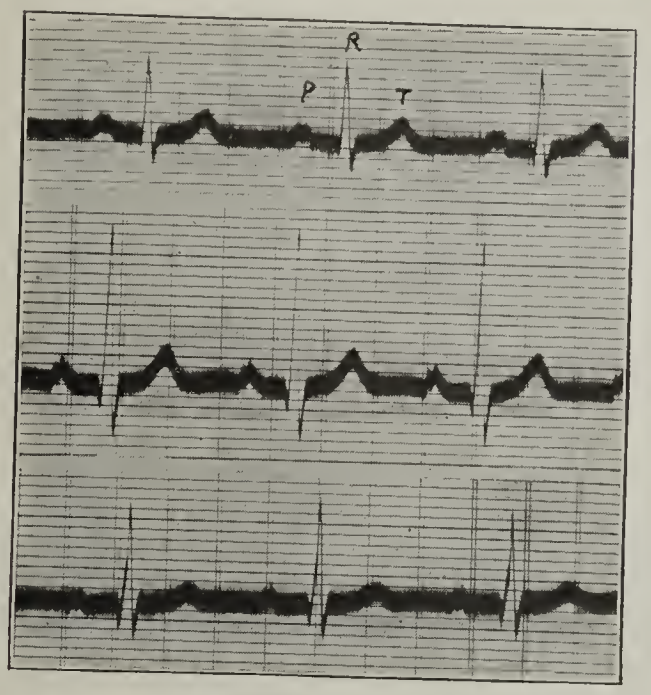


Fig. 3.—Normal electrocardiogram, from a patient with lobar pneumonia.

will be confirmed. With a plain aortic regurgitation and a diastolic rumble at the apex, it is often difficult to decide whether the latter is due to mitral stenosis or is a Flint murmur. If the suspected murmur arises by the mechanism described by Flint, there will be no effect on the right ventricle, and the electrocardiogram will show the downward RIII of left hypertrophy. If the suspected murmur is due to mitral stenosis, a balanced hypertrophy will be produced and an electrocardiogram will be of the type of Figure 3.

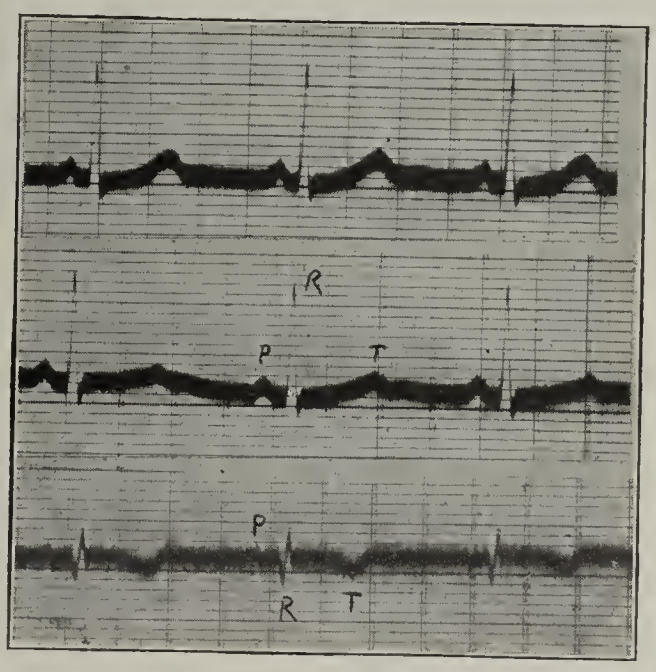


Fig. 4.—Record from a patient with an early stage of mitral regurgitation.

Remembering what was said about well marked mitral regurgitation, it is quite plain that aortic regurgitation or mitral stenosis when combined with this will become evident in the record by the presence of the hypertrophy which they characteristically produce. This fact is especially useful in deciding the character of the low pitched diastolic rumble often heard at the

1. Lewis: Observations on Ventricular Hypertrophy, Heart, 1914, 5, 367.

2. The Roman numeral following the letter refers to the lead by which the designated wave is obtained.

apex with mitral regurgitation, and especially commonly in young persons. Frequently this murmur does not arise from a mitral stenosis.

If the conditions are such as to lead to a marked predominance of either ventricle, the electrocardiogram is found to have the R wave of Lead II turned downward as well as the R of the lead typical for the hypertrophy. Thus aortic stenosis, which probably always has regurgitation associated with it, results in a record in which RI is directed upward, while both RII and RIII are downward. I have never seen aortic regurgitation alone show such an electrocardiogram.

Certain congenital lesions lead to a hypertrophy of the right ventricle. Patent ductus arteriosus, patent interventricular septum and stenosis of the pulmonic valve or artery are in this category, and the hypertrophy is usually of an extreme degree so that RI and RII are turned downward, while only RIII is directed upward. Other congenital lesions, as patent foramen ovale or interventricular bands, do not lead to hypertrophy, and can thus be differentiated from the conditions of more serious moment. This extreme degree of right ventricular predominance may also be produced in children by a mitral stenosis.

When using the electrocardiogram in this way, we must always bear in mind that increased blood pressure leads to hypertrophy of the left ventricle. This fact is easy enough to discount in the interpretation of the electrocardiogram, but should lead us always to take both the systolic and diastolic pressures before attempting to draw conclusions from the record.

These electrocardiographic signs of hypertrophy I believe to be quite reliable, and if a hypertrophy is found which is not explainable by the abnormal conditions which are evident, such as frank valvular disease of high blood pressure, I believe that we should carefully review the facts on which we have based the diagnosis of the valvular lesion, and that diligent search should be made to find some other factor which is not evident and which if present might be the cause of the muscular balance which appears in the record. Extracardiac factors should also be considered. Emphysema, pleural adhesions and pulmonary tuberculosis might be mentioned as extracardiac factors which lead to hypertrophy of the right ventricle, while marked physical exertion and more or less transient periods of increased blood pressure will cause hypertrophy of the left.

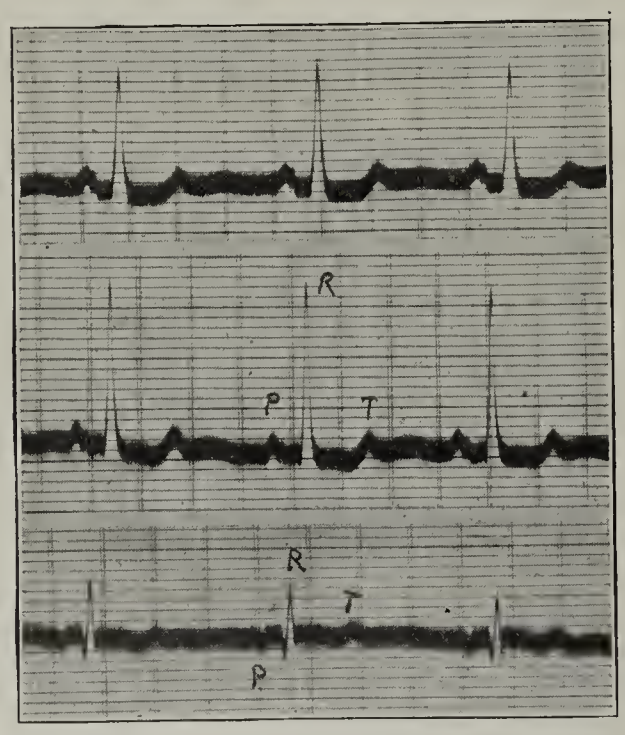


Fig. 5.—Record from a patient with mitral stenosis and aortic regurgitation.

A final word as to the relative value of a diagnosis of hypertrophy by the electrocardiograph and by the other methods of examination: Percussion of the heart borders and examination by the Roentgen ray give us information of the physical size of the heart as a whole. They do not indicate which portions of the heart are affected in this enlargement, and do not indicate whether the enlargement is due to hypertrophy or to dilatation. A heaving apex impulse or booming first sound is usually considered indicative of hypertrophy of the left ventricle, but is greatly subject to modification by the condition of the lung and of the chest wall. Nor is there any reliable indication of hypertrophy of the right ventricle; the right border of dulness means auricle, epigastric pulsation means low diaphragm, and so on. On the other hand, the electrocardiograph does not indicate the actual size of the heart mass except so far as it is not possible to have any part of the heart hypertrophy without increasing the total. This instrument shows the relative size of the different chambers, indicating that some factor has been operative in causing perhaps a hypertrophy of the auricles, or perhaps the predominance of one ventricle or the other, or perhaps that neither ventricle is predominant, and notifies the observer that some explanation must be forthcoming for the condition of the muscular balance which is found to exist.

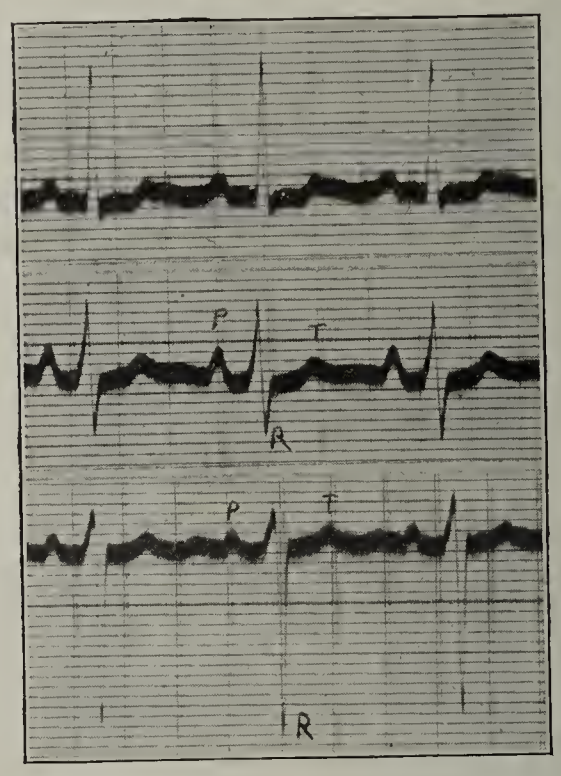


Fig. 6.—Record from a patient with aortic stenosis and aortic regurgitation.

SUMMARY

It may be said that the electrocardiograph will give evidence for or against the presence or absence of any single valvular lesion which is suspected, by showing the presence or absence of the ventricular hypertrophy which the lesion produces. In combined lesions, when one is plain and another suspected, it will again tell whether or not the suspicion is correct.

It will show whether or not congenital murmurs arise from serious structural defects in the heart. Lastly, it will help to tell whether enlargement is due to hypertrophy or to dilatation.

45 East Sixty-Second Street.

Habitus and the Viscera.—Man is not a creature of fixed physical characteristics. An infinite variation in bodily physique, in visceral topography, form, tonus and motility occurs. Certain types of physique are constantly associated with certain types of visceral topography, tonus and motility. Causes for such relationship may be recognized.—R. W. Mills, M.D., *American Journal of Roentgenology.*

Clinical Notes, Suggestions, and New Instruments

A WATER-COOLED RETRACTOR FOR USE WITH A CAUTERY IN THE MOUTH *

GORDON B. NEW, M.D., ROCHESTER, MINN.

Adequate protection of the lips and cheeks is essential in the treatment of malignancy in the mouth with a cautery. Protection is especially needed when heat is applied for a long time. The water-cooled retractor herein illustrated

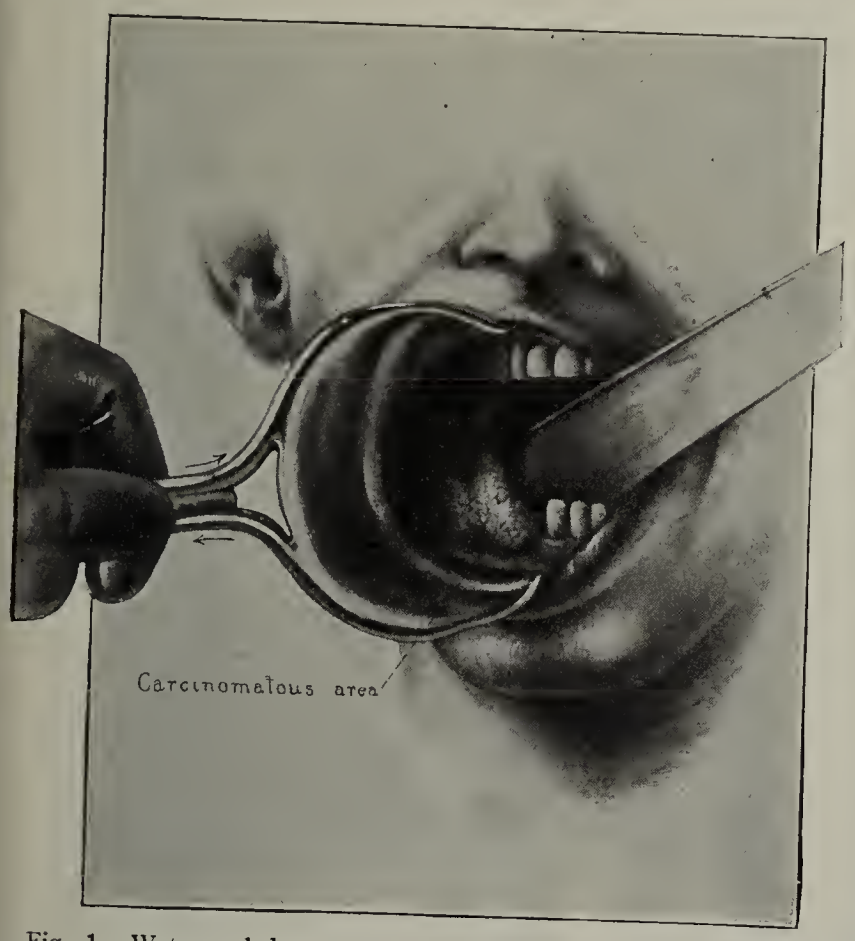


Fig. 1.—Water-cooled retractor in place; wooden spatula protecting tongue preparatory to cauterization of epithelioma, alveolar margin and cheek.

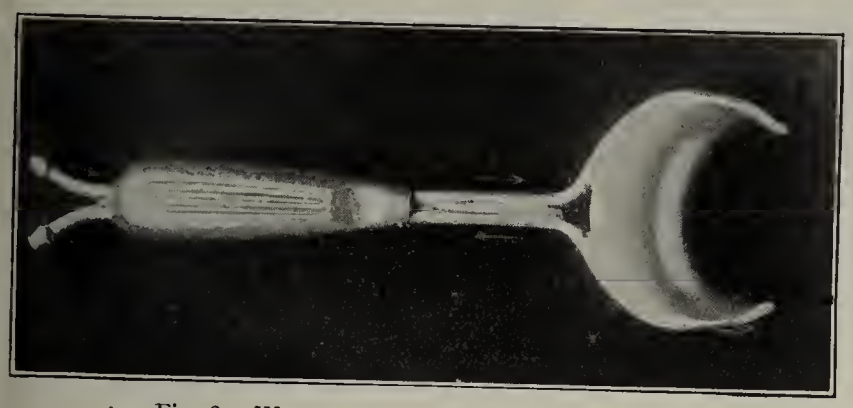


Fig. 2.—Water-cooled retractor, anterior view.

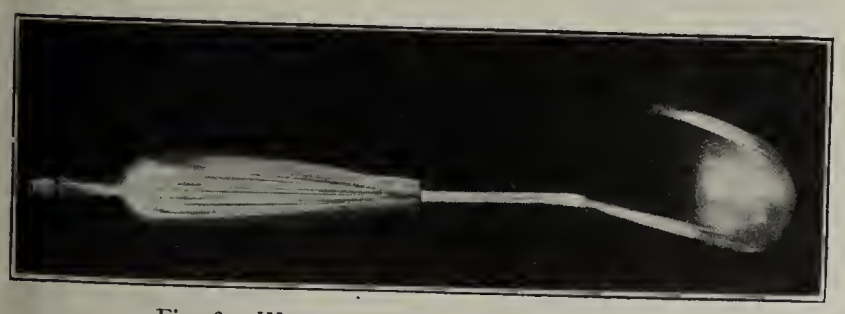


Fig. 3.—Water-cooled retractor, lateral view.

fulfils requirements, at the same time giving good exposure in the cauterization of growths on the alveolar margin.

The portion of the retractor coming in contact with lips and cheek consists of two layers of metal with a space between for the passage of water. The water passes in and out at the distal end of the handle of the retractor.

Soldering irons or an electric cautery may be used with this retractor, thus eliminating the necessity of a water-cooled jacket on the cautery handle. In this way a better view is obtained of the growth and the point of the cautery.

A wooden spatula is also used to protect the tongue in cauterizing growths of the jaws and cheeks.

* From the Mayo Clinic.

A NEW SPINAL CURVATURÉ BRACE

H. WINNETT ORR, M.D., LINCOLN, NEB.

In attempting to carry the principles of the Abbott rotation method for the treatment of scoliosis beyond the plaster jacket wearing period, I have found it practically impossible to derive satisfaction either for the patient or for myself from celluloid jackets or the spine braces now in use. For nearly two years I have been using and gradually improving the brace illustrated herewith. This brace gives definite control of the shoulders and hips and rotation pressure on the ribs.



Fig. 1.—Patient without brace and with brace applied; this was one of the first braces made.

The brace offers several desirable features. It is infinitely adjustable for position or growth. Any part of the brace may be modified or even exchanged without sacrificing the brace as a whole. There is no constriction of the chest. Finally, with a firm grip on the shoulders and the pelvis, in the exact position desired, any degree of positive rotation pressure on the ribs may be obtained.

The brace is not offered as a substitute for plaster-of-Paris jackets applied as described (the Abbott method). I still use and shall continue to use the plaster jacket as the desirable treatment for most scoliosis patients before applying the brace. On the other hand, I believe that my brace is preferable in almost any case to a jacket applied in suspension. This is because this brace controls the pelvis and the shoulders in such a way that extension of the trunk with or without flexion of the spine and with true rotation pressure on the ribs may be obtained.

The brace is not recommended for advanced fixed scoliosis except when the plaster-of-Paris jacket is contraindicated or for any other reason cannot be used. Even in advanced cases, however, this brace will give a corrective tendency and a

degree of protection against further deformity which I believe it is impossible to obtain with any other brace.

I at first recommended that the brace be made on measurements of the girth of the pelvis, the length of the back and the width between the armpits only. It is my present conviction, however, that the most satisfactory control of the patient can be had only by making the pelvic portion or girdle fitted on a plaster torso of the patient. This can, of course, be made only by securing a plaster mold of the patient in the best position possible (in the Abbott frame if necessary), and then having the bracemaker pour the torso model into the mold so obtained. (It is still better to make and remodel the torso oneself.)

After the brace has been made, it is thus applied to the patient:

The nut from the top of the upright is unscrewed and the arm pieces, segments and rib-segments removed all the way down. The pelvic portion of the brace is laced (or buckled) on. Segments are now slipped on until the spine portion of assistant cooperating, the position secured is maintained while the nut is screwed firmly down, locking all parts of the brace securely in place. If now on careful inspection slight modifications of position are desirable, they can be obtained by bending the ribs or shoulder pieces slightly.

Any degree of flexion or extension of the spine may be provided for by bending the vertical rod before construction of the brace on the patient is begun.

This method gives definite improvement in practically all cases. Not all can be made straight or cured. The length of time required for maximum benefit is sometimes much greater than we thought when we first began using the Abbott method. But it is much the best treatment we have ever had.

A considerable number of patients treated unsatisfactorily in the pre-Abbott period have been treated with satisfaction since. I believe it to be the method that we should all learn and use if we are to give our scoliotic patients a real opportunity for improvement or cure.



Figs. 2, 3 and 4.—Patient with pronounced paralytic scoliosis and with brace. This is the style of brace now being used. The pelvic portion is adapted from a sacro-iliac brace first kindly furnished to the author by Dr. R. B. Osgood. It grips the pelvis firmly without discomfort. The other portions of the brace have been reinforced and are stronger, but not materially changed otherwise.

the brace has been built up to a point at which it is desired to apply rotation (rib) pressure on one side or the other. A right or left hand rib is slipped on as desired. and then another segment without a rib. Next another rib segment designed to give additional pressure in the same direction or on the other side, as desired, is put on. To secure the desired amount of rotation, pressure on a rib convexity of any size requires a series of three or four rib segments (alternating with ordinary segments), all pressing in the same direction. An assistant standing in front of the patient holds these ribs in position as one puts them at the proper level and rotates them to the point desired. When the brace has been built up to about the shoulder level, the segment carrying the shoulder piece for the shoulder above the rib convexity is first put on and the shoulder (in the arm piece) rotated firmly backward. Then the shoulder piece for the shoulder above the rib concavity is put on and the shoulder well raised (this has been the low shoulder before) and carried forward. The final segment is now put on, and with the patient and

Whooping Cough.—An issue of the New York State *Health News* is devoted to the whooping cough situation in the state. Whooping cough, which is usually classed as one of the minor diseases of childhood, has carried off more lives in New York during the past five years than the much more dreaded scarlet fever. The total number of deaths from scarlet fever during the years 1911-1916 was 2,904, equivalent to an average rate of mortality of 5.9 per hundred thousand total population. During the same period 3,739 children died from whooping cough, which corresponds to an annual death rate almost 30 per cent. higher than that of scarlet fever—7.6 per hundred thousand. In the year 1916, whooping cough ranked next to measles as a cause of death in this state, taking almost as many lives as typhoid fever (593), and scarlet fever combined, 745. In the past ten years the death rate from whooping cough has fluctuated between seven and nine per hundred thousand, with only a slight downward tendency.

CAUTION AGAINST THE USE OF NON-NEUTRALIZED (ACID) SOLUTIONS OF SALVARSAN

JAY FRANK SCHAMBERG, M.D., PHILADELPHIA

A recent experience which has been brought to my attention prompts this note of warning against the advertent or inadvertent use of non-neutralized solutions of salvarsan. A physician administered to two patients, respectively, 0.4 gm. of arsenobenzol in 30 c.c. of water, *but failed to neutralize by the addition of sodium hydroxid solution.* Both patients developed alarming symptoms. The first patient complained of pain in the epigastrium, in the substernal region and in the left shoulder; later she had abdominal pains with nausea and vomiting. An irritating cough began which at the end of five days had not disappeared. The vein in which the solution had been introduced began to thrombose, and was thickened and painful for a length of 6 inches.

Immediately after the injection, the second patient developed cough and pain in the left shoulder, and the substernal and precordial regions. There was difficulty in breathing, and altogether the symptoms were alarming.

It now appears that these patients will recover, although a fatal termination might readily have taken place. It will be recalled that Fraenkel and Grouven, in the early days of the use of salvarsan, gave a patient 0.4 gm. in 15 c.c. of water; to this was added from 1 to 1.5 c.c. of a decinormal solution of sodium hydroxid. Despite this addition, the solution was still strongly acid. The patient died in three and one-half hours. The toxicity of acid solutions of salvarsan is lessened if they are given in great dilution. A year ago, a physician informed me that, acting under misapprehension of the instructions, he had administered arsenobenzol to two patients without neutralizing the solution; no reactive symptoms whatsoever developed. In this instance, however, from 100 to 150 c.c. of water were used. A few years ago, Prof. H. E. Hering of Prague called attention to the greatly increased toxicity of acid solutions of salvarsan as compared with alkaline solutions.

Dr. John A. Kolmer, Dr. George W. Raiziss and I, in a series of experiments, the publication of which is now in press, have shown that acid solutions of salvarsan administered intravenously in rats increases the toxicity from 50 to 60 per cent. This is true even in such concentration of the drug as is represented by from 0.5 to 1 per cent. solutions, the equivalent of 0.6 gm. in from 60 to 100 c.c. of water. The toxicity of acid solutions increases proportionately to the concentration of the solution. Max Joseph says that acid solutions produce a precipitate in the blood which may actually be seen in the lungs and in the right ventricle of experimental animals. The cough, which the patient referred to above developed, was doubtless due to the production of small emboli in the capillaries of the lungs.

It would seem that some physicians have confounded some of the salvarsan compounds which have been marketed under various trade names with neosalvarsan, and therefore have failed to neutralize the solution, an error which might have jeopardized the life of the patient.

1922 Spruce Street.

ESOPHAGEAL STRICTURE

J. J. SOUTH, M.D., MASSILLON, OHIO

J. S., boy, aged 11 years, drank about an ounce of lye late in February, 1916. He was given the usual demulcent and sedative at the time, placed on a bland restricted diet, and made what appeared to be an uneventful recovery. When able to eat almost anything he wished and seemingly in excellent health he was sent to his grandmother's in another town, and I did not see him again until July. One evening in the latter part of the month his mother carried him into my office in her arms. He looked almost moribund. He was nothing but skin and bones. His mother told me that he had eaten nothing in two weeks, and that during the last few days he could get but little water down. He complained incessantly of thirst, so I offered him water; but it would go down a certain distance and then be regurgitated. I tried to pass a small catheter bougie in order to relieve his immediate craving, but without success.

He was removed to the hospital immediately, and during preparation for operation was given water by bowel and venoclysis. Under ether the abdomen was opened through the left rectus incision, the stomach was drawn into the wound and incised, and a long rubber tube inserted. Owing to the patient's condition, it was impossible to attempt any operative procedure on the esophageal stricture, so he was returned to bed.

He improved steadily and was fed by tube: He was given liquids at first and then soft food. Finally he chewed solid food and spat in into the tube. Two weeks after the operation we began gradually dilating the stricture by means of bougies by mouth, and after a few days permitted the patient to take liquids and later soft foods in small quantities. It was not long until he took the regular hospital diet. As he swallowed it easily, the tube was removed and the fistula allowed to heal.

We kept the patient under observation two weeks longer, keeping the stricture dilated at regular intervals. I had in mind to discharge him one day when the nurse reported to me that he was unable to swallow and seemingly as much distressed as before the operation. I saw him at lunch. All food was regurgitated and a bougie could not be passed beyond the stricture area. It occurred to me at the time that we were dealing with a spasmodic condition superimposed on the true stricture. The patient was given a few drops of chloroform, and an unsuccessful attempt was made to pass a bougie; on regaining consciousness, he was still unable to swallow.

Preparations were then made to reinsert the gastric tube.

While I was in another part of the institution, the nurse in my absence insisted on his attempting to swallow some liquid, which made him vomit, and he threw up a wad of chewing gum, the size of a small marble, and about as hard. I recalled to my chagrin that, against my better judgment, I had permitted him the privilege of chewing gum a few days before. He was entirely relieved and could swallow as well as ever. He was discharged a few days later, and up until the middle of November had remained well. The hard mass of gum had been stopped at the strictured area, where it acted as a perfect ball valve.

A NEW OCULAR MUSCLE SYMPTOM IN EXOPHTHALMIC GOITER

GEORGE FRANCIS SUKER, M.D., CHICAGO
Ophthalmic Surgeon, Cook County Hospital

In the examination of a number of exophthalmic goiter patients for the purpose of determining the relative frequency of the various eye symptoms and signs, this peculiar action of the lateral eye muscles was noted in many:

After extreme lateral rotation of the eyes, either to the right or to the left, with the head fixed and with fixation of an object at this point maintained for a second or two, on attempting to follow this fixation point as it is rapidly swung into the median line, one of the eyes—it may be either—fails to follow the other in a complementary manner into proper convergence and fixation for this point when it is brought into the median plane. Either the right or the left eye makes a sudden rotation into the fixation with its fellow, but before it does so, an apparent divergent strabismus is manifest.

A muscle balance for esophoria or exophoria was taken in each case. In those in which there was an exophoria of greater or lesser degree, this apparent divergence was more marked than in those cases in which there was no exophoria. This apparent divergence was not as marked in cases in which an esophoria of any appreciable degree was present.

For example, if after extreme rotation to the right and fixation of an object in this position, the object is rather rapidly brought into the median horizontal plane, the left eye follows the object properly, but the right lags behind in the corresponding rotation into median plane fixation, but it eventually jumps, as it were, into proper convergence and fixation with the left eye.

The object is to be held about 3 or 4 feet from the patient, in order that there may not be too great an effort for convergence. In other words, it must be held much beyond the point usually necessary for eliciting the Moebius sign.

This lack of complementary lateral rotation is also more marked, the greater the exophthalmos.

The apparent diverging eye, when it does assume the proper convergence and fixation, does so in a more or less jerky manner, in much the same way as the upper lid fails to accompany the globe in downward rotation in the von Graefe sign.

The more pronounced the other eye symptoms, as those of Stellwag, Moebius and von Graefe, the more evident is this inability in proper lateral rotation from either right or left to median line fixation.

Care must be taken, as mentioned before, first to determine the presence or absence of any degree of esophoria or exophoria and the probable presence of a paresis or paralysis of one of the lateral rectus muscles. In the latter instance the symptom could not be elicited, and in the former it is modified or accentuated, depending on whether there is an esophoria (modified) or exophoria (accentuated).

This sign has been found to be about as frequent in exophthalmic goiter patients as is the von Graefe or the Moebius sign.

It is due, no doubt, to the same underlying conditions that produce the other ocular muscle symptoms, namely, a dissociation in the functions of the sympathetic and the extra-ocular motor nerves of the eye. Perhaps, also, an element of muscle exhaustion on extreme lateral rotation of the eyes may be a contributing factor in producing this sign, or accentuating it.

A sufficient number of patients with exophthalmic goiter were carefully examined with reference to this sign to warrant the suggestion that it be looked for and considered as an additional sign in the category of exophthalmic goiter symptoms.

I have not seen any reference to such a sign in the literature on exophthalmic goiter. It may be designated as "deficient complementary fixation in lateral eye rotations."

25 East Washington Street.

PLEURAL EFFUSION, LARGELY CHOLESTEROL *

MAXIMILIAN SCHULMAN, M.D., NEW YORK

This case is reported because of the unusual finding of 9.73 per cent. of free cholesterol in fluid obtained from the pleural cavity, the cholesterol constituting 56.1 per cent. of the total solids of the fluid.

A Russian Hebrew, aged 62, formerly a merchant, came to the Vanderbilt Clinic in September, 1916, complaining of a cough and sticking pain in the chest, of six days' duration. He felt entirely well in all other respects, did not think he was at any time feverish, and had his usual weight and strength. The family history was not relevant. The patient's habits always had been good. The past history was negative, except that, forty years before, the patient had had pneumonia associated with fluid in the right chest, which was once aspirated. His physician wanted to repeat the aspiration, but the patient objected, and fully recovered his health and strength without repetition of the aspiration. He had been entirely well during the ensuing forty years.

Physical examination revealed a healthy looking man, well nourished and having an excellent color of the skin and mucous membranes, 5 feet and 4 inches tall; weighing 159¾ pounds. The mouth temperature was 98 F., pulse 80, regular, full, tension 140 systolic, 90 diastolic, and respirations 24. Many teeth were missing, but the gums were healthy and the throat negative. The heart and abdomen were negative. There were no enlarged lymph nodes. The lungs showed flatness over the right lower lobe from the spine of the scapula to the base, but tactile fremitus was good over this area, as well as over the remainder of the chest. Over the flat area a vesicular respiratory murmur of much diminished intensity was audible. There was roughening of the respiratory murmur, with presence of medium sized moist râles at both bases. The extremities were negative; there was no clubbing of the fingers. The knee jerks were normal. The pupils were normal. The blood was negative. The blood Wassermann test was negative. Complement fixation for tuberculosis was negative. The sputum was negative for tubercle bacilli (two examinations). The urine was negative except for a very faint trace of albumin and an occasional hyaline cast.

While the patient was under observation, for a period of six weeks, his temperature was never above 98 F., and his weight increased from 159¾ to 165 pounds. The pain in the chest disappeared in about one week, and the patient felt entirely well. Roentgenoscopy revealed the heart drawn over somewhat to the right. The entire right side of the chest had a hazy appearance suggesting a thick pleura, and just below and to the left of the angle of the right scapula was a circular shadow, 1¼ inches in diameter, a little denser than the remainder of the chest.

By thoracentesis done just below the angle of the right scapula, after going through a pleura which felt leathery and seemed to be about half an inch thick, I obtained 5 ounces of fluid, when the patient began to experience sticking pain. Even though I gradually withdrew the needle as I continued aspirating, no more fluid was obtainable. I judged that I had about emptied the little cavity.

The fluid was thick, a lemon yellow, and cheesy looking. A drop of the untreated and uncentrifuged fluid, spread thin and examined under the microscope, showed the entire field densely packed with typical rhomboid crystals of cholesterin. When a little of the fluid was shaken with ether, the crystals were completely dissolved and the resulting fluid separated into two layers: the upper, the clear ether solution, and the lower, a yellowish translucent fluid, a drop of which, under the microscope, showed some granular débris and a very few granular round cells.

Obviously this fluid is the remains of the effusion of forty years ago.

Prof. Karl Vogel, of the department of clinical pathology, made a chemical analysis of the aspirated chest fluid, with the following findings:

Specific gravity	0.9181
Total solids	16.93 per cent.
Water	83.07 per cent.
Free cholesterol ($C_{27}H_{45}OH$)	9.73 per cent.
Protein matter	6.43 per cent.
Water soluble	1.57 per cent.
Including chlorids	0.05 per cent.
Total ash	0.68 per cent.

Cholesterol constituted 56.1 per cent. of the total solids. Phosphorus pentoxid was present in considerable quantities in the ash, mostly as inorganic phosphates, but probably also from a small percentage of lecithin.

The percentage of soluble matter in the protein was 24.44.

1845 Seventh Avenue.

* From the Department of Clinical Medicine, Columbia University, College of Physicians and Surgeons.

Device to Aid Respiration in Blizzards.—Minerbi refers to blizzards in the mountain altitudes where Italians and Austrians are now fighting. The wind blows with peculiar force and the respiratory apparatus is unable to work properly, as it is already suffering from the effects of the unwonted altitude. In one case reported in detail the soldier was scarcely able to breathe at all and for hours afterward he coughed and expectorated blood-stained sputum or pure blood. The device that remedies this is to punch with a nail some holes in the bottom and sides of an empty tin can, without a top. The mouth of the can is held tight over the mouth and chin, so that the wearer can breath through his mouth from a small area of quiet air. The principle is the same as that of the revolving hoods for a chimney. They swing around in the direction opposite the wind, so the ventilation proceeds constantly through a quiet zone of air. Minerbi's communication on the subject appeared in the *Rivista critica di clinica medica*, 1917, **18**, 113.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1179*)

THE CLOTHING

2. A nephritic patient should avoid being chilled, since, if his skin is cold or chilled, internal congestions occur. As nephritis progresses the skin usually becomes dry, normal perspiration decreases, and in the later stages may be almost absent; consequently, that which tends to promote the health of the skin as an excretory organ is advantageous. Though warm clothing should be worn during the cold season, this does not signify that constant profuse sweating should be caused. The patient should be covered warmly, at night, but should have plenty of fresh air to breathe.

If possible, the winter should be spent in a warm, dry climate, that of Arizona, New Mexico or the central part of Southern California being preferable; or he may go to a more humid warm climate, like that of southern Florida, the West Indies, or the Hawaiian Islands. As a general rule, a hot dry climate is better for chronic nephritis than a cold dry climate, but either is better than a changeable moist climate.

Daily warm baths are of great benefit to these patients. If in a cold climate, the bath should be taken just before retiring. Hot, stimulating baths are not advisable; cold baths should be entirely avoided, and sea bathing or fresh water bathing, at any season of the year, in whatever climate, should be prohibited.

3. The skin should be kept soft and pliable by warm bathing and by exercise, and if exercise is impossible, by massage. If the skin becomes dry, oil of theobroma (cacao butter) or other bland oils should be rubbed into it. When, notwithstanding these measures, the skin ceases to be a good excretory organ, prospect of recovery is discouraging.

The greater the insufficiency of the kidneys, and the greater the amount of salt thrown off by the skin, the more itching there is likely to be. This itching is not as serious a sign as in liver disturbances and in jaundice, but may cause scratching and consequent eczema. Anything promoting circulation in the skin, such as warm baths, gentle massage or the rubbing in of oil, tends to prevent or stop the itching. Any particular eczematous spot should be treated as any other eczema with a local sedative, or, if necessary, with stimulating ointments. The water used for bathing should be as soft as possible — bran may be used to soften it. The skin should be dried with soft towels.

4. Hydrotherapy promotes the normal excretion and health of the skin. Another indication for hydrotherapeutic measures is obesity and high blood pressure. The extent to which these methods should be employed depends entirely on the sufficiency of the circulation. If the heart is weak, even though the blood pressure may be high, only the mildest water treatments should be used. The Turkish bath is perhaps the most popular of the severer hydrotherapeutic measures. If the patient is obese, reacts well, perspires freely, and rests after the treatment, such a bath taken once a week is beneficial to him. He should be allowed to drink plenty of water after this bath so that the urine will not become too concentrated from the withdrawal of water through perspiration. Severe cold applications after such baths are inadvisable. Unless the kidneys are severely injured, the principal excretion by the skin is water, with a certain amount of sodium chlorid. Other salts are excreted only in minute quantities. If edema occurs, the only heat baths advisable are the electric light cabinet baths, or body baking, and the cabinet bath has really superseded the body bake, as exhausting the patient less and having a less injurious effect on the heart. These measures reduce the blood pressure, temporarily at least. Provided these measures are adapted to the circulation, they are beneficial and relieve kidney congestion to a certain extent. These baths are not needed in warm climates. Care should be taken that the patient does not become chilled or catch cold afterward. The majority of patients, however, will derive as much benefit from warm baths taken at home, especially if followed by massage, and if the diet is suited to the patient's condition and weight. If a patient thus "knocked out," so to speak, by the severity of the treatment, is very thirsty, and drinks a considerable amount of water, or is very hungry and eats too much, and if the blood pressure immediately rises to its former height, the benefit derived is reduced to a minimum. These measures are most emphatically contraindicated in any patient with cardiac insufficiency, or who is prostrated by the treatment.

High frequency current treatments to reduce blood pressure are inadvisable for a patient with chronic nephritis. The blood pressure is reduced only temporarily, if at all, and the patient is often made nervous by these treatments. Other measures to reduce blood pressure are preferable.

The administration of radio-active waters for chronic nephritis is still so little understood that their value can neither be asserted nor refuted.

The application of hot packs and other local heating measures in chronic nephritis will be described under the treatment of uremia, as they are indicated only in uremic conditions.

Carbonic acid baths, whether taken at springs and cures, or under artificial conditions at home, should ordinarily not be used in chronic nephritis. It should also be remembered that hypertension is only one symptom of chronic nephritis, and whether or not such baths are valuable in the treatment of some forms of hypertension is not now under discussion.

5. The amount of exercise that a chronic nephritis patient should take depends on his circulation and weight. If he is overweight, and his circulation is good, considerable exercise should be taken, until good, healthy perspiration is produced, after which a warm bath and rub-down are advisable. If he is on the borderline of kidney insufficiency, overexertion may readily cause an imbalance, and any severe muscle strain or hard muscle work may precipitate uremia. The value of vigorous exercise used in a man's business or prescribed when his work is sedentary is to increase muscle nutrition and muscle circulation, to relieve the congestion of the organs of metabolism and excretion, and also to prevent the increase of fat. By such exercise, too, the circulation of the skin is increased and the skin excretions become more normal. If a patient has a weak heart or the blood pressure is high, exercise must be carefully regulated in order to aid and not injure him. The Oertel graded exercises should be modified to fit the individual. If he feels full-headed and has throbbing in the chest or cardiac pain and the blood pressure is increased, the exercise is excessive. If the blood pressure is too much lowered by exercise, it must be modified.

6. If the bowels do not move daily and thoroughly in chronic nephritis, they must be stimulated artificially. Daily catharsis is not necessary, and is harmful. If the patient is obese, a saline preparation taken daily before breakfast in sufficient amount to cause one or two movements may be the best treatment, depending on the amount of intestinal gas that it causes; if a large amount of gas is caused, a vegetable cathartic should be substituted. If the patient is not obese, the blood tension not excessively high, and the kidneys excreting fairly well, a daily vegetable laxative drug, as cascara, aloin, rhubarb or podophyllin, or any combination of these drugs, is much better. Phenolphthalein should seldom be used in chronic nephritis. If the bowels can be regulated by the diet, that is, by the use of fruit, agar agar, whole wheat bread or bran bread, this is preferable, and no drug should be administered. Liquid petrolatum may be used for a time, if satisfactory, but when used very long it is liable to inhibit the secretion of the stomach and intestinal digestive juices, and to cause indigestion. It may make the excretions so oily that the sphincters do not act perfectly, much to the discomfort of the patient.

Once a week, unless the bowels move freely, catharsis may be caused by calomel and a purgative, by castor oil, or by a large dose of saline. The best time to take this is on the day on which the patient should ordinarily reduce his diet to the minimum, in other words, on a skimmed milk day. Retained nitrogen and salts are thus excreted by the bowels and kidneys, and the patient starts the week in a sanitary way, even though his kidneys are imperfect.

7. Besides laxatives and iron, when indicated, as little medication as possible should be given in chronic nephritis. The various measures suggested for the control of this disease will for a long time preclude the necessity for using drugs. If a hypnotic must be given for a short time, bromids or chloral should be selected on account of the usual high blood pressure. The synthetic hypnotics should ordinarily not be used, although an occasional dose of veronal-sodium or luminal may be employed. In high blood pressure nitroglycerin at night frequently induces sleep.

If the blood pressure is not kept down by physical methods, diet, etc., nitroglycerin, in a dose of $\frac{1}{200}$ to $\frac{1}{100}$ grain, three, four or five times a day, as found necessary, will almost invariably lower the blood pressure, unless the patient is uremic. If the patient is obese, especially if the skin is dry, the heart slow and the blood pressure high, 1, 2 or 3 grains of thyroid, given each morning, will prove beneficial, the dose depending on its effect on the patient. If it causes nervousness, sleeplessness or rapid heart, the use of the drug should be discontinued. Its purpose is to prevent the addition of weight, to lower the blood pressure, to stimulate the skin, and to aid in the detoxication of retained products of nitrogen metabolism. In nephritis occurring at the time of the menopause in women with signs of subsecretion of the thyroid, thyroid medication is very beneficial.

If the patient has no appetite, some simple bitter tonic may be given before meals; or, 1 grain of quinin sulphate may be given in capsule three times a day, with or without 1 grain of reduced iron.

If any coincident condition occurs in a patient with chronic nephritis, it must be treated as usual, with the exception of greater care in regard to the use of drugs. Any drug known to irritate or injure the kidneys should not be given. Iodids should ordinarily not be prescribed; arsenic usually is harmful; phenyl salicylate or any other salicylate is inadvisable. Codein may be used to alleviate pain, and morphin if the pain is severe; but one must always be extremely careful in the use of narcotics in chronic nephritis. Coal-tar products should be given only in very small doses. Digitalis, if used, should be given in small doses and with great care. In cardiac insufficiency it may be of great benefit; but if the kidneys are much impaired it may do great harm. Caffein in any form may act as a temporary diuretic, but it is liable to cause, secondarily, diminished secretion of the kidneys. It should not be given in high blood pressure, but may be used in acute cardiac failure.

The treatment of cardiovascular-renal disease has already been described.[107]

One is seldom justified in giving a so-called diuretic in chronic nephritis. It is inadvisable to stimulate an impaired organ, but if alkalies are indicated, potassium citrate may increase the output of urine, temporarily at least. Theobromin sodium salicylate is one of the least irritating of the caffein group, but often proves unsatisfactory in reducing edema or in increasing the output of urine.

Christian[108] has shown that theocin has no constant diuretic action. It may or may not cause slight diuresis when a patient has no edema. It generally causes diuresis in cardiovascular-renal disease with edema, and also increases the sodium chlorid excretion. The nitrogen execretion is much less increased, for even when diuresis is caused, Christian finds that the kidneys may later show a decrease in nitrogen excretion, or a kidney tire; therefore, the only condition in which to use theocin, one of the strongest of the newer so-called diuretics, is in cardiovascular-renal dropsy, when it should be used only intermittently and perhaps in conjunction with digitalis.

Large doses of thyroid extract may prevent convulsions and may aid in saving the life of a patient suffering with uremia from acute nephritis or with puerperal eclampsia.

There is no doubt that in the majority of cases the proper management of chronic nephritis will prolong the patient's life by months, and perhaps years. Partial uremic attacks may occur during the course of chronic nephritis, and by proper measures the patient's life may be saved. Some patients survive several attacks, but sooner or later a fatal uremia will occur, unless the patient dies of heart failure, apoplexy or some other disease or complication of diseases. The prognosis of uremia occurring in chronic nephritis, if the attack is severe, is less favorable than that of uremia occurring in acute nephritis. The treatment is that described under uremia. The value of decapsulation and the indication for it in chronic nephritis will be described under that heading.

Although the urine of a chronic nephritis patient should occasionally be analyzed, it should not be analyzed so frequently as to cause continuous mental worry. There is no reason why the chronic nephritis patient, like the patient with chronic heart weakness, should not live for years, if properly watched; but, as in heart disease, it is necessary to divert the patient's attention from himself, while we are giving him a more or less frequent supervision (depending on his condition).

(*To be continued*)

107. Cardiovascular-Renal Disease, Therapeutics, The Journal A. M. A., Sept. 23, 1916, p. 951.

108. Christian, Henry A.: Some Studies of a Diuretic (Theocin), Arch. Int. Med., November, 1916, p. 606.

Special Article

THE MEDICAL OFFICER OF THE ARMY
II
SANITARY SERVICE IN THE FIELD

The sanitary service of the army in the field is divided into two sections: one for the zone of the advance, which comprises all of that territory covered by the army in actual operation, the other for service in the zone of the line of communications, which covers all that territory between the base and the zone of the advance. This zone of the line of communications is concerned particularly with the service of the supply and the care and evacuation of the sick and wounded. In the zone of the advance the mobile sanitary units are located. With each division there are four ambulance companies and four field hospital companies. These units are intended for service on the actual field of battle. Their work is thoroughly organized and proceeds under plans worked out beforehand. The general principles of this work with the army in the field were first originated and developed by Surgeon Jonathan Letterman, who was the medical director for General McClellan's army during the Civil War. His plans, after having been adopted by General McClellan, finally received the approval of Congress and were adopted for all of the federal armies then operating. Though the foreign nations followed closely our lead in this subject, our own country after the Civil War did not take to heart the lessons it had learned; therefore, when the Spanish-American War began, there was no such organizations as mobile sanitary units in our army. A more or less inadequate plan was then adopted by providing regimental hospitals with each regiment. Experience showed this scheme to be useless, and the present plans now in effect were adopted. Since the Russo-Japanese War these have been more completely developed, and at the present time are similar to the regulations in force in the large European armies.

There is great necessity for thoroughly trained officers and men in this service; every effort, therefore, has been made by the medical department to train these men in time of peace. Unfortunately, the secretary of war has never allowed a sufficient number of units for even our small regular army, so that in time of actual war we shall have to organize this service carefully for any large army called out by the president.

AMBULANCE COMPANIES

There are four ambulance companies to each division under the control of an officer designated as the director of ambulance companies. The personnel of each ambulance company consists of five medical officers and seventy-nine enlisted men: twelve ambulances and three wagons are provided for transportation of supplies.

REGIMENTAL AID

When the regiment goes into action, the immediate first aid is done so far as possible by the sanitary detachments belonging to each regiment. They, of course, have to accompany the regiment when it makes a further advance, and the work of applying first aid and evacuating the wounded is taken up by the ambulance company.

DRESSING STATIONS

On being notified by the division surgeon who is in command of the sanitary units of the division that a dressing station should be established in a certain sector of the field, the director of ambulance companies sends a company to take up that work. It should be understood that the ambulance companies of the division are not allotted to certain parts of that division; but when the casualties are occurring in sufficient degree to require the services of an ambulance company, one is immediately sent, a reserve of one or more companies being kept as long as possible in a position of readiness to go forward in case of any emergency. This method always provides for the more flexible handling of the service. When the ambulance company arrives at the point at which a dressing station is to be established, one section immediately takes steps to establish this station, and the bearer sections of the company go forward to the field of battle to begin the transportation of the wounded back to the station. This transportation is by litter, or if there is a lull in the engagement or the battle is over, ambulances are brought directly to the field. As rapidly as possible the wounded are removed to the dressing stations, and thence as soon as the field has been entirely cleared they are taken to the field hospitals located farther to the rear. Much of this work may have to be done at night. It is impossible to remove the wounded under fire, as there is the great probability of losing more sanitary troops than wounded men. This dressing station is not permanent in character; it is a collecting point for the wounded selected on account of the protection provided from rifle fire. Here the wounded receive first aid, and only such emergency operations as the ligation of arteries, etc., are attempted. There is no tentage and no elaborate equipment.

FIELD HOSPITALS

The next step is taken up by the field hospitals. There are four such units to a division under the control of a director of field hospitals, and each field hospital company has a personnel of six medical officers and sixty-seven enlisted men; their material is carried in seven wagons. As soon as notified that a field hospital should be established, one company is sent forward and immediately opens the hospital at the point selected. If possible, buildings are used in some town or village; but if this is impracticable, tents are erected, each field hospital having by this means accommodations for 216 patients. As soon as established, the wounded are rapidly transported from the dressing stations to these field hospitals by the ambulances of the ambulance company. When the injured arrive at the field hospital they receive a little more attention than could be given them on the field itself. In this regard it must be understood that the name "field hospital" is somewhat a misnomer. No real hospital treatment is attempted, and this station is only a point at which the wounded men receive temporary treatment. All wounds needing extensive dressings or redressings are attended to at once, emergency operations performed, and the wounded men are made comfortable on bed sacks filled with straw. Liquid food is also provided not only for nourishment but also for its stimulating properties. With an army moving rapidly in campaign, no extensive operations can be indulged in at the field hospital. The greatest good for the greatest number must be always uppermost in the minds of all officers attached

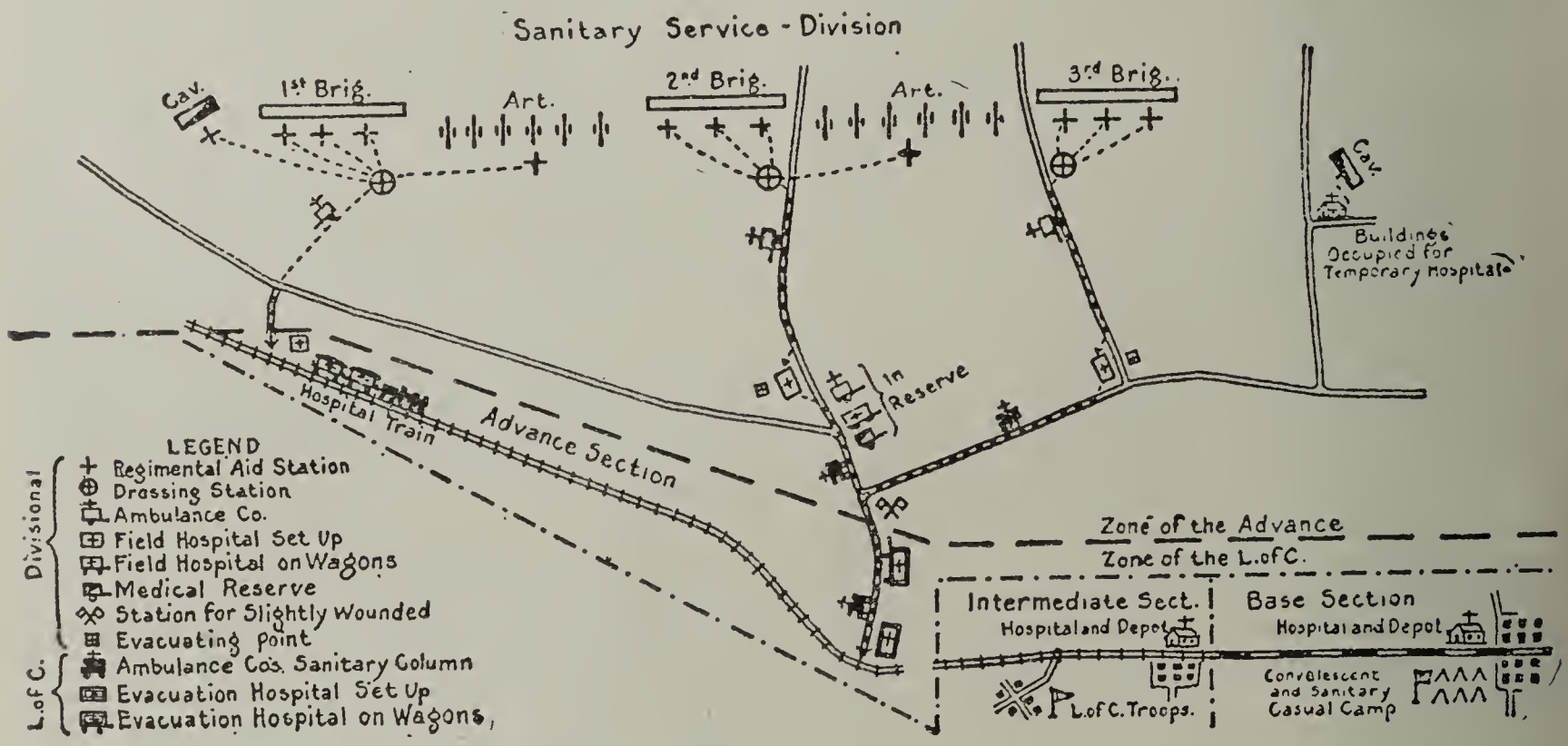
to such a unit. This principle of not performing extensive operations on the field is somewhat at variance with the practices of some of the armies of the European nations during the present war, but the warfare on the western front has been trench warfare, or siege warfare, as it is technically called, and the field hospitals have been more or less permanently established for over two years past. This permits them to provide for the care and treatment of serious as well as of slight cases directly behind the firing line.

EVACUATION SERVICE

As soon as the field hospitals begin to receive their wounded, plans must be perfected for their further evacuation to hospitals in the rear. This evacuation service is organized as thoroughly as possible, and at this point Red Cross columns can be profitably used. The magnitude of the problem of the care and evacuation of the wounded on the battlefield is one that can hardly be exaggerated. It is absolutely necessary to remove the wounded as rapidly as possible,

LINE OF COMMUNICATIONS

The line of communications is under the command of the commander of the line of communications, who is under the commander of the armies in the field. The technical adviser representing the medical department on the staff of the commander of the line of communications is called the surgeon of the base group, and this officer is located at the base. All of the medical service of the line of communications is in his hands, but a line of communications is anywhere from 50 to 300 miles in length, and naturally an officer stationed at the base is rather out of touch with what occurs at the other end of this line. Therefore, another position has been created, and an officer is detailed as surgeon of the advance group of the line of communications. This officer is in charge of the care and evacuation of the wounded from the time they leave the field hospital up to the time they are placed on the hospital train for further evacuation to the base. From the medical standpoint, the head of the line of communications is a very important point. It



not only for the purpose of clearing the division of the impediment caused by the large numbers of the disabled, but also to prevent the sight of seriously wounded men affecting the morale of the troops. After an engagement, the army is possibly advancing farther with prospects of future fighting; therefore, its ambulance companies and field hospitals have to evacuate their wounded rapidly so that they, too, may move forward if necessary and be of service in any future engagement.

The motorization of the mobile sanitary units has received careful attention in our service since the development of that method of transportation during the present European war. The service is being rapidly equipped with well designed ambulances, and men are being trained to handle them. It is not the intention of the medical department to use motor ambulances to the exclusion of the mule ambulance, as it is realized that the roads in this country will at times not permit of the movement of motor vehicles, so that not all of the four ambulance companies with the division are to be supplied with these vehicles, one or two of these companies remaining equipped with the mule-drawn vehicles.

acts as a safety valve in the evacuation of the sick and wounded. The division is bending every effort to free itself of the impediment of the sick and wounded after an engagement of any moment, and the railroads which are the principal arteries of the line of communication are congested with trains bringing ammunition and other supplies to the front. This then prevents the commencement of the evacuation of the wounded from the head of the line of communications to the base. Considering the question from this standpoint, it can be seen that the hospitals and other units located at this end of the line of communication must be rapidly expansible. The unit particularly concerned in this work is the evacuation hospital. There are two such hospitals allotted to each division. Each hospital has a personnel of fourteen officers and 153 enlisted men. The entire capacity is 432 beds, but there are sufficient supplies on hand to provide for an expansion to a much greater extent. An evacuation hospital is preferably located in buildings selected for the purpose in a town or city which is the head of the line of communications. Tentage is provided, but should not be used except in cases of emergency. Of course, it would be preferable to move the evacua-

tion hospital up to the point at which field hospitals are located so that they can relieve these field hospitals at this point and eliminate the transportation of the wounded from the field hospital to the evacuation hospital. This unfortunately will be found to be impossible in most cases, and the plans for the evacuation from the field hospital to the evacuation hospital must then be perfected. An evacuation hospital is the first place where real hospital care can be provided for the wounded men and where they can receive every medical attention. The equipment furnished is sufficiently elaborate to give complete hospital care to every wounded man retained at this point.

EVACUATION HOSPITAL

The wounded received at an evacuation hospital can be divided into three categories: 1. Those men who are so seriously wounded that they cannot stand further transportation; these will have to remain at the hospital indefinitely. 2. Seriously wounded men who can stand such transportation; this class is to be evacuated to the base at the earliest practicable moment. 3. Slightly wounded men who will recover within a week or ten days. It is naturally improper to send these men farther to the rear, for they will shortly be able to rejoin their regiments; but it is also wrong to allow the beds of an evacuation hospital to be filled by men who do not need hospital attention. Therefore, they are not accommodated in the evacuation hospital itself but in a convalescent camp under control of the medical department. There they receive food and shelter and such medical attention as they require until they have thoroughly recovered, and they are then turned over to the line officers to be sent forward to the zone of the advance. The evacuation from the head of the line of communication to the base is accomplished by means of hospital trains. These trains will be practically rolling hospitals, and every care and attention will be given the sick and wounded on their journey. Unfortunately, we have only one such train in our service, and it is probable that even if other hospital trains are equipped, a good deal of the transportation directly after an engagement when the wounded are to be evacuated in large numbers will be carried on in improvised hospital trains. These will be trains of Pullman or passenger coaches arranged for the purpose, or even box cars with sufficient straw spread on the floor to give a certain amount of comfort to the wounded men. When these wounded arrive at the base they are then removed from the trains to the base hospitals.

BASE HOSPITAL

Base hospitals are established in buildings either adapted from buildings formerly used for other purposes or in especially constructed temporary structures. Each base hospital has a capacity of 500 beds and a personnel of twenty officers, 153 enlisted men and forty-six female nurses. There are sufficient supplies on hand with each base hospital to provide for an expansion to at least double this number. The base hospital as equipped gives complete hospital attention to all sick and wounded received. The officer in command of a base hospital should be thoroughly familiar with his duties and see not only that the patients receive careful attention but also that wounded men who are expected to recover shortly are not permitted to go farther to the rear. Further evacuation should include only the totally disabled or those who are probably disabled for some time to come. This principle of procedure must be thoroughly understood, for we are constantly endeavoring during active campaign to keep as many men with the colors as possible, and naturally if wounded men go farther to the rear than the base hospitals, a great deal more difficulty will be experienced in providing for their return to the firing line. A convalescent camp is also established at the base and all men who have recovered suffciently so as not to require hospital attention are placed in the camp until they are able to do full duty, when they are returned to their regiments.

MEDICAL SUPPLY DEPARTMENT

Another important service with the army in the field is conducted by the medical supply department whose principal station is established at the base. There supplies are received from the rear for distribution to the division units and also the hospitals located along the line of communications. A branch of this depot is established at the head of the line of communications to facilitate the resupply of the mobile units. The field hospital has on hand a reserve supply of all the material needed by ambulance companies and regimental detachments, and can resupply these units.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ACETYLSALICYLIC ACID (See N. N. R., 1917, p. 265).

Acetylsalicylic Acid, Squibb.—A nonproprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by E. R. Squibb and Sons, New York City.

Aspirin, L. & F.—A nonproprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by Lehn and Fink, New York City.

Malaria in Peru.—Under a law passed, Dec. 22, 1916, the Peruvian government has begun an active campaign against malaria (*Commerce Reports,* Feb. 26, 1917), which will include the treatment of patients, the protection of people living in places in which malaria is endemic, the destruction of mosquitoes and the drainage or special treatment of swamp lands. The government will import quinin, free of customs and port charges, and individuals and institutions may purchase the drug at cost. All proprietors of estates, all railways, corporations and other organizations employing labor will be required to furnish medical service to their employees, either directly or through proportionate contributions to charitable dispensaries, and inspectors will be appointed to see that the work is carried out. Unemployed persons will receive free quinin. Houses in swampy districts will be provided with mosquito netting, and rice or other crops requiring flooding will not be cultivated within a certain distance of habitations. Drainage will be begun by the government, and all private owners will be given from one to four years to complete the sanitation of their lands. Where drainage is impracticable, swamps will be treated with crude petroleum. Prizes will be offered by the government to those who show most zeal in putting their lands in good condition. A course of study in the prevention of malaria is to be given in all public and private schools. The instruction will be in charge of the department of public health, and the expense will be met by annual appropriations in the budget.

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SATURDAY, APRIL 28, 1917

THE FOOD SUPPLY

If the American people fail to appreciate the supreme importance of the food supply in relation to the present world war and the inevitable consequences which are liable to confront our own nation, now at war, if the food problem is treated with characteristic American indifference, it will scarcely be the fault of printers' ink or inadequate publicity. The lessons of the distressing European situation in respect to the shortage of food among both belligerents and neutrals will have been taught in vain if this country remains blind to the dangers of either ignorance or unconcern in this matter. A proposed war loan of seven billions of dollars has awakened the public to an attempt to realize what this sum really means and how it may affect our people. A figure so stupendous is not easily grasped by the average person. The foremost experts of the country have given time and earnest thought to the questions involved in the collection and expenditure of this contribution to the war. Yet, as recently remarked by an expert in nutrition, the food problem involves a national expenditure of at least six thousand million — six billion — dollars per year. The food problem is a national problem which affects the living expenses of the very poor more directly than does any other problem.

Despite these eminently impressive facts, the person who ventures to revert to the pressing questions of food and nutrition is still looked on all too frequently as either a "highbrow" or a crank. The day has passed when the people of any community of noteworthy size are allowed to suffer the consequences of an inadequate or impure water supply or are obliged to submit to the inconveniences of mismanaged public service institutions. Nevertheless the food supply on which every inhabitant is absolutely dependent is almost entirely removed from any regulatory influences, other than a few sanitary regulations here and there.

Has not the time arrived for some progressive step, particularly in view of the prominence which the war situation has given to the problems of food supply? Action does not necessarily mean restrictive legislation or obnoxious police regulations or direct interference with that freedom of choice which the American citizen is sometimes urged to love too well to abuse it. Progress may often be initiated by education; it is even enforced by competition. In an illuminating address on food values delivered a few days ago in New York before the Home Economics Association and the Society of Chemical Industry, Lusk[1] referred to the experiences which Germany encountered as the result of her attitude early during the war toward the advice of the students of nutrition. It was unfortunate, he says, that the carrying out of the recommendations of the Eltzbacher Commission was left to politicians, farmers and middlemen. The scientists of the country were not represented, and the result was chaos. It may appear a contradiction of terms, Lusk adds, to hear in the same breath that there is a shortage of food in Germany and yet that the people are not starving. This is due to the fact that in extreme cases of undernutrition it is possible to reduce the requirement of food to only 40 per cent. of its former level. The undernourished and emaciated may, therefore, live on much less food than those who are well fed and are up to normal weight.

In England a scientific commission composed of men whose names should bear weight has already concerned itself with British food conditions so that the restrictions of the food controller may be put on some rational basis of nutritive safety. It is recognized everywhere among those trained in the domain of nutrition that a hard-working man requires more food than one who is not so strenuously engaged. Accordingly the British troops in the field are reported to receive from 4,300 to 4,600 calories because they are subjected to severe muscular tasks and are much exposed to cold. Yet, according to Lusk, "Dr. Murlin has calculated that the 'garrison ration' of the United States Army contains 4,400 calories, while the 'field ration' contains only 3,800."

What scientific advice is at present worth giving and how to give it is a question for experts to decide. The past three years have exemplified the validity of this thesis. The question of food supply is one not merely of human nutrition. Available food energy must be distributed between man and beast in the most productive and economical way. Problems of quality as well as quantity are concerned, as was recently pointed out in relation to the need of fats.[2] Lusk has seriously suggested that this is the proper time for an American commission to consider these subjects and report to our government what elemental advice the commission might agree to give. The personnel of an appropriate committee has even been proposed, namely, Mendel, Taylor, McCollum, Folin, Levene, Sherman, Armsby, Langworthy and Benedict. Dr. Lusk's modesty, of course, prevented the suggestion of his own

1. Lusk, Graham: Food Values, Science, April 13, 1917, p. 345.
2. The Need and Availability of Fats, editorial, THE JOURNAL A. M. A., April 14, 1917, p. 1124.

name, but it is obvious that he is one man who certainly should be on the committee. A consensus of opinion arrived at by such a representative group would mean, as Lusk says, the submergence of the individual for the instant, in an attempt at welfare work for the nation at large. It would be an experiment worth trying. In this conclusion we heartily concur.

ICE CREAM AND BACTERIA

The use of artificially frozen food materials, such as ice cream, as articles of diet is comparatively recent. In the United States the value of the annual output of ice cream exceeds $100,000,000, and is apparently steadily increasing. The popularity of ice cream is partly due to the fact that it is one of the few foods "which can be procured ready-made, requires no preparation, no labor, no time, no fuel cost, and can be served freely and often." In addition to other places where it is sold, many of the nearly 50,000 drug stores in this country dispense it.

Strictly speaking, ice cream is a frozen product made from cream and sugar with or without a natural flavoring, and should contain about 14 per cent. of milk fat. There is as yet no general agreement as to whether or not and to what extent such ingredients as starch, flour, eggs, gelatin and gums should be permitted. The hygienic quality of ice cream obviously depends on the sanitary character of its ingredients, particularly on that of the cream. Many persons believe that the freezing temperature suffices to destroy many of the bacteria present, thus making ice cream sanitary. This is, however, far from the truth. Several years ago Dr. Pennington and her collaborators[1] showed that during the maintenance at 0 C. (32 F.) the organisms of raw untreated and reinfected sterile milk and cream undergo an increase, which is most striking in the raw untreated milk. Some organisms disappear during this period; others become acclimated to the lower temperatures of incubation. Ice cream, however, attains a lower temperature; yet studies at the Storrs (Conn.) Agricultural Experiment Station[2] have shown that when ice cream is kept frozen for at least a month there is no marked increase or decrease in the bacterial content. This indicates that ice cream with a high bacterial content at the start may be expected to show large numbers of bacteria throughout the period of storage, while ice cream with a low bacterial count will continue to show only a few micro-organisms.

The important feature to be emphasized, therefore, is the fact that the condition of the ingredients of the ice cream, rather than the period of its storage, determines its quality from a bacteriologic standpoint. In one of the most elaborate reports ever made on the subject, Wiley[3] pointed out, in 1908, that the bacteriologic examination of cream and ice cream in the District of Columbia showed that much of it contained bacteria far in excess of the number which should be found in pure, uncontaminated fresh products. In 263 samples of ice cream collected in the city of Washington in 1906-1907, the average number of organisms per cubic centimeter was over 26 millions, with a maximum count of 365 millions and a minimum of 137 thousand. This enormous bacterial flora was ascribed to two causes, namely, insanitary conditions of the dairy and factory, and long preservation of the product.

With the progress of popular education in hygiene of the milk and dairy industry, advances are continually made. These advances have, however, seemingly as yet little affected the sanitary condition of ice cream ordinarily sold at retail stores. Available statistics for Philadelphia, Boston, Washington, Chicago, and Des Moines and Ames, Iowa, indicate that on an average from 15 to 26 millions of bacteria per cubic centimeter are found in the ice cream sold in these cities. Later data obtained from products purchased at retail in three localities in Connecticut give little, if any, evidence of better conditions in that state, the figures ranging from 1 to 42 millions, with an average of 15 millions.[2] Is it unfair to say that better standards should be maintained in this industry, which has heretofore often escaped suspicion because of a mistaken prevalent belief in the bactericidal effect of cold?

1. Pennington, M. E.; Hepburn, J. S.; St. John, E. Q.; Witmer, E.; Stafford, M. O., and Burrell, J. I.: Bacterial and Enzymic Changes in Milk and Cream at 0° C., Jour. Biol. Chem., 1913-1914, **16**, 331.
2. Esten, W. M., and Mason, C. J.: The Bacteria in Ice Cream, Bull. 83, Storrs Agricultural Experiment Station, p. 128, 1915.
3. Wilcy, H. W.: Icc Cream, in Milk and Its Relation to the Public Health, Bull. Hyg. Lab., U. S. P. H. S., 1908, **41**, 245.

COLOSTRAL MILK

Colostrum, the product secreted by the mammary gland for a short period after the birth of young in the lactating individual, varies in its composition. Judged by the fact that naturally fed infants and calves each receive the colostrum of their own species, the value of this product to the young of the same species might be adjudged to be considerable. But the colostrum of the cow is not a marketable product, and we are not aware of any record of its having been supplied to infants as food. Opinions as to the length of time after parturition during which cow's milk is unfit for human consumption differ. The methods and standards for certified milk adopted by the American Association of Medical Milk Commissions[1] place the figure at seven days after parturition.

The basis for the exclusion of cow's milk immediately after the birth of the calf is that its composition or constituents give rise to intestinal disorders. Eckles and Palmer[2] of the Missouri Agricultural Experiment Station, who have devoted much study to the milk question, state that the evidence on which this conclusion is based is extremely difficult to find. The literature on colostrum milk is extensive, but it is astonishingly free from specific data regarding the

1. Proc. Sixth Ann. Conference, Am. Assn. Med. Milk Commissions, 1912, p. 124.
2. Eckles, C. H., and Palmer, L. S.: The Influence of Parturition on the Composition and Properties of the Milk and Milk Fat of the Cow, Jour. Biol. Chem., 1916, **27**, 313.

healthfulness or unhealthfulness of cow's milk immediately after parturition.[3]

The chief chemical differences between colostrum and later milk appear to consist in the increased content of nitrogenous substances and certain constituents of the ash. Fat and sugar are little, if at all, higher than in later milk. There are at least two reasons for medical interest in the period of persistence of colostral characteristics in milk. One pertains to the duration of restriction against the sale of cow's milk post partum; the other relates to the composition of colostrum considered from the standpoint of possible advantages to the young. It has been assumed by some that colostral milk offers a peculiar advantage, through its relative richness in nutrients, in helping to prevent the decline in weight so apt to ensue for a short time immediately after birth unless some supplementary feeding is contributed. If colostrum represents a peculiarly beneficent form of mammary secretion, we need to know its characteristics and the conditions which determine its persistence or disappearance. The difficulty of obtaining human colostrum enforces the necessity of making the physiologic observations in regard to it on some other species.

Milking the cow up to the time of parturition is not a common practice among dairymen. They believe that the dairy cow will produce more milk during the lactation period if given a rest of several weeks before parturition. Continuous milking of the cow is, however, a common practice in many localities. The effect of this practice on the composition of the colostrum is thus a matter of considerable interest, practical as well as scientific. In observations on a Jersey herd, Eckles and Palmer have found that parturition in the case of the cow is normally accompanied by the production of the milk of extremely abnormal composition, called colostrum. When cows are milked up to parturition, however, the colostrum milk and milk fat are much less abnormal in composition and follow closely the composition of the milk and milk fat given before parturition. The chief characteristic of the milk as the cow approaches parturition in these cases is the marked increase in the content of heat-coagulable proteins, which reach their maximum in the first milk following parturition, that is, the true colostrum milk. This would indicate that a high content of heat-coagulable proteins is the chief, if not the only, real effect of parturition on the milk. The length of time the cow is dry before parturition is a factor influencing the composition of colostrum milk, but does not influence the composition of colostrum milk fat. The shorter the time the cow is dry the less abnormal will be the composition of the colostrum milk. These facts have a bearing on human lactation no less than on the food value of milk.

3. The literature on colostrum is reviewed very thoroughly by E. Weber (Untersuchungen über die Kolostralmilch der Kuh, der Ziege und des Schafes, Milchwirt. Zentralbl., 1910, **6**, pt. x, 433; xi, 481; xii, 543) and also by S. Engel (Die Biochemie des Kolostrums, Ergebn. Physiol., 1911, **11**, 41).

THE PREVALENCE OF SICKNESS

In his report on the conservation of national vitality,[1] Fisher states that there are always 3,000,000 sick persons in the United States, of whom 1,000,000 are in the working period of life, and that about three quarters are actually workers earning an average of $700 a year, the loss through sickness being over $500,000,000. To this is added another $500,000,000 as the expense of medicines, medical attendance, special foods, etc., bringing the total cost of illness, as estimated by Fisher, up to about $1,000,000,000 a year. One half of this loss is preventable. The preventable loss from death is estimated at $1,000,000,000, which, added to the estimated preventable loss from illness, $500,000,000, gives one and a half billions as the preventable loss from disease and death in this country. These figures are estimates — conjectures — and yet they probably are not far from the actual facts. A recent survey of the sickness in North Carolina[2] indicates that they are not exaggerated. North Carolina was chosen because it included rural as well as urban communities, and gave an opportunity to compare sickness in the white race with that in the negro. Fourteen thousand, one hundred and twelve families were canvassed, containing 66,007 persons, 43,468 white and 22,539 colored, comprising about 2.5 per cent. of the total population of the state. There were 1,881 cases of illness found, or 28.5 per thousand, indicating that about 3 per cent. of the population are constantly sick, and that in 80.4 per cent. of those sick the illness is serious enough to render them unable to work. This is slightly higher than the morbidity rate found in Rochester, N. Y. It is also higher than that reported by Billings in the Eleventh Census Report for a group of twelve northeastern and southern states; but, considering the different geographic areas covered and the changes that have occurred since 1890, the two estimates correspond closely.

Of nearly 2,000 sick persons, 80 per cent. were unable to work; 28.5 per cent. of these were confined to bed, and 51.8 per cent. were up and about. These figures confirm the Rochester report, which showed 27.6 per cent. confined to bed and 55.2 per cent. up and about. Only 2.4 per cent. were in hospitals. This contrasts strikingly with 10.7 per cent. in Rochester and 14.4 per cent. in Trenton, and indicates limited hospital facilities in a state for the most part rural in character. There is a regular increase in the rate of sickness with age, as well as an increased amount of illness among females. The average number of days of disability per annum per capita of population was found to be 7.6 days for white males and 10.2 for white females, 7.4 for colored males and 11.3 for colored females. These results agree with the best data available as to the number of days of disability per person

1. Fisher, Irving: Report on National Vitality, Its Wastes and Conservation, Bull. Committee of One Hundred on National Health, 1909, No. 30.

2. Frankel, L. K., and Dublin, L. I.: A Sickness Survey of North Carolina, Pub. Health Rep., 1916, **31**, 2820.

of working age. The German figures for 1913 give 8.8 days for males and 9.8 days for females insured in the sickness societies of that country.[3]

If from 2.5 to 3 per cent. of the working population are constantly sick, this is equivalent to a loss of about nine working days per person per year of 300 working days for the entire population. This rate applied to the whole country gives figures that are staggering. No monetary estimates of disability are needed to emphasize this enormous loss of working time in the productive years of life. Whatever the financial estimate based on wage loss, we have still to consider the cost of medical attendance, nursing care and drugs, and the far-reaching effects of sickness in impairing the living and working efficiency of the families affected by the disability of one or more members. If public health is purchasable, as Biggs has so emphatically proclaimed in his campaign for conservation in New York State, the possibilities of success from suitable investments, indicated by the now known facts regarding sickness, appear to be nothing short of enormous.

Current Comment

THE IMMEDIATE NEED OF YOUNG MEN FOR THE REGULAR MEDICAL CORPS

The Medical Corps of the Army is in immediate need of and is appealing urgently for young ambitious physicians to fill positions that have long been regarded as desirable but which have heretofore been difficult to obtain, namely, membership in the Medical Corps of the Army. The position is one of honor, it is permanent, and commands a good remuneration. It offers opportunity for those who are ambitious to make famous names for themselves. Not a little of the progress made in medicine has been the result of work by medical men of the army. There is opportunity for laboratory research and for scientific clinical investigation. The act of June 3, 1916, provided for increasing the standing army to 293,000 men, an increase of 161,000 men. This calls for a proportionate increase in the number of medical officers. After the full quota of the army is reached, 2,051 medical officers will be required. Including those in the Army Medican School and those who have offered their services and who have been accepted subject to examination, 685 medical officers are available. This leaves 1,366 additional medical officers necessary to be appointed by the time the new regular army is fully manned. How soon this will be is not known. It is dependent on how soon Congress will make the necessary appropriation and also on whether Congress will depend on the volunteer system or will adopt selective conscription to obtain the men. But no matter whether two months or six months elapse before the quota of 293,000 men is secured, there must be 2,051 medical officers ready to serve. The Surgeon General of the army is appealing for these men now. He wants them now so that they may receive the necessary training and be ready just as soon as the new regular army is ready. THE JOURNAL adds its appeal to that of the Surgeon General. Young physicians who are qualified and who consider entering into military medical work should act at once. An application blank appeared in THE JOURNAL last week. Fill it out and forward it immediately to the Surgeon General of the Army. Graduates of good medical schools under 32 years of age who are physically and mentally qualified will be thus rendering a service to their country, to medical science and to themselves.

3. Kaiserliches Statistisches Amt, Die Krankenversicherung im Jahre 1913, Statistik des Deutschen Reichs, Berlin, 1915, 277, 60.

THE NEW YORK SESSION NUMBER

The preparations for the annual session of the Association, to be held in New York City, June 4-8, are being rapidly completed. The next issue of THE JOURNAL, May 5, will be the New York number and will convey the official call for the 1917 annual session to the officers, members and Fellows. It will announce also the preliminary program of the Scientific Assembly, together with information concerning railroad rates, hotel accommodations and the scientific and social events provided by the local profession, as well as other matters which will interest those who are planning to attend this session.

MATERNAL MORTALITY IN THE UNITED STATES

It is now nearly seventy-five years since Oliver Wendell Holmes in this country and Semmelweis in Europe announced the infectious character and preventability of puerperal septicemia. Yet as nearly as can be determined from our imperfect records, about 15,000 women die annually from conditions related to childbirth. Of these, about 7,000 die from septicemia, known for three quarters of a century to be almost entirely preventable. In 1913, childbirth caused more deaths among women from 15 to 44 years of age than any other one disease except tuberculosis. Of fifteen foreign countries only two show a higher death rate from this cause than does the Registration Area of the United States. According to Meigs,[1] there were, in 1913, in the Death Registration Area of the United States, 10,010 deaths due to conditions caused by pregnancy and childbirth. Of these, 4,542 were due to puerperal septicemia. It is estimated, then, that in 1913, the total number of deaths in the United States due to childbirth was 15,376, of which 6,977 were due to childbed fever, a death rate of 15.8 per hundred thousand including all ages and both sexes, or 50.3 per hundred thousand women between 15 and 44. Owing to defective registration, no accurate comparison between urban and rural populations is possible. A definite and striking difference exists, however, between the white and colored populations. In 1913, the death rate from all diseases of pregnancy and con-

1. Meigs, Grace L.: Maternal Mortality from All Conditions Connected with Childbirth in the United States and Certain Other Countries, Miscellaneous Series 6, Bureau Publication 19, Federal Children's Bureau, Department of Labor, Washington, D. C.

finement per hundred thousand white population was 15.2, and the rate from puerperal septicemia was 6.9, while the rate per hundred thousand colored population for all diseases of pregnancy was 25.1 and for puerperal septicemia 11.5. Comparing the United States with foreign countries, it is found that out of the sixteen leading countries, the United States stands fourteenth, our death rate in this field being surpassed only by Switzerland and Spain, while Sweden, with a total death rate of 6 per hundred thousand, Norway with 8.1 and Italy with 8.9 per hundred thousand stand at the head of the list. Two causes are suggested: ignorance on the part of the public of the dangers connected with childbirth and of the need of skilled care and proper hygiene to prevent them, and the difficulty of securing proper obstetric care. In spite of the fact that the preventability of puerperal septicemia was recognized long before that of any other infectious disease except smallpox, the public still regards childbirth as an entirely normal process and a certain number of deaths as unavoidable. This has reacted on the medical profession, producing low fees, so that, with the exception of the city specialist, obstetrics has become one of the worst paid, although one of the most difficult and exacting branches of medicine. When to these factors are added the additional problems of the ignorant midwife, the lack of hospital facilities and the difficulty of proper care in the home, especially in small towns and rural communities, it is not strange that the death rate from this cause not only should be disgracefully high, but also should have shown little reduction in the past decade.

PLATINUM, PATRIOTISM AND LABORATORY PRACTICE

Platinum is required in the production of sulphuric acid, which is itself a necessity in the production of high explosives. Platinum is also extensively used in the timing apparatus for torpedoes and timed shells. During the past few years the price of platinum has advanced so rapidly that it is today approximately five times as valuable as gold. This advance has been due to the increased uses for this metal. It is used in lighting apparatus, it is used in laboratories, in the form of the well-known "platinum loop" for bacteriologic cultures, it is used extensively in dentistry, in photography and by some freak of fashion it is used in modern jewelry. From a purely esthetic point of view, its use in jewelry has but slight justification as it is not so beautiful as many other substances, and except for its intrinsic value, it seems to have but slight merit as an adornment. In the same way, its use in the laboratory, in dentistry and in photography may be overcome by the substitution of other less valuable metals. The great need of the metal in the processes mentioned which bear such a direct relationship to the war, and in which no other metal can be substituted for platinum, should cause the patriotic physician and the dentist to dispense with it wholly as an adornment and in the laboratory whenever possible.

THE COMPOSITION OF HUMAN MILK IN THE EARLY DAYS OF LACTATION

Precisely when and how rapidly the change from colostrum, secreted by the mammary gland just after parturition, to the subsequent true milk occurs is not clear in the case of the human species. Colostrum is characterized by a comparative richness in proteins, whereas the sugar and salt content does not differ so widely from that of the milk secreted later. A variety of properties, such as a laxative effect, have been attributed to colostrum; but information regarding the chemical make-up of mother's milk in the earlier stage of lactation is far from complete. There are numerous factors, such as constitution, age, diet and disease, in addition to the stage of lactation, which may play some part in affecting its composition. Statistics from human sources under carefully controlled conditions are not readily obtainable. Special value attaches, therefore, to a new series of analyses by Hammett.[1] Milk was collected from healthy women by means of the breast pump at the same hour on the third, fifth, seventh, ninth and eleventh days after parturition. Quantitatively, fat and lactose were found to be increased in amount during the period studied, while there was a falling off in the production of protein. If we accept as an index of variability the individual variation from the group average, and the individual variation from day to day, the three constituents fall into the following order of decreasing variability: fat, protein, lactose. The protein-producing mechanism is apparently the best regulated, and is less dependent on the factors controlling the fat and lactose production than they are on each other. For the single constituents there is a production plane uniform for the individual subject. This plane of production is fixed for the individual, independent of the plane of nutrition and dependent on the individuality. An increase or decrease in the lactose production is generally accompanied by a change in the opposite direction in the percentage of fat and protein.

MEDICAL AND PREMEDICAL STUDENTS

If there is any single group of young men who are patriotic and who want to show it, it is the young men in our universities and medical schools. However, may we suggest to these young men that they can show their patriotism and do more for their country by completing their education than by volunteering as soldiers in the ranks. The General Medical Board of the Council of National Defense has taken action on this matter and is appealing[2] to medical and premedical students to continue in their original idea of educating themselves for the medical profession. It will take moral courage in some instances, especially if classmates are volunteering, but this kind of courage is just as commendable as that required to shoulder a musket and enter the trenches.

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1. Hammett, F. S.: Variations in the Composition of Human Milk During the First Eleven Days after Parturition, Jour. Biol. Chem., 1917, **29**, 381.

2. See Medical Mobilization and the War, this issue, p. 1267.

Medical Mobilization and the War

APPLICATION FOR THE MEDICAL OFFICERS RESERVE CORPS

Last week we published two application blanks, one for the Medical Corps and the other for the Medical Officers Reserve Corps. At that time we stated that when filled out the blanks should be sent to the surgeon-general's office. This applies only to applications for the regular Medical Corps. The surgeon-general's office has appointed medical boards in various parts of the country, composed of officers of the Medical Reserve Corps, to pass on applicants for the Medical Officers Reserve Corps. This will relieve the pressure on the surgeon-general's office, and make it more convenient for those who offer their services. We give below the chairmen of the various boards. Applicants for the Medical Officers Reserve Corps should send their applications to the chairman of the nearest board.

ALBANY, N. Y.—1st Lieut. Henry L. K. Shaw, M. R. C., 361 State St., Pres.
ST. LOUIS—1st Lieut. William H. Luedde, M. R. C., 311 Metropolitan Bldg., Pres.
NEW YORK—1st Lieut. Henry C. Coe, M. R. C., 40 East 41st St., Pres.
CHICAGO—1st Lieut. John A. Hornsby, M. R. C., 6 N. Michigan Ave., Pres.
DENVER—1st Lieut. Cuthbert Powell, M. R. C., Metropolitan Bldg., Pres.
MINNEAPOLIS—1st Lieut. James F. Corbett, M. R. C., 4401 East Lake Harriett Blvd., Pres.
ANN ARBOR, MICH.—1st Lieut. Reuben Peterson, M. R. C., 1416 Hill St.
CINCINNATI—1st Lieut. Robert D. Maddox, M.R.C., 4 W. 7th St., Pres.
PITTSBURGH—1st Lieut. John W. Boyce, M. R. C., Empire Bldg., Pres.
RICHMOND, VA.—1st Lieut. Stuart McGuire, M. R. C., 513 E. Grace St., Pres.
BOSTON—1st Lieut. Horace D. Arnold, M. R. C., Harvard University Graduate School of Medicine, Pres.
NEW ORLEANS—1st Lieut. Isadore Dyer, M. R. C., 124 Baronne St., Pres.
PHILADELPHIA—1st Lieut. Elijah H. Siter, M. R. C., 1818 S. Rittenhouse Sq., Pres.
CLEVELAND—1st Lieut. George W. Crile, M. R. C., 1021 Prospect Ave., S. E.
MILWAUKEE, WIS.—Dr. G. V. I. Brown, 349 Prospect Ave., Pres.
DETROIT—1st Lieut. Angus McLean, M. R. C., David Whitney Bldg.
MARQUETTE, MICH.—1st Lieut. A. W. Hornbogen, M. R. C.
FORT SILL, OKLA.—1st Lieut. Herbert C. Woolley, M. R. C.
SPRINGFIELD, MASS.—1st Lieut. Charles F. Lynch, M. R. C., 387 Main St., Pres.
LOS ANGELES—1st Lieut. John J. Kyle, M. R. C., 702 Title Ins. Bldg.
OKLAHOMA—1st Lieut. Rex G. Bolend, M. R. C., 1524 West 29th St.
ROCHESTER, N. Y.—1st Lieut. John M. Swan, M. R. C., 457 Park Ave.
FORT ETHAN ALLEN, VT.—1st Lieut. Isaac W. Brewer, M. R. C.
FORT MOULTRIE, S. C.—1st Lieut. William A. Smith, M. R. C.
MERIDIAN, MISS.—1st Lieut. I. W. Cooper, M. R. C.
RENO, NEV.—1st Lieut. Raymond St. Clair, M. R. C., Nixon Bldg.
BISMARCK, N. D.—1st Lieut. Albert M. Fisher, M. R. C.
CHARLESTON, W. VA.—1st Lieut. John E. Cannaday, M. R. C., Capital City Bank Bldg.
FORT CROCKET, TEXAS—1st Lieut. James G. Flynn, M. R. C.
DALLAS, TEXAS—1st Lieut. Edgar W. Loomis, M. R. C., 236 Page Ave.
DOTHAN, ALA.—1st Licut. Percy O. Chaudron, M. R. C.
STAUNTON, VA.—1st Lieut. Wilbur M. Phelps, M. R. C.
HARRISBURG, PA.—1st Lieut. Benjamin F. Royer, M. R. C., Donaldson Apartments.
JACKSONVILLE, FLA.—1st Lieut. Graham E. Henson, M. R. C., St. James Bldg.
FORT BARRANCAS, FLA.—1st Lieut. Clinton W. D'Alemberte, M. R. C.
TAMPA, FLA.—1st Lieut. Earle H. McRae, M. R. C., American Bank Bldg.
VANCOUVER BARRACKS, WASH.—1st Lieut. Charles E. B. Flagg, M. R. C.
FORT GEORGE WRIGHT, WASH.—1st Lieut. Charles E. Butts, M. R. C.
HELENA, MONT.—1st Lieut. William C. Riddell, M. R. C., 504 Dearborn Ave.
INDIANAPOLIS—1st Lieut. T. Victor Keene, M. R. C., Hume Mansur Bldg.
GREENSBORO, N. C.—1st Lieut. John W. Long, M. R. C., 119 Church St.
AUGUSTA, GA.—Dr. Theodore E. Oertel, 638 Greene St.
BALTIMORE—Dr. John S. Davis, 1200 Cathedral St.
PORTLAND, MAINE—Dr. William L. Cousins, 231 Woodford St.
FORT DES MOINES, IOWA—1st Lieut. James E. Kessell, M. R. C.
NEWARK, N. J.—1st Lieut. David A. Kraker, M. R. C., 236 Broad St.
SEATTLE—1st Lieut. Ira C. Brown, M. R. C., 901 7th Ave.
FORT CASWELL, N. C.—1st Lieut. Walter A. Newman, M. R. C., Southport, N. C.
NEW HAVEN, CONN.—1st Lieut. J. W. Churchman, M. R. C., 59 College St.
FORT SCREVEN, GA.—1st Lieut. Harry Rubin, M. R. C.
FORT SNELLING, MINN.—1st Lieut. Alexander R. Colvin, M. R. C.
WASHINGTON, D. C.—1st Lieut. Abram B. Hooe, M. R. C., 1220 16th St. N.W., Pres.

The following officers of the regular Medical Corps also have been instructed to receive applications for the Medical Officers Reserve Corps:

CHICAGO—Major William N. Bispham, Med. Corps.
PHILADELPHIA—Lieut. Col. Henry Page, Med. Corps, Aldine Hotel.
FORT SAM HOUSTON, TEXAS—Lieut. Col. M. W. Ireland, Med. Corps.
FORT CROCKETT, TEXAS—Capt. Robert C. McDonald, Med. Corps.
JEFFERSON BARRACKS, MO.—Major Henry F. Pipes, Med. Corps.
Capt. Frank N. Chilton, Med. Corps.
FORT LEAVENWORTH, KAN.—Major Kent Nelson, Med. Corps.
Capt. Ernest R. Gentry, Med. Corps.
FORT LOGAN, COLO.—Capt. John A. Burkett, Med. Corps.
OMAHA—Col. John M. Bannister, U. S. A., Ret., 400 Brandeis-Theter Bldg.
FORT OGLETHORPE, GA.—Major Charles F. Morse, Med. Corps.
FORT MONROE, VA.—Major William L. Little, Med. Corps.
FORT BANKS, MASS.—Lieut. Col. Weston P. Chamberlain, Med. Corps.
SYRACUSE, N. Y.—Major James I. Mabee, Med. Corps, 309 Orange St.
FORT MOULTRIE, S. C.—Major George F. Juenamann, Med. Corps.
HOT SPRINGS, ARK.—Major Thomas L. Rhodes, Med. Corps, Army and Navy Gen. Hosp.
Capt. A. P. Clarke, Med. Corps, Army and Navy Gen. Hosp.
FORT WAYNE, MICH.—Major James Bourke, Med. Corps.
BOISE, IDAHO—Lieut. Col. Marshall W. Wood, U. S. A., Ret.
BUFFALO—Major W. W. Quinton, U. S. A., Ret., 232 Elmwood Ave.
CORONADO, COLO.—Major William L. Kneedler, U. S. A., Ret.
FORT SNELLING, MINN.—Major Guy V. Rukke, Med. Corps.
FORT WILLIAMS, MAINE—1st Lieut. Henry F. Lincoln, Med. Corps.
LOUISVILLE, KY.—Capt. N. L. McDiarmid, Med. Corps, Univ. of Louisville Medical College.
JACKSON BARRACKS, LA.—Capt. T. C. Austin, Med. Corps.
COLUMBUS BARRACKS, OHIO—Col. Charles Willcox, Med. Corps.
Major H. L. Gilchrist, Med. Corps.
SAN FRANCISCO—Col. Guy L. Edie, Med. Corps, Letterman Gen. Hosp.
Lieut. Col. Charles Lynch, Med. Corps, Hdqutrs. West. Dept.
FORT BENJAMIN HARRISON, IND.—Capt. John R. McKnight, Med. Corps.
FORT HOWARD, MD.—Capt. Taylor E. Darby.
WASHINGTON, D. C.—Col. L. A. LaGarde, Med. Corps, 2624 Woodley Place N.W.
Lieut. Col. C. C. McCullouch, Med. Corps.
Lieut. Col. W. H. Arthur, Med. Corps.
Major W. D. Webb, Med. Corps, 1803 Connecticut Ave. N.W.
FORT MCPHERSON, GA.—Lieut. Col. Thomas S. Bratton, Med. Corps.

THE GENERAL MEDICAL BOARD

Medical Education

The Committee on Medical Schools, of which Prof. J. M. Flint of New Haven, Conn., is chairman, submitted the following report to the Medical Board of the Council of National Defense on April 23:

Your committee feels compelled to record its appreciation of the patriotic and eager efforts on the part of the medical schools to meet the emergencies of the present crisis. However, in view of the absolute necessity of maintaining a supply of adequately trained men for the future needs of the army and navy, it cannot express too emphatically its hope that this enthusiasm may not lead to any greater disturbance of our normal education and hospital system than the present emergency demands. Owing to the enormous amount of work thrown on the executive staff of the Medical Section of the Council of National Defense, the committee regrets that it has not been able to put its reports into the hands of the medical schools more promptly and, in turn, to know of their plans—a fact which has made it difficult to determine just what action was being taken in various parts of the country on the recommendations of the board.

Last week, for example, it was brought to the attention of your committee that more schools were planning to adopt the continuous teaching plan than either the needs of the service or circumstances warranted—some complaining that they were being forced to act by competition, others that pressure was being brought to bear by overeager students for the adoption of the system. Conditions indicate that our entire educational and hospital system may be called on to endure a strain, which will require the wisest foresight and caution to prevent it from being wrecked. It seemed wise, therefore, to ask schools to delay further action on the continuous teaching system until a census could be taken, as it is quite certain that too wide an adoption of this policy would not only disorganize the civil hospitals, but also would leave a gap where no men are being trained until the colleges can provide a new supply of medical students. We are on the threshold of England's blunder for the army requires a continuous supply of men with hospital experience.

After a careful consideration of the question, the Executive Committee of the Medical Board of the Council of National Defense urges all medical schools to abandon the plan entirely, as a simple substitute has been devised which is acceptable to the navy and does not endanger our present system at all, but keeps the normal academic schedule as one most likely to maintain a continuous supply of graduates who are prepared to take a hospital service. A meeting of the deans of medical schools has been called in order that the matter may be clearly explained to them and that further misunderstanding be avoided.

Your committee recommends that this board give the widest possible publicity to the wishes of the surgeon-general of the army who wants only men with hospital experience. Accordingly it particularly urges on graduates of the present year who have already contracted with civil hospitals to fulfil the obligation thus implied by securing the hospital experience which the army deems essential.

The medical board has received the following recommendation from one of the medical schools, which has been referred to your committee:

> That requests be made of all the "A" grade medical schools now requiring one premedical college year for entrance to medical school, and the Council of National Defense to join in a request of the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges, to defer the requirement of two years of premedical college work for entrance, until at least the year 1920, or until the exigencies of the war have relieved the need and demand for more medical men.

After careful consideration of the recommendation your committee suggests the following memorandum for your consideration and action:

The Medical Board of the Council of National Defense though highly appreciating the patriotic spirit shown by this institution is not prepared for the present to endorse the proposition to postpone the application of higher standards for admission to the Class "A" medical schools until the need for such action becomes more clearly imperative.

Your committee has also received reports that an increasing number of premedical students are leaving college to enlist in various line organizations. It would consider it a wise precaution, therefore, in conserving the future supply of medical students for the board to use all the means in its power to hold such students in college even should it be necessary to ask the president to issue a special proclamation on the subject calling attention to the fact that it is the patriotic duty of such students to remain under instruction until the country can avail itself of their trained services.

This fact also emphasizes the importance of a communication just received by your committee from the dean of one of our medical schools inspired by some of his students who demand protection against a possible "white feather or yellow crusade" by some form of recognition of the fact that such men are performing an indirect military service for the country. The problem, we understand, is under consideration by the Council of National Defense for the industrial army and we recommend that the medical group be included in its scope.

Another dean feeling the spirit of unrest among medical students requests the medical board to send a notice directly to the student body calling their attention to their duty in the present crisis. Accordingly your committee would recommend the following:

NOTICE TO MEDICAL AND PREMEDICAL STUDENTS

In the present national crisis a continuous supply of adequately trained medical officers is absolutely essential for the maintenance of armed forces in the field. It would be folly for the country to prepare for the immediate emergency alone —we must face the possibility of the war lasting for years. It is, therefore, the patriotic duty of all college students intending to study medicine to remain under instruction until the country can avail itself of their trained services.

Medical schools are in a sense "munition works" necessary to produce trained medical officers for the army and navy. All medical students must, therefore, in the interest of national safety continue their work until graduation. With the exception of such men as the navy can utilize, all graduates are urged to secure a hospital training which the surgeon-general of the army and navy consider essential for their arms of the service.

The Committee on Hospitals

The Committee on Hospitals of the General Medical Board of the Council of National Defense, in its report to the General Board on April 23, submitted the following letters and recommended that they be sent to the principal hospitals of the country. The recommendation was adopted.

TO HOSPITALS OF ONE HUNDRED BEDS AND OVER

The following letter is to be sent to all hospitals of 100 beds or over:

During this crisis in the national affairs, it is imperative that the medical resources of the country be so organized as to safeguard the civil hospitals and civil population, and at the same time to release as many men as may be possible for service with the army. The medical department of the army is faced with the responsibility of furnishing medical officers in large numbers for the proper examination of recruits and the manning of military hospitals.

It is, therefore, requested that this letter be brought to the attention of the trustees and medical staff, and that the staff of your hospital be reorganized and that a list be forwarded to the Hospital Committee, Council of National Defense, Munsey Building, Washington, D. C., within three days of the receipt of this letter. It is requested that this list shall give the names and addresses:

1. Of the hospital.
2. Of those members of the visiting, resident, and dispensary staffs who are needed to remain at home to man the civil hospital.
3. A list of the members of the staff who can be spared.

In the lists of those who should remain at home and those who can be spared, indicate with the letters M. R. C., the men who are members of the Medical Reserve Corps. Also in the list of those who can be spared, indicate those men who are not at present members of the Medical Reserve Corps but who are willing to become members. These should be urged at once to forward their applications to the surgeon-general's office for membership in the Medical Reserve Corps.

It is important that these lists be prepared and sent in immediately. At least 10,000 medical officers will be required and probably more. Unless information such as will be afforded by the preparation of these lists is available as a source of information to the office of the surgeon-general, it will probably be necessary to call out all members of the Medical Reserve Corps, and it might even be necessary to resort to other drastic measures. In this event great hardships would be worked on many of the civil hospitals. It is to prevent disorganization of civil hospitals and interference with the civil activities that this list is requested. It is assumed that you may be counted on for cooperation and prompt response to this request.

TO ALL HOSPITALS

The following letter is to be sent to the superintendents of all hospitals in the United States:

During the past two weeks a committee on standardization appointed by the Council of National Defense and representing medicine, surgery and all of the specialties has been assembled in Washington for the purpose of standardizing all staple supplies needed for hospital use. The purpose of this was twofold:

1. As an aid to the medical departments of the army, the navy, the Public Health Service, the American Red Cross and civilian requirements.
2. In order to prevent unnecessary duplication of articles which the manufacturers would be called on to make, thereby increasing the production of standard articles.

A list of the standards adopted will be sent to you shortly. You are requested to cooperate in this work by confining all new orders to articles specified in the approved list, unless the articles which you wish are already in stock. Your cooperation in this matter will be of tremendous assistance in speeding up production and enabling the medical departments of the army, the navy, the Public Health Service, the American Red Cross and civilian requirements to obtain the necessary supplies.

The effort to acquire a reserve stock of hospital equipment in order to expand in the event of need is approved, but hospitals are urged to do this gradually in order not to cause a sudden increased demand. The manufacturers are cooperating in an excellent spirit, and with a little time will be able to meet all needs. The standard list will be revised from time to time as is found necessary.

Bread in Italy.—The official decree went into effect, March 1, providing that 90 per cent. of the whole wheat grain is to be milled into flour for bread.

Ambulance for France.—The staff of Teachers' College, New York, has sent an equipped ambulance, costing $1,000 to the Ambulance Corps in France.

Epidemic Under Control.—The epidemic of measles, pneumonia and spinal meningitis at the Naval Training Station, Great Lakes, is reported to be under control.

New Base Hospital.—To the list of base hospitals recently published in THE JOURNAL should be added Base Hospital, No. 34, Philadelphia (Episcopal Hospital), with Dr. Charles H. Frazier as director.

Ambulances Given.—Mrs. Marcus Kavanagh, Chicago, has obtained a gift of five ambulances for service on the French front. Two of these amublances were donated by Chicago Lodge, B. P. O. E., No. 4.

Lowered Death Rate at Saloniki.—The *Riforma medica* quotes the *Agenzia dei Balcani* to the effect that the cleaning up of Saloniki and its vicinity by the military forces now occupying it has resulted in the reduction of the death rate to less than one fifth of that in previous years.

Physicians on Munitions Board.—The creation of a general munitions board was announced by the Council of National Defense, April 9. Among the members of this board are: Dr. Franklin H. Martin, Chicago; Lieut.-Col. Henry C. Fisher, M. C., U. S. Army, and Surg. Richmond C. Holcomb, U. S. Navy.

Surgeons and Nurses Go Down with Hospital Ship.—Of the fifty-two persons who were drowned when the British Hospital Ship *Salta* was sunk by a mine in the English Channel, April 8, five were medical officers, thirty-eight were members of the Royal Army Medical Corps, and nine were nursing sisters.

Medical Reserve Organization in Albany.—The Association of the Medical Reserve Corps, United States Army, capital district division, Albany, N. Y., has been perfected, and the following officers were elected: president Lieut. J. Lewi Donhauser; vice president, Lieut. Henry L. K. Shaw, and secretary-treasurer, Lieut. Harold D. Cochrane.

Immunologists Volunteer Services.—The American Association of Immunologists, at its meeting in New York, April 6, resolved to offer its services as a body and as individuals, and also to offer the facilities of the laboratories of the various members to the federal and respective state governments.

Plan to Continue Medical Studies in the Field.—The University of Chicago, Ambulance Corps, known as Ambulance Company No. 3, is raising funds to furnish the company with a portable field laboratory and library, that the men may be enabled to continue their studies. An auto truck completely furnished is to be purchased.

Medical Reserve Corps Organized.—At a meeting of 200 physicians, dentists, nurses and druggists at Johnstown, Pa., April 12, permanent organization of a medical reserve corps was effected. Dr. George W. Wagoner was elected president; Miss Ida W. Gailey, first vice president; Miss Leota Guffy, second vice president, and Dr. Henry J. Cartin, secretary-treasurer.

Ambulance Company Items.—The students of Tulane University, New Orleans, through Dr. Rudolph Matas, professor of surgery, have offered an ambulance company to the government for war service.——An ambulance company is being organized at Canton, Ohio.——The medical detachment of the Third Oregon Infantry makes an appeal for its proper equipment of ambulances.

Convalescent Home Offers Facilities to Nation.—The facilities and service of the Winifred-Mastison Burke Relief Foundation have been offered to the nation for service in time of war. The foundation conducts a main convalescent home in Westchester County, 20 miles from New York, and two branch institutions with a total bed capacity of about 300. The service is offered for convalescent soldiers and sailors, with occupational advantages and facilities for the reeducation of the crippled.

Camp Veterinary School in Italy.—THE JOURNAL has mentioned several times the Italian plan of having the medical students serving in the army at the front provided with opportunities for carrying on their medical course as circumstances permit. The *Universita castrense* is located close to the firing line, is well equipped, and has an imposing array of professors. The *Riforma medica* now announces that a camp veterinary school is to be organized along the same lines, although not so close to the front. It is to be located at Bologna.

Resolutions by the Chicago Laryngological and Otological Society.—Members of the Chicago Laryngological and Otological Society have agreed that those who remain at home will take care of the practice of those who go, and will keep an accurate account of receipts from all patients received by reason of the absence of other members in the country's service. All such money will be turned over to the absent physicians and surgeons or their families.

Each member who goes to the front is to notify his patrons of this resolution and ask them to cooperate in carrying out the intent of the resolutions.

Illness Among Illinois Troops.—A case of smallpox has caused the quarantining of Company A, Sixth Illinois Infantry, at Rock Island.——Two companies of the Sixth Infantry at Camp Lowden, Springfield, have been isolated on account of the prevalence of scarlet fever and measles in their ranks. ——There are now fourteen pneumonia cases among the Sixth Infantry, under treatment at St. John's Hospital, Springfield, and two deaths have occurred.——Through the efforts of Mrs. Lowden and Mrs. J. Ogden Armour, Miss E. F. Dawson, a trained nurse from St. Luke's Hospital, has been sent to the regimental hospital at Camp Lowden, Springfield.

Sanitary Experts Needed.—The Council of National Defense is endeavoring to obtain information relative to men and women in the United States who have special ability along sanitary lines, and would be available in case of war. These include sanitarians who have had experience in public health work; bacteriologists and their laboratory workers; sanitary engineers, whose experience would enable them to judge of the security of water supplies, to direct sanitary surveys of watersheds and the installation of plants for the treatment of water, and nurses who have had experience in sanitary survey work or other researches along sanitary lines.

Casualty Association Referendum.—The Physicians' Casualty Association of America, Omaha, has sent a circular letter to the members of the association calling for a referendum vote on the question "Shall the Physicians' Casualty Association assume risk of present members, who enlist as medical officers in the United States Army, and if so, to what extent," on the following three points:

1. Service on American soil.
2. Land service on foreign soil.
3. Service at home or abroad, including marine risks.

The directors of the association favor the extension of full benefits to those members who respond to the call of duty to serve their country in war.

Roentgenologists Prepare.—A committee of preparedness has been appointed by the president of the American Roentgeon Ray Society. It consists of Drs. Lewis Gregory Cole, George W. Holmes, Leopold Jachcs, Willis F. Manges and Harvey W. Van Allen. An auxiliary advisory committee has also been created.

The committee plans: The canvass of the country for a complete list of medical men available for military roentgenology; the establishment of schools in different geographical centers where uniform instruction in military roentgenology may be obtained, and the preparation of a manual on military roentgenography. Men willing to volunteer will kindly communicate with the Committee of Preparedness of the American Roentgen Ray Society, with headquarters at Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York.

Bazaar Receipts Exceeded Half a Million.—The final statement of the receipts and disbursements of the Allied Bazaar, held in Chicago last January, show net receipts of $535,868. The disbursements were as follows:

American commission for training in suitable trades maimed soldiers of France	$28,188.53
American fund for French wounded	28,673.70
American ambulance hospital at Neuilly	36,546.65
B. F. B. permanent blind relief war fund	26,706.59
British Red Cross	19,454.52
Canadian Red Cross	51,094.42
Commission for relief in Belgium	11,675.02
Italian Red Cross	25,344.95
Women's National Health Association	18,090.61
Fatherless children of France	15,075.59
Polish central relief committee	21,034.37
Star and Garter Hospital	14,492.00
War relief clearing house	13,881.15

There is still a balance on hand of $574.49.

Will Conserve Practices of Medical Officers.—The Atlantic County (N. J.) Medical Society, at its meeting, March 30, passed a resolution to take care of the practices of physicians who should go to the front and to turn over all fees collected to him or his family and to return the practice to the officers on their return from war service.——At the meeting of the Wayne County Medical Society held in Detroit, April 9, Major E. P. Biddle, a veteran of the Spanish-American War, stated that it was the duty of the young men to give up their practices and go to war, and of the older men to take care of the practices of the young men while they are away.——The members of the Spokane County (Wash.) Medical Society are considering a plan submitted by Dr. H. B. Cuhn, whereby any member of the society who enters the army or navy should receive pecuniary compensation based on his average income and the salary to be received by the government.——The Indianapolis Medical Society, at its meeting, March 27, adopted a resolution without dissentient voice which provides that the practice of any physician who enters the Medical Reserve Corps of the army or navy shall be preserved intact during the time he is in the service of his country.

Cincinnati Municipal Tuberculosis Committee Acts for Preparedness.—This committee has arranged its program for 1917 with a view to the prevention and adequate care of tuberculosis among soldiers and citizens, due to the entry of the United States into the world war, in order to prevent such horrible ravages as those wrought by this disease among the European armies. The program of the committee is divided into the following subjects: preparation for war conditions, vagrant consumptives, registration of tuberculous and examination of contracts, removal, medical and nursing education, industrial hygiene, state institutions, educational work, dispensary service, employment, infant welfare, camp and institional care, housing, taxation. The committee suggests as a special war precaution that tuberculosis experts be employed by the government and state military authorities at every recruiting office, so that the cases of those suffering from tuberculosis may be properly diagnosed and that the patients may receive proper care in federal sanatorium camps to be established by the Council of National Defense or in state institutions. The program is outlined with Cincinnati conditions in mind, but the suggestions are of general application.

Employment of Children in Agriculture.—A plan has been formulated by the National Child Labor Committee to utilize the labor of children of the country to the greatest advisable extent in the cultivation of the crops of the coming season, the necessity for which has been made more acute by the supposed shortage of food and the state of war. The committee has sent a circular outlining its plan to every state, county and city school superintendent, the secretaries of agriculture and labor, the Commissioner of Education, the Chief of the Children's Bureau, the Council of National Defense, and others. Under this plan the children are divided into two classes, those under and those over 14. The former are recommended for use at home in garden work, or under the supervision of parents or guardians. The latter may be made use of on farms, under proper regulation as to work and conditions of service. The idea is advocated that boys should be used in groups and kept in camps under careful supervision, as in the camps of boy scouts, and not placed singly with farmers, who would then have the trouble and responsibility of their care. Suggestions as to hours and conditions of work, release from school, and many others are made in the circular for safeguarding the welfare of the children thus to be employed, and America is cautioned to profit by the experience of England, where in the beginning of the exploitation of child labor in agriculture and factory work the policy pursued was found to be too radical and was short-sighted, because it too recklessly set aside former standards.

Report on Toxic Jaundice Among Trinitrotoluene Workers.—The Royal Society of Medicine is about to publish a report on a discussion on toxic jaundice among workers in trinitrotoluene factories, which was held with the approval of the ministry of munitions. This report is fully illustrated. Among the participators in the discussion are: Surgeon-General Rolleston, chairman; Dr. E. L. Collis, Dr. Benjamin Moore, F. R. S.; Major Morley Fletcher, R. A. M. C.; Dr. O'Donovan, medical adviser, ministry of munitions; R. C. Munday, fleet surgeon; Capt. M. J. Stewart, R. A. M. C., and Lord Chetwynd. American physicians and manufacturers who desire copies of this report should notify the secretary of the society at once, as the Royal Society can print but one edition. Single copies of the report may be obtained for $1 and 10 cents for postage; a dozen or more copies will be sent postpaid. The address is J. Y. W. McAllister, 1 Wimpole Street, London, W.

How They Protect the Absent Physician in England.—The medical profession in England has presented to the physicians who stay at home the following suggestions:

1. When a new patient presents himself, the physician staying at home should ask the name of the doctor who last attended him. If this doctor is absent on service, and has left a locum tenens, an attempt should be made to induce the patient to go to the locum tenens.
2. If the last doctor who attended him is on military service, it should be explained to the patient that attendance will willingly be given on behalf of that practitioner and on no other terms.
3. Any attendance on behalf of such patients should be carefully and separately recorded, and a list of such attendances sent at regular intervals to the representative of the absentee.
4. An attempt should be made to ascertain the fees charged by the absentee, and a charge not less than this should be made on his behalf.
5. Accounts rendered on behalf of the absentee should mention the absentee's name, and moneys received should be divided according to the scheme adopted by the local Medical War Committee.
6. The rule of dividing the fee should apply to all kinds of work.
7. New patients introduced by a patient of an absentee should be regarded as belonging to the absentee's practice.
8. In cases in which the patient's frequent change of physician leads to doubt as to who should be regarded as the regular attendant, the absentee should be given the benefit of the doubt.
9. No patient attended on behalf of an absentee should be attended by the deputy for at least one year after the absentee's return.
10. The greatest discretion should be used as to the introduction of a partner or assistant, or in commencing a new practice in an area from which men are absent on service.
11. Physicians newly located in a given district should be doubly scruplous in regard to the practices of absentees, and should at once ascertain and join in any arrangements that have been made for the protection of absent practitioners.
12. The honor of the profession is involved when a vacancy occurs through the death of a practitioner while in service. Definite arrangements have been made to meet such a contingency in some communities, and should be made in all. Every assistance should be given in enabling the successor to the practice to get a fair start. Local practitioners should carry out the same procedure with regard to the successor as they had undertaken with regard to the man who has fallen while in service.
13. In all cases of doubt as to what is the right course of action as regards an absentee, the practitioner should consider what he would like his neighbor to do if he were absent on military service. The local Medical War Committee, or the Central Medical War Committee are always ready to advise.

In January, 1915, the Scottish Medical Service Emergency Committee issued a statement dealing with the carrying on of the practice of medical men on active service. Later in the same year the Central Medical War Committee for England and Wales issued a similar circular. In both of these it was pointed out that the men going on active service have a right to expect that their interests would be protected by those who remain at home, and it was suggested that where the locum tenens could not be provided, the work should be done by a division of the money earned by the practice of the absentee along the following lines:

(*a*) Town Practice: An equal division of the proceeds between the absentee and his deputy or deputies.

(*b*) Combined Town and Country Practices: Three eighths to the absentee and five eighths to the deputy, the latter to pay the expenses.

(*c*) Country Practices Where Traveling Expenses are Important: One fourth to absentee, three fourths to the deputy.

Since human nature is what it is, and physicians are human, these rules have not always been followed, and the Central War Committee has endeavored to call the attention of the profession in England to the following general principles:

(*a*) No scheme will be satisfactory which has not behind it (1) the good will of the men who are to work it; (2) the

confidence of the men who are going into active service, and (3) the strong moral support of the local Medical War Committee. This presupposes that the scheme has been fully discussed at a meeting of the whole local profession.

(*b*) It is preferable that there should be a local agreement between the absentee and his deputy or deputies, although it is recognized that this may be impracticable in some cases.

(*c*) The local Medical War Committee should, in such an agreement, be vested with the power of dealing with any disputes which may arise between the absentee and his deputies. The decision of the committee should be binding. The committee should also have the power of appointing another deputy in case of need.

(*d*) Any such agreement should contain provisions whereby the absentee is indemnified against all acts of negligence committed by the deputy.

(*e*) The scheme and agreement should in all cases bind the deputies to refuse to act as the medical attendant of the patients attended for the absentee until a specified time (one or two years) after the absentee's return.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

GEORGIA

Resolutions Adopted by Medical Society on the Drug Supply.—The Stewart and Webster County Medical Society has adopted resolutions on the shortage of drugs due to the granting of patents, voting to call the matter to the attention of the congressman from that district and to bring the matter before the Medical Society of Georgia. The resolutions were adopted, April 13.

ILLINOIS

Rush Alumni Dinner.—All Rush alumni attending the meeting of the state medical association at Bloomington are urged to attend the alumni dinner, Wednesday, May 9, and to send their names as soon as possible to Dr. Franklin C. Vandervort, Bloomington.

Women's Clubs to Conduct Registration Survey.—The Illinois Federation of Women's Clubs is planning a birth and death registration survey of the state for the purpose of correcting deficiencies in the registration of births and deaths, and securing recognition of Illinois as a registration state.

Disease Closes School.—The public schools of Rushville were closed, April 6, for two weeks on account of the prevalence of measles and chickenpox.——Seventy persons with smallpox are reported to be under quarantine at Beardstown, and an order has been issued requiring vaccination of all public schoolchildren.——It is reported that there are thirty-four cases of smallpox at Stronghurst, and Dr. Edwin B. Godfrey of the state board of health has been sent to take charge of the situation.

Chicago

Visitors at Institute of Medicine.—At the meeting of the Institute of Medicine of Chicago, April 24, Dr. Charles V. Chapin, superintendent of health of Providence, R. I., spoke on "The Relative Value of Public Health Procedure," and Surg. Wade H. Frost, U. S. P. H. S., Cincinnati, delivered an illustrated address on "Epidemiology of Poliomyelitis."

Medical History Society Meets.—At the meeting of the Society of Medical History, April 27, Prof. Morris Jastrow, Jr., Philadelphia, delivered an address on "Medicine of the Babylonians and Assyrians," illustrated by lantern slides and ancient medical tablets. A paper was discussed by Prof. J. H. Breasted of the University of Chicago.

Sachs' Management Vindicated.—The subcommittee of the finance committee of the city council of Chicago, in a unanimous report, vindicated the management of the Municipal Tuberculosis Sanatorium by the late Dr. Theodore B. Sachs. The committee said that not a scintilla of evidence had been presented to support the charge that Dr. Sachs had used the sanatorium to build up his private practice.

Robert Koch Society.—At the twenty-eighth meeting of the Robert Koch Society for the Study of Tuberculosis, April 26, at the Great Northern Hotel, Dr. James W. Pettit, Ottawa, spoke on "The Development of the Sanatorium Movement in Illinois." Dr. John A. Turner, Antioch, spoke on "An Efficiency Method, Standardization and Cooperation," and Dr. Walter A. Gekler of the Chicago Municipal Tuberculosis Sanatorium presented a paper on "Phthisiogenesis."

INDIANA

Smallpox Epidemic.—Smallpox is reported to be epidemic in Indiana Harbor. Seventeen patients are said to have been taken from there to the Chicago Isolation Hospital, April 17.

Grading of Milk.—The state board of health, Indianapolis, has adopted regulations that will grade all milk sold in Indiana and provide for the labeling of each grade, under penalties for failure to comply with the regulations. This rule goes into effect Jan. 1, 1918, and follows closely the special investigation committees, which represent all states.

Personal.—Dr. J. Rilus Eastman, who has been in charge of a base hospital abroad, has sailed for home, and expects to reach Indianapolis this week.——Dr. Mitchell O. DeVaney has been appointed health commissioner of Indianapolis, succeeding Dr. Jay D. Nusbaum.——Dr. James A. Duggan, South Bend, has been appointed assistant surgeon in the navy.

New Members of State Board.—Dr. John H. Hewitt, Terre Haute, has been appointed a member of the state board of health, to succeed Dr. John L. Freeland, Indianapolis, resigned. Dr. Hugh A. Cowing, Muncie, has been appointed to succeed Dr. Harley H. Sutton, Aurora. Dr. James S. Boyers, Decatur, will continue as a member of the board, pending the election of his successor.

IOWA

Children's Hospital Bill Passed.—The senate, April 7, unanimously passed the bill appropriating $150,000 for a hospital for deformed children at Iowa City.

Hospital News.—The Isolation Hospital at the University of Iowa will be ready about the middle of May and will accommodate fifty patients.——The Miners Hospital, Albia, is now located in its new home on Second Avenue West.

Personal.—Dr. James A. Bisgard, Harlan, while returning from a professional call, April 13, drove his car into a pile of paving material in the street, seriously damaging his car and sustaining severe injuries himself.——Dr. C. Darwin Enfield, Jefferson, has been accepted for service, and has been directed to report at the Base Hospital, St. Valery, France.——Dr. Frederick C. Skinner has been appointed health physician of LeClaire to succeed himself.

KENTUCKY

Hospital News.—The Hazard General Hospital has been incorporated with a capital stock of $4,000.

Personal.—Dr. Bernard J. O'Connor has been elected a member of the board of trustees of the Louisville Tuberculosis Hospital.

License Required for Anesthetists.—In a friendly suit brought by Dr. Louis Frank and Miss Margaret Hatfield, Louisville, against the state board of health, to determine whether the board has the authority under the law to require nurses to take an examination and obtain a license before administering anesthetics, Judge Curby has decided that the provision in the law pertaining to physicians and nurses is a police regulation, designed for the protection of society, that in all such matters the right of the individual must be laid aside for the safeguarding of the public, and that from the evidence submitted in the case, it is apparent that Miss Hatfield can and should submit herself for examination by the state board of health, and qualify to perform the services for which she is employed.

LOUISIANA

Hay-Fever Clinic.—A free clinic for the prevention and treatment of hay-fever was opened at the Charity Hospital, New Orleans, April 2.

Hospital for Negroes.—The negroes of New Orleans have organized the Providence Sanatorium Stock Company, the object of the organization being to provide a hospital for negroes, owned and controlled exclusively by negroes.

Tuberculosis in New Orleans.—At the meeting, April 4, of the board of directors of the Charities Organization Society, over which Dr. John F. Oehsner presided, it was decided to give $2,000 each year for the aid of tuberculosis cases. The first donation of $2,000 has already been made.

Personal.—Dr. James M. Batchelor has been appointed chairman and Dr. Albert S. Yenni, secretary of the medical advisory board of the Charity Hospital, New Orleans.——Dr. William H. Robin has been elected superintendent of public health of New Orleans and chairman of the city board of health.——Dr. Frank R. Gomila has been elected secretary of the New Orleans board of health and Dr. George H. Hauser, assistant bacteriologist.

Malarial Survey.—Asst. Surg.-Gen. Henry R. Carter, U. S. P. H. S.; Mr. Frederick L. Hoffman, statistician of the Prudential Life Insurance Company; Dr. Oscar Dowling, Shreveport, president of the state board of health, and Dr. William H. Seemann, New Orleans, state bacteriologist, began a tour of the state, April 9, to make a survey of the malaria conditions. The survey will include thirty-five towns and cities, and will be ended April 19.

MARYLAND

Personal.—Dr. Oswald S. Lowsley, New York, formerly of Baltimore, and former assistant to Dr. Hugh H. Young, will be director of the Urologic Clinic in New York, provided for in the will of the late James Buchanan Brady, which is to be established as part of the New York Hospital. ——Dr. L. Palmer Holmes will succeed Dr. Lewis A. Sexton, Baltimore, as chief of the Johns Hopkins Dispensary, May 1.——Dr. William C. Leavenworth of the University of Virginia has been appointed third assistant superintendent to the Johns Hopkins Hospital.——Dr. Clement A. Penrose has been named by Mayor Preston as chairman of the new Food Economy Commission of Baltimore.

Meetings.—The one hundred and nineteenth annual meeting of the Medical and Chirurgical Faculty of Maryland was held in Baltimore, April 24 to 26, at the Faculty Building. At the session on the evening of the 24th, two portraits were presented to the faculty, one of Dr. John W. Chambers by Dr. Alexius McGlannan, the other of Dr. Jacob H. Hartman, by Dr. Harry Friedenwald, all of Baltimore. Dr. Henry Barton Jacobs, Baltimore, read the report of the Osler Testimonial Committee, stating that sufficient money had been raised to establish an Osler Fund for the purchase of books for the Medical Library. On the afternoon of the 25th, Dr. Benjamin S. Warren, Washington, D. C., United States Public Health Service, made an address on "Health Insurance: Its Relation to the Medical Profession, and to the Public Health," followed by Dr. J. Hall Pleasants, Roland Park, who spoke on "Health Insurance: Proposed Legislation." The third evening was devoted to a symposium on medical education. Dr. J. McPherson Scott, Hagerstown, Md., spoke of the attitude of the state toward the medical school; Dr. John G. Bowman, director of the American College of Surgery, on "Hospital Standardization," and Dr. Gordon Wilson, Baltimore, on "The Problem of Hospital Interns and How Best to Meet It in the Future." The annual smoker was held in the Banquet Hall on the second evening.

NEW YORK

Personal.—Dr. Matthew D. Mann, Buffalo, president of the Churchmans Club, delivered an address, April 12, at Erie, Pa., on "The Mission from a Businessman's Standpoint."——Dr. Walter E. Deuel, Adams, has been appointed superintendent of the Oswego County Tuberculosis Sanatorium, Orwell, succeeding Dr. A. Garfield Dunbar, Richland, resigned.

Prevention of Disease.—The course of public lectures on "Public Health and Preventive Medicine" which is being given under the auspices of the Albany Medical College, at the State Educational Building, on Wednesday afternoons at 5 o'clock will be as follows during May:

May 2: Vital Statistics, Dr. William H. Guilfoy, Registrar of Records, Department of Health, City of New York.

May 9: The Study of Epidemics in the Field, Dr. John A. Smith, Acting Secretary, New York State Department of Health.

New York City

Infantile Paralysis.—A case of suspected infantile paralysis was discovered, April 18, in the Williamsburg district of Brooklyn.——Two cases of infantile paralysis were reported, April 23, by the New York department of health.

Children's Court Quarantined.—The Bronx Children's Society has been put under quarantine because of an outbreak of diphtheria. The first case was discovered April 16, and since that time eight additional cases have developed.

Epidemiologic Test for Suspected Typhoid Fever.—The laboratory of the health department announces that it is prepared to make epidemiologic tests in puzzling and indeterminate cases of continued fever with vague clinical histories that are suggestive of typhoid fever.

Class Reunion.—The class of 1907 of the College of Physicians and Surgeons in the City of New York will hold its decennial reunion and banquet at the Columbia Club, 18 Gramercy Park, on the evening of June 5. Dr. Theodore H. Allen, 3905 Broadway, is secretary of the committee on arrangements.

Physicians Acquitted.—The committee appointed by the East New York Medical Society to inquire into the complaint made against Dr. Philip Oginz, charging him with having violated the Harrison Narcotic Law, in that he prescribed heroin without a physical examination and without keeping a record of the prescriptions, reported that the prescriptions were given in good faith in an honest endeavor to cure a patient of the heroin habit.

Personal—Dr. Emil J. Pellini has been appointed assistant professor in pharmacology in the University and Bellevue Hospital Medical College.——Capt. Moses Ashby Stivers, Middletown, M. C., has been commissioned major, M. C., N. Y. N. G.——Lieut. Mills Larson, M. C., has been assigned to the Twenty-Third Infantry.——Dr. Raymond W. Lewis, Squadron A., has been commissioned first lieutenant of the Medical Officers Reserve Corps.——Capt. Charles W. Lynn, M. C., has been promoted to major.

Unions Organize Against Disease.—Representatives of various labor unions recently met Dr. Louis I. Harris, head of the division of industrial hygiene of the department of health, and planned for cooperative effort to check occupational disease. Representatives of labor unions will act as a vigilance committee guarding sanitary standards, will confer with the sanitary agencies, and will also disseminate needed information among workers. More than seventy members have already been appointed by their unions to serve on a committee under the direction of the division of industrial hygiene.

PENNSYLVANIA

Twenty-Fifth Reunion.—The members of the class of 1892 of the Pennsylvania Medical College held their twenty-fifth annual dinner in the Fort Pitt Hotel, Pittsburgh, March 24. Dr. John A. Hawkins was chairman of the committee of arrangements.

Vaccine Patients in Hospital.—On accounnt of a case of smallpox in a nurse in the Warren State Hospital, the vaccination of the 2,000 patients and nurses at the institution was begun, April 6.——The state department of health has warned physicians of the danger of a smallpox epidemic, and is carefully watching the smallpox situation at Hillsville, Wampam and Newcastle.

Personal.—The office of Dr. Jesse Sprowls, Donora, was destroyed by fire, April 6.——Dr. Edward A. Weiss, Pittsburgh, while driving his car, April 6, collided with a pole, and received severe cuts of the head from broken glass.——Dr. Joseph P. Ritenour, Uniontown, has been appointed head of the Pennsylvania State College health service, Connellsville, succeeding Dr. Warren E. Forsythe, resigned, to take service with the Rockefeller Foundation.

Philadelphia

Prohibition Demanded by County Medical Society.—The Philadelphia County Medical Society, April 18, adopted a resolution asking Congress to probihit the manufacture and sale of alcoholic drinks.

New Health Center.—The board of directors of the Babies Hospital has selected the site for the new modern health center. The nucleus of the fund was $50,000 given by Mrs. Edwin Douglas to the children of Philadelphia last July. It will be a combined babies clinic and dispensary, and will be in one of the congested districts of the city.

Physicians Organize for Betterment.—A movement to improve the social and economic status of physicians throughout Philadelphia was instituted at a meeting held in Odd Fellows Hall on Thursday, April 12, plans being discussed for the establishment of a higher minimum fee rate, as well as the founding of a permanent association for promoting the welfare of Philadelphia physicians. The newly created organization is to be known as the Physicians' Business Association. Membership will be open to all regularly licensed physicians practicing in Philadelphia County graduated from recognized schools of medicine. A propaganda will be instituted to interest all of the profession in an increased minimum fee schedule. Other needed reforms will be considered in the nea

future. The following officers were elected: president, Dr. Edwin S. Cooke; vice president, Dr. James H. Baldwin; secretary, Dr. James H. Cunningham, and treasurer, Dr. John H. Remig.

Personal.—Dr. Edward Cameron Kirk, dean of the Dental School of the University of Pennsylvania, and Drs. Matthew H. Cryer and Edwin T. Darby of the faculty have resigned, under the university age limit rule of 65 years.——Dr. Fred A. Fraser, Byberry, has been appointed assistant physician to the bureau of charities.——Dr. William J. Enders, Eagleville, has been elected medical superintendent of the Protestant Episcopal City Missions Home for Consumptives, Chestnut Hill, to take charge the first of May.——George E. Nitzsche, recorder of the University of Pennsylvania, has been appointed executive secretary of the Committee on Medicine, Sanitation, and Red Cross, the most important subcommittee under the Committee of Public Safety of Philadelphia, of which George Wharton Pepper is chairman.——Dr. John B. Deaver was guest of honor at the annual banquet and reception of the Northern Medical Association held at the Hotel Rittenhouse, April 27. Dr. Deaver addressed the society on "Some Considerations of Surgery."——Dr. Julius Proper, Manayunk, was painfully injured in a collision between his automobile and another car, April 10.——Dr. Lina D. Schwatt has been appointed clinical physician at the Philadelphia Hospital for the Insane, Byberry.

TEXAS

Legislature Passes Health Laws.—The thirty-fifth legislature, out of 900 bills introduced in the house and nearly 500 in the senate, enacted a number of important measures, of which several are health laws. An employers' liability act extends the time of medical compensation from one to two weeks. A vital statistics law establishes a state bureau of vital statistics under the state board of health. An intensive rural health law appropriates $70,000 for the state health department for cooperation with counties and with the Rockefeller Foundation for the control of malaria and hookworm. Bills were passed creating a northwest Texas insane asylum, a negro insane asylum, a school for the blind and a state training school for the adult blind. A quarantine station at Sabine Pass was also provided for. Free treatment for indigent patients threatened with hydrophobia also was provided. The annual tax of itinerant medicine vendors was increased from $50 to $100.

WYOMING

Sanatorium Dedicated.—The C. Dana Carter Sanatorium, Thermopolis, was formally dedicated, April 3. The exercises were the first that had ever been held in the state for a building erected on state grounds by private capital.

Scarlet Fever.—On account of the prevalence of scarlet fever in Laramie, the mayor issued a proclamation, April 3, ordering the closing of all schools, churches, and moving picture theaters in the city, and the calling off of all public gatherings and social affairs.

CANADA

Hospital News.—The provincial government of Manitoba has been approached by the trustees of the Winnipeg General Hospital for a grant of $50,000 for an annex to that institution for nervous and temporarily insane patients.——Plans for a new hospital at Fort McMurray, Alberta, have been prepared. It will be built by the Catholic mission.——In order to provide necessary accommodation for returned soldiers it has been decided to build a military hospital in connection with the Vancouver General Hospital. At the annual meeting of that institution recently, reports were submitted, and it was found that it cost $2.01 per patient per day. The deficit amounted to $55,301.70. More than 8,000 patients were admitted to the hospital in 1916. The deaths numbered 464. In the laboratories work has commenced on the colloidal gold chlorid test.

Personal.—Lieut.-Col. Alexander Primrose, Toronto, has been ordered to return to England for hospital work.——Major W. Harley Smith, Toronto, who has been on the staff of the Ontario Military Hospital, Orpington, England, has been ordered to France.——Dr. William H. Ellis of the University of Toronto has been given the degree of LL.D. by McGill University.——Dr. Thomas Jean Bourque, Richibucto, N. B., has been appointed a member of the Canadian Senate.——Dr. Arthur G. Price, Cowichan Station, B. C., has been appointed medical officer of health of Victoria, B. C., in succession to Dr. George A. B. Hall, who is on active service.——Lieut.-Col. George E. Armstrong, Montreal, has relinquished his temporary commission in the Canadian Army Medical Corps.——Lieut.-Col. Hugh Munroe, Saskatoon, Sask., officer in command No. 8 Canadian Stationary Hospital, has been given the command of the Canadian Military Hospital at Hastings, England.——Dr. Charles A. Temple, Toronto, has been transferred from Shorncliffe Hospital to Brighton, England.——Major Henry E. Kendall, Halifax, N. S., C. A. M. C., has been appointed to the command of No. 9 Stationary Hospital in succession to the late Lieutenant-Colonel McLeod.——Lieut.-Col. George MacDonald, M.D., Calgary, Alta., has been appointed to the command of Military District No. 13, Canada.——Capt. Charles A. Publow, C. A. M. C., Picton, Ont., has been appointed adjutant at Bramshott Military Hospital, England.——Capt. Robert M. Shaw, Sault Ste. Marie, Ont., and M. K. McIvor, C. A. M. C., Winnipeg, Man., are reported wounded.

GENERAL

Gastro-Enterologists to Meet.—The twentieth annual meeting of the American Gastro-Enterological Association will be held at the Hotel Traymore, Atlantic City, N. J., April 30 and May 1.

Cuban Women Organize Red Cross.—Under the leadership of Mme. Mariana Seva de Menocal, wife of the president of Cuba, society women in Havana, April 15, organized an active auxiliary for the American Red Cross.

Medicine and the Law.—At the annual convention of the Joint Association of Surgeons of the Illinois Central and Yazoo and Mississippi Valley Railroads, held in New Orleans, March 30, Hon. Hunter C. Leake, New Orleans, delivered an address on "Medicine Within the Law." Dr. William H. Wilder, district surgeon of the Illinois Central, at Birmingham, Ala., delivered an interesting address on "Preparedness in Industrial Medicine."

Internal Revenue Department Revokes Harrison Law Ruling.—Under date of April 10, the commissioner of internal revenue issued the following rule:

> The ruling contained in T. D. 2194, holding synthetic substitutes subject to the provisions of the Act of Dec. 17, 1914, and requiring manufacturers of, dealers in, and physicians prescribing any such substitutes, as therein defined, to register and otherwise conform to the Harrison Narcotic Law and the regulations issued thereunder, is hereby revoked, to take effect this date.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Hospital, Philadelphia, $1,000, by the will of Samuel Keyser.

Endowment Fund Association of the University of Cincinnati, the residuary estate of Mrs. Anna Hunt Heady, Glen Dale, estimated at $100,000, the income of which is to be used to endow a chair in the medical department of the university in the name of the husband of the testatrix, Dr. James F. Heady.

The Chicago Pavilion of the Jewish Tuberculosis Relief Society, Denver, $5,000, the proceeds of two plays at the Empire Theater, Chicago, April 11 and 12.

Northwestern Antituberculosis League of Pennsylvania, $1,000, by the will of Mrs. Joseph Seep, to be used in connection with permanent improvements at the Grand View Sanatorium, Oil City.

A New York hospital, for the establishment of a department of urology, nearly $4,000,000; Johns Hopkins Hospital, Baltimore, $300,000 to build the James Buchanan Brady Urological Institute, by the will of James Buchanan Brady.

New England Deaconess Hospital, Boston, $2,500; Worcester Memorial Home for the Blind, Worcester Home for Aged Men, and Worcester Home for Aged Women, each $1,000, by the will of Mrs. Lizzie J. Trowbridge, Northbridge.

American Ambulance, Paris, about $40,000 as the receipts of the presentation of French war pictures at the Auditorium, Chicago, in April.

Public Health Service Activities.—Surg. George B. Young will deliver a course of lectures before the Women's Branch of the Navy League, Norfolk, Va.——Surg. Benjamin S. Warren, Washington, D. C., has been detailed as medical officer for the United States Employees Compensation Commission to cooperate in the organizing and operation of the work.——Prof. Earle B. Phelps, Washington, D. C., has been directed to proceed to Tuscaloosa, Ala., for consultation with the local health authorities regarding the establishment of a municipal pasteurization plant.——Assistant Epidemiologist John C. Geiger, Huntington, W. Va., has been directed to proceed to such places as may be necessary in the southern states to make a malarial survey and to secure epidemiologic data relative to the disease.——Asst. Surg.-Gen. William Colby Rucker, Washington, D. C., delivered an address on the Public Health Service before the graduating class of Johns Hopkins University, Buffalo, March 28.——Surg. Mark

J. White, St. Louis, delivered an address on "Rural Sanitation," before the Illinois Public Health and Welfare Association at Springfield, April 12 to 13, and delivered a series of lectures on "Public Health" at the Conference of Health Officers, Rosedale, Kan., during the week beginning April 23.——P. A. Surg. John P. Leake, New Orleans, has been directed to proceed to Saluda, Va., to make an epidemiologic study of the prevalence of cerebrospinal meningitis.

FOREIGN

A New Journal on Orthopedic Surgery.—A new medical journal has been founded in Italy, with the title *Chirurgia degli Organi di Movimento*. The editor in chief is Professor Putti of the Rizzoli Institute for Orthopedics, connected with the University of Bologna. He is also incumbent of the university chair of orthopedics.

Marie Appointed to Dejerine's Chair.—P. Marie, professor of pathologic anatomy at the University of Paris, has been appointed to the chair of diseases of the nervous system, to succeed the late Professor Dejerine. Letulle, hitherto professor of the history of medicine, has been given the chair of pathologic anatomy.

Infantile Paralysis in Scandinavia.—Many cases of infantile paralysis are being reported from outlying districts in Sweden, Norway and Denmark. The naval schoolship at Copenhagen is said to have been vacated, April 11, on account of an outbreak of disease among the recruits. There were eleven cases of the disease on the ship, with three deaths, including one lieutenant in the navy.

Golgi Reaches Age Limit.—With the close of this term Italy loses from her teaching force, on account of the age limit, three well known professors, C. Golgi, professor of general pathology and histology at the University of Pavia, who has contributed so much to our knowledge of the nerve cell; G. F. Novara, professor of clinical surgery at the University of Genoa, and G. Roster, professor of hygiene at the University of Florence.

Deaths in the Profession Abroad.—D. Vitali, formerly professor of pharmaceutic chemistry at the University of Bologna, and author of over 200 works on pharmaceutic and chemical subjects, aged 85. His "Manual of Toxicologic Chemistry" and other books on changes and frauds in chemicals, his "Compend of Inorganic and Organic Chemistry" and others have been translated into other languages.——**L. Penix**, professor of pharmaceutic chemistry and toxicology at the University of Bologna, aged 55.—**A. Corona,** professor of experimental physiology at the University of Parma, aged 65.

LONDON LETTER

London, April 4, 1917.

The War

SURMOUNTING THE DIFFICULTIES OF DRUG SUPPLY DUE TO THE WAR

At the Royal Society of Arts, Mr. F. A. Hocking, pharmacist to the London Hospital, gave an interesting account of how the difficulties of drug supply due to the war had been partly surmounted. The difficulties were comparatively few, but formidable, and became intensified as the blockade of Germany became more stringent. They mainly concerned (1) the supply of raw material, particularly of potash and of bromin, and (2) the supply of synthetic and some other drugs. Potassium was obtained from Germany because Nature has endowed that country with huge deposits of two potassium compounds —kainite and carnallite—which can be exported at such a price as to render all other sources of potashes unremunerative. On the declaration of war, inquiries were instituted to discover other sources of supply, and the Imperial Institute has published the results in a pamphlet entitled "The World's Supply of Potash." Supplies can be obtained by revival of the kelp industry in Scotland and Ireland; but these are temporary, as the cost of production renders competition with the Stassfurt supplies impossible. Hopes are entertained that the discovery of large deposits of potash minerals in Spain may prove a serious competitor to the Germans in the future. The main difficulty now lies chiefly in supplying potash for artificial manures, for the relatively small requirements of medicine and of the arts have been met without great difficulty, but, of course, at a high price. Prior to the war the world's supply of bromin was derived from the United States and from Germany. The producers in these countries entered into arrangements whereby competition was largely eliminated, in consequence of which the Americans kept away from European markets. The blockade left the Americans master of the situation—a fact of which they were not slow to take advantage, for at one time the price of potassium bromid was $6 a pound, as compared with 37 cents before the war. Bromin, however, is now being prepared in France from sea water in large quantities, and at a price which enables it to compete with the American product. Undeserved blame has been heaped on English firms because they did not immediately undertake the production of synthetic drugs. The question has been frequently put, Why do not English firms commence the manufacture of these drugs and capture German trade? In the first place, the resources of British firms are taxed to the utmost in the endeavor to cope with the sudden and enormous demand for British products for the needs of the allied armies and of the civil populations. In the next place, armies of millions of men cannot be raised and at the same time leave a surplus of labor for new commercial enterprises. Moreover, plants and processes which have occupied the enemy years of thought and labor in bringing to their present state of perfection cannot be improvised in a day. For these reasons little was done in the early months of the war. A start, however, was first made in the east end of London with the production of salicylic acid and its compounds, possibly because the raw materials are easily obtainable and because the process of manufacture is relatively simple, and in the early spring of 1915 the London Hospital received 1 hundredweight of British-made sodium salicylate. Acetylsalicylic acid (aspirin) was the next item to be tackled, and although the early attempts were not satisfactory, difficulties have now been surmounted, and more than one manufacturer is turning out tons of this article of the highest degree of purity. Atropin sulphate, originally derived from Central Europe, is now being produced from Egyptian henbane in large quantities by at least two English firms. Other "German" drugs now being produced in this country are: absolute alcohol, lanolin, butylchloral hydrate, paraldehyd, lactic acid, homatropin, phenacetin, saccharin, salol, xeroform, novocain, salvarsan and potassium permanganate. The chemical laboratories and staffs of various university colleges have been pressed into this work.

LUNACY AND THE WAR: DECREASE IN THE NUMBER OF INSANE

The official report for the year 1915 states that, Jan. 1, 1916, the number of notified insane persons under care in England and Wales was 137,188, being less than that recorded, Jan. 1, 1915, by 3,278. This decrease may be contrasted with an increase of 2,411 recorded for the year 1914, and an average annual increase for the ten years ended Dec. 31, 1914, amounting to 2,251. Thus if that average rate had been maintained during 1915, the number under care, Jan. 1, 1916, would have been 142,717, or 5,529 above the actual record. It is noteworthy that this is the first occasion since reliable statistics have been available (since 1859) on which there has been a decrease in the numbers under care as compared with those of the year preceding. Except in 1885, 1886 and 1890, when such increase amounted to 452, 735 and 728, respectively, the numbers have been nearer 2,000 than 1,000, and since 1893 above the former figure, in all but four years, a maximum yearly increase of 3,235 being recorded in 1904. It is natural, therefore, to infer that the diminution bears some relation to exceptional conditions—social and economic—arising from the war. The admissions during the year were 21,173, or 2,055 below the number recorded in 1914, and of these, 17,710 were first admissions, being 547 below the decennial mean. The report suggests that as the decrease coincides with altered conditions arising from the war, an explanation might perhaps be found in a diminution of insanity owing (1) to the withdrawal from civil occupations of a large proportion of the male population; (2) in the great call for employment by both sexes alike, and (3) the increase in material prosperity afforded thereby. On the other hand, it is remarked that the direct and indirect effects of war in disturbing mental balance in those actively engaged in it, and the stress of anxiety and sorrow experienced by those at home are not to be ignored. These and certain other considerations, however, are regarded at this juncture as too speculative to be given much weight.

AMERICAN PHYSICIANS AT LONDON HOSPITAL

Reporting to the quarterly court of governors of the London Hospital, the committee of management stated that as the War Office had had to call up so many of their house physicians and house surgeons, they considered that the hospital was fortunate in having obtained the services of six

highly qualified American physicians. These men were specially selected for the hospital by Prof. Foster Kennedy of New York, and two had worked their passage over as ship stokers. Since the last court they had also engaged six women physicians, who were assisting efficiently.

The Lowest Infant Death Rate on Record

The registrar-general's annual summary of the marriages, births and deaths in England and Wales states that last year infant mortality was 91 per thousand registered births, being the lowest annual rate on record. In 1916, 785,454 births and 508,227 deaths were registered in England and Wales. The natural increase of population by excess of births over deaths was therefore 277,227, the average annual increase in the preceding five years having been 346,119. The number of persons married during the year was 558,454. Calculated on an estimated total population of 35,250,000, the marriage rate in England and Wales during 1916 was 15.4 per thousand, the birth rate 21.6, and the death rate 14.0.

The Unqualified Treatment of Venereal Diseases Penalized

The government has introduced a bill to prevent the treatment of venereal diseases otherwise than by duly qualified physicians. In moving the second reading, Lord Rhondda, president of the Local Government Board, said that the bill was based mainly on the recommendations of the royal commission, from whose report it appeared that 10 per cent. of the population was affected. The urgency of dealing with the diseases was great at any time, but it was far greater now, owing to the war, because the experiences of several centuries showed that after every great war there was a large increase of these diseases. The bill provided that if any person not a qualified physician treated the diseases or supplied remedies he should be liable on conviction on indictment to imprisonment, with or without hard labor, for a term not exceeding two years, or on summary conviction to a fine not exceeding $500, or imprisonment for a term not exceeding six months, with or without hard labor. Schemes for the treatment of these diseases by county councils and county borough councils had been submitted for a district covering a population in England and Wales of 23½ millions out of a total population of approximately 36 millions. Of these, schemes covering a population of 16 millions had been approved, so that in nearly half the country already there was provision made for free diagnosis and free treatment by qualified persons, and the practical difficulties which the commission had in mind had been removed. No doubt the bill would press a little hard on pharmacists, but he believed that as a whole they would offer no opposition. It would, no doubt, interfere to some extent with the livelihood of herbalists, but after receiving a deputation on the subject he saw no reason to change his view that they ought to stand firmly for the suppression of all unqualified persons.

PARIS LETTER

Paris, March 29, 1917.

"Technical Communications" of the Military Health Service

Some time ago the undersecretary of the military health service addressed to the sanitary formations so-called "technical communications" dealing with various subjects of medicine and surgery. These communications were intended to bring to the attention of the military service: (1) the scientific data or therapeutic procedures on which experience has thrown some light; (2) the theories susceptible of practical application, formulated by the learned societies with which the undersecretary of state has been in close communication and collaboration, or the periodical conferences of specialists held by them on their own initiative.

Vaccination Shock and Its Treatment

Under the name of "choc vaccinal," Méry and Hallé have described a syndrome which is sometimes produced by antityphoid and antiparatyphoid vaccination. The onset of this condition is sudden and severe, consisting of a distinct chill, marked prostration and a considerable elevation of temperature. The symptoms may be divided into two distinct groups, occurring in periods. The first group of symptoms embraces the gastro-intestinal manifestations (vomiting, sometimes intractable, diarrhea, often severe, and particularly fetid and watery) and always extreme asthenia with circulatory collapse (cyanosis, deafening of the heart sounds, fetal rhythm, weak radial pulse, sometimes imperceptible, hypotension, and mental torpor not unlike the meningeal state), to which are frequently added renal symptoms (anuria, scanty urine, and urine highly colored, rich in solids and even containing albumin) and sometimes incontinence of bowel and bladder. In exceptional cases there are symptoms of involvement of the liver and spleen. The symptoms of the second period often are not clear and may be inconstant, if treatment of the case is instituted early. They consist of hypothermia, a persistence of the circulatory collapse phenomena and sometimes renal symptoms, especially anuria.

Méry and Hallé advise that this syndrome of symptoms be treated thus: 1. Combat the asthenia and the circulatory collapse phenomena by means of epinephrin, giving during the first twenty-four hours a dose of from 0.001 mg. to 0.002 mg. either by mouth or, and preferably so, subcutaneously. If this route is chosen, the drug is dissolved in physiologic sodium chlorid solution (from 10 to 15 c.c. of solution) so as to avoid painful reaction. Whichever route is chosen, the daily dose, that is, for the twenty-four hours, should be divided so that each dose does not exceed 0.0005 mg. On the following day the daily dose of epinephrin, which should not exceed 1 mg., will be given in 0.25 mg. (0.00025 gm.) doses. One employs eventually in the same manner injections of camphorated oil. 2. Combat the anuria and the other renal phenomena by the injection of an isotonic glucose solution in dosage of from 200 to 300 c.c., repeated twice daily. In addition to such medication, during the period of shock and the days which follow, provided the condition of the stomach permits, the diet must be regulated, giving first sugar solution and then following with a milk diet.

In order to prevent the occurrence of this vaccination shock, Méry and Hallé recommend (1) to take all the necessary precautions to avoid chilling of the patient before and after the injection; (2) to place the patient in the sitting posture so as to avoid syncope; (3) to insist on quiet and rest in bed as soon as possible after the injection; (4) to place the patient on a strict diet the day before the injection is given, and (5) to confine the patient to the hospital the evening and night following each vaccination, and especially emotional subjects, neuropaths, the emphysematous and all those who need to be kept under surveillance.

Inconvenience of Repeated Surgical Intervention in the Case of Lesions of Peripheral Nerves

The Paris Neurologic Society, conforming to its established custom of cooperating with the office of the undersecretary of state of the military health service, has called the attention of Justin Godart to the inconvenience of repeated surgical interventions in the cases of lesions of peripheral nerves. In several cases in which they have done a suture of the nerve for complete or incomplete section, they have reoperated because of the painful phenomena which usually accompany the regeneration of nerve fibers. When one severs and sutures again the injured nerve, in spite of manifest signs of restoration of motor and sensory function, it is possible that paralysis in course of regression may again become a complete paralysis, while, for certain lesions of nerves, the question of a second intervention may sometimes be considered. This is not the case when signs of nerve regeneration are present. Therefore, the Neurologic Society insists on the following: 1. Tardy intervention should not be practiced unless a complete preliminary examination has been made in a neurologic center. 2. A second intervention should never be made without a complete study of the clinical history of the case from its very beginning, a review of the protocol of the first operation, and of the entire series of clinical examinations, as well as the electrical reactions.

Use of Cartilage Grafts in Wounds of the Eye

Dr. Magitot reported two cases of a lacerating wound of the eye caused by a projectile. In spite of the inevitable enucleation of the débris it was possible to make a mobile stump, thus permitting of the satisfactory use of a prosthesis. In one of the cases operation was rendered exceedingly complex by the laceration of the inferior eyelid, which Magitot was obliged to repair piece by piece. The mobile stump was made with the aid of a cartilage graft. Histologically this tissue is insusceptible to attack by micro-organisms, and its consistence makes it possible to suture to it the two lateral eyeball muscles, thus providing for lateral movement. This procedure is applicable in old as well as recent cases. The muscles were repaired in such a way that they could be recovered later, if necessary. When many months after the wounding all of the inflammatory phenomena had disappeared, nothing interfered with the removal of the dead cartilage and its replacement by a piece of living cartilage taken from the patient himself. One is assured of the survival of the graft. One of the patients had to be subjected to a second operation.

Marriages

William Sharpe Cranford, M.D., Meridian, Miss., to Miss Maude E. Parish of Memphis, Tenn., at New Orleans, February 18.

Edwin Barrett Wilson, M.D., New York, to Miss Bettie Turnbull of Carbondale, Pa., at Brooklyn, January 2.

William Benjamin Henderson, M.D., to Miss Bertha Mae Williamson, both of Hot Springs, Ark., April 14.

Robert Samuel Topping, M.D., Newark, N. J., to Miss Zoe Gayoso Barrow of New Orleans, April 17.

Otto B. Kiehl, M.D., Pittsburgh, Kan., to Miss Georgia Lee Howard of Parsons, Kan., March 30.

Lewis Webb Hill, M.D., Boston, to Miss Pauline Wyman Dexter of Brookline, Mass., recently.

James Edward Thiell, M.D., Belvidere, Ill., to Miss Nina Pitz of Manitowoc, Wis., April 11.

Robert B. Tyler, M.D., to Mrs. Rosa Olson, both of Joplin, Mo., at Neosho, Mo., March 31.

Deaths

Elmer Frederick Clapp, M.D., Iowa City; Bellevue Hospital Medical College, 1870; aged 74; a member of the Iowa State Medical Society; professor of anatomy in his alma mater from 1871 to 1889; secretary of the faculty from 1872 to 1879; surgeon to Mercy Hospital, Iowa City, and president of the medical board from 1873 to 1889; surgeon of the state militia and later division surgeon; a veteran of the Civil War; president of the Board of Trade of Iowa City for several years; local surgeon for the Rock Island and Burlington System; once vice president of the Iowa State Medical Society and of the Eastern District Medical Society of Iowa; secretary of the Johnson County (Iowa) Medical Society from 1873 to 1877, and president of the Iowa City Medical Society from 1877 to 1880; died in the Morris (Ill.) Hospital, April 12, from cardiac asthma.

Francis Dowling, M.D., Cincinnati; University of Munich, Bavaria, 1873; aged 68; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; for many years examining surgeon for the United States Marine Corps and Civil Service Commission, Cincinnati; an associate member of the French Society of Hygiene; who was given the Cross of the Legion of Honor four years ago, in recognition of his services in the field of French medical literature; died in the Cincinnati General Hospital, April 12, from cerebral hemorrhage.

George Stockton, M.D., Columbus, Ohio; Bellevue Hospital Medical College, 1875; aged 62; a Fellow of the American Medical Association, and a member of the American Medico-Psychological Association; professor of mental diseases in the Ohio Medical University, Columbus, since 1903; a member of the staff of the Columbus State Hospital for thirty years, and for eight years of that time superintendent of the institution; a member of the medical staff of the Rodebaugh Sanatorium, Columbus; died in that institution, January 9, from uremia.

Phillip Richard Taylor, M.D., Louisville, Ky.; Hospital College of Medicine, Louisville, 1887; aged 53; a Fellow of the American Medical Association; at one time dean of the faculty and professor of materia medica and therapeutics, and otology, rhinology and laryngology, and clinical professor of ophthalmology in his alma mater; a specialist on diseases of the eye, ear, nose and throat; died in his office in Louisville, April 8, from the effects of chloroform, self-administered, it is believed, with suicidal intent.

Milton D. Schumaker, M.D., Tarentum, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1888; aged 50; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania and president of the Allegheny County Medical Society; a specialist on diseases of the ear, nose and throat; who went to Albuquerque, N. M., in October last, in search of health; died in that city, April 11.

Robert Dalby Morgan, M.D., Slatington, Pa.; Maryland Medical College, Baltimore, 1910; aged 32; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; local surgeon of the Lehigh Valley System and health officer of Slatington; fell in the lobby of the Slatington Opera House, April 11, fracturing his skull, and died at his home, twenty minutes later.

Walter Wake McKenzie, M.D., Hamilton, Ont.; University of Toronto, Ont., 1914; aged 26; a member of the staff of the Hamilton Asylum for the Insane; a member of the Canadian Medical Association and an officer of the Canadian Army Medical Corps; on duty in the Shornecliffe Military Hospital, Shornecliffe, England; died in that institution, February 20, from cerebrospinal meningitis.

Thomas Alexander MacNicholl, M.D., New York; Bellevue Hospital Medical College, 1892; aged 49; a Fellow of the American Medical Association; secretary of the New York State Medical Alliance and vice president of the American Association for the Study of Alcohol and Narcotics; well known as a gynecologist; died at his home in Brooklyn, April 9, from heart disease.

Adam R. Ray, M.D., Brownlee, Neb.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 56; formerly a Fellow of the American Medical Association; local surgeon at Fairfield, Neb., for the Chicago, Burlington and Quincy, and St. Joseph and Grand Island railroads, and medical director of the Sons and Daughters of Protection; died in the Lincoln Sanitarium, March 27.

William Henry Winslow, M.D., Boston; University of Pennsylvania, Philadelphia, 1874; Hahnemann Medical College, Philadelphia, 1877; aged 76; an officer in the U. S. Navy during the Civil War; a specialist on diseases of the eye; author of many historical novels concerning the Civil War; died at his home in Roxbury, Boston, April 8, from pneumonia.

William Cyrus McGrath, M.D., Eagle Grove, Iowa; Northwestern University Medical School, Chicago, 1891; aged 54; a Fellow of the American Medical Association; district surgeon for the Northwestern System, and vice president of the American Association of Railway Surgeons; surgeon to the Eagle Grove Hospital; died in that institution, April 5, from pneumonia.

Robert Vernon Palmer, M.D., Livingston Heights, Va.; College of Physicians and Surgeons, Baltimore, 1894; aged 52; a member of the Medical Society of Virginia; who had been under treatment in the Georgetown University Hospital, Washington, D. C.; is said to have committed suicide, April 5, by hanging himself to the bedpost by a rope made of towels.

Joseph P. Pyle, M.D., Wilmington, Del.; University of Pennsylvania, Philadelphia, 1883; aged 57; a Fellow of the American Medical Association; founder of the Physicians' and Surgeons' Hospital, Wilmington; for several years a member of the board of water commissioners; died at his home, April 7, from diabetes.

Dayton Joseph Long, M.D., Piedmont, W. Va.; College of Physicians and Surgeons, Baltimore, 1897; aged 47; a member of the West Virginia State Medical Association; died in the Western Maryland Hospital, Cumberland, April 4, from injuries received in an automobile accident near Barton, March 24.

Charles Henry Blickensderfer, M.D., Shawnee, Okla.; University of Tennessee, Nashville, 1894; aged 50; a Fellow of the American Medical Association; local surgeon of the Rock Island System; was instantly killed, April 10, in a collision between automobiles in Shawnee.

Paul Bliss Noble, M.D., San Francisco; Cooper Medical College, San Francisco, 1900; aged 39; was found dead in his home, in Los Altos, April 10, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent.

John William Lindley, M.D., Natoma, Kan.; University Medical College, Kansas City, Mo., 1910; aged 36; a member of the Kansas Medical Society; was thrown from his automobile in an accident, March 26, and died a short time after from his injuries.

Caroline Root Conkey, M.D., Waterbury, Conn.; Women's Medical College of the New York Infirmary, New York, 1881; aged 72; a member of the Connecticut State Medical Society; died at her home, February 24, from acute parenchymatous nephritis.

Charles Bostic McDaniel, M.D., Rutherfordton, N. C., North Carolina Medical College, Charlotte, 1913; aged 27; a member of the Medical Society of the State of North Carolina; died at the home of his sister, in Rutherfordton, April 10.

Richard Paul Williams, M.D., Farmingdale, N. Y.; Long Island College Hospital, Brooklyn, 1908; aged 31; a Fellow of the American Medical Association; assistant attending surgeon to Mercy Hospital, Nassau; died at his home, April 14.

Francis H. Schoonmaker, M.D., Arlington, S. D.; Northwestern University Medical School, 1887; aged 69; a member of the South Dakota State Medical Association; died at his home, about April 12, from disease of the heart and kidneys.

Dana F. Bothwell, M.D., Pardeeville, Wis.; Ensworth Medical College, St. Joseph, Mo., 1892; aged 50; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, about April 8.

Bela Philander Scoville, M.D., Constantine, Mich.; University of Michigan, Ann Arbor, 1868; aged 74; formerly a Fellow of the American Medical Association; died at his home, April 7, from injuries received by being struck by an automobile.

Irvin J. Sampson, M.D., Mellette, S. D.; Baltimore Medical College, 1898; aged 45; a Fellow of the American Medical Association; while making a professional call at night, March 31, was drowned while attempting to ford a flooded creek.

Joseph Ellison Tucker, M.D., Lexington, Mo.; Missouri Medical College, St. Louis, 1881; Jefferson Medical College, 1889; aged 62; formerly a member of the Missouri State Medical Association; died April 8, after a surgical operation.

John Cassidy, M.D., South Bend, Ind.; Rush Medical College, 1868; aged 79; for nearly half a century a practitioner of South Bend; at one time a member of the board of school trustees; died at his home, April 5, from senile debility.

Lewis Washington Moyer, M.D., East Mauch Chunk, Pa.; University of Maryland, Baltimore, 1887; aged 51; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died April 12.

Galen Rood, M.D., Stevens Point, Wis.; Medical College of Ohio, Cincinnati, 1856; aged 87; formerly a Fellow of the American Medical Association; a pioneer practitioner of northern Wisconsin; died at his home, April 4.

James E. Clawson, M.D., Philadelphia; University of Maryland, Baltimore, 1855; aged 88; a member of the Medical Society of the State of Pennsylvania, and the Medical Club of Philadelphia; died at his home, April 13.

John Lysander White, M.D., Sacramento, Calif.; University of California, San Francisco, 1901; aged 42; a Fellow of the American Medical Association; was killed in an automobile accident in Sacramento, March 31.

Brainard W. Hines, M.D., Pilot, Va., formerly of Walcot, Va.; Winchester (Va.) Medical College, 1861; aged 82; a practitioner of Montgomery County for more than half a century; died at his home, April 6.

John Logan Thomas, M.D., Topeka, Kan.; John A. Creighton Medical College, Omaha, 1915; aged 32; a member of the staff of the Santa Fe Hospital, Topeka; died at Bassett, Neb., April 4, from pneumonia.

Reuben E. Buckmaster, M.D., New Ulysses, Kan.; Kansas Medical College, Topeka, 1894; aged 48; probate judge of Grant County, Kan.; died at the home of his sister in Dodge City, Kan., April 11.

Eleazer E. Rulison, M.D., Amsterdam, N. Y.; Albany (N. Y.) Medical College, 1881; a member of the Medical Society of the State of New York; died at his home, April 2, from heart disease.

Noel Bertram Ford, M.D., Springfield, Ill.; Meharry Medical College, Nashville, Tenn., 1906; aged 38; a colored practitioner; died in St. John's Hospital, Springfield, March 10, from pneumonia.

Lemuel M. Line, M.D., Columbus, Mont.; College of Physicians and Surgeons, Baltimore, 1884; aged 55; formerly a member of the Medical Association of Montana; died at his home, April 6.

Clyde Ammon Peters, M.D., Bloomsburg, Pa.; Jefferson Medical College, 1915; aged 23; died at the home of his father in Bloomsburg, March 8, from nervous breakdown.

Sumner Hale Hilliard, M.D., Mount Dora, Fla.; Hahnemann Medical College, Chicago, 1891; aged 58; formerly a practitioner of Warren, Ill.; died at his home, March 29.

Wilfred Newell Emery, M.D., Waltham, Mass.; Boston University, School of Medicine, 1891; aged 50; a specialist on diseases of the nose and throat; died at his home, April 6.

John Orlando Reed, M.D., Crafton, Pa.; Jefferson Medical College, 1893; aged 51; a Fellow of the American Medical Association; died at his home, April 5, from pneumonia.

James A. Henderson, M.D., Westmouth, Quebec; McGill University, Montreal, 1893; aged 48; assistant professor of anatomy in his alma mater; died at his home, January 2.

Waldo Hodges Stone, M.D., Attleboro, Mass.; formerly of Providence, R. I.; Boston University, School of Medicine, 1882; aged 61; died in North Rehoboth, Mass., April 6.

C. E. Frost, M.D., Duncan, Okla.; Missouri Medical College, St. Louis, 1878; aged 63; a Fellow of the American Medical Association; died recently at his home.

John Franklin Flint, M.D., Erie, Pa.; University of Michigan, Homeopathic Medical College, Ann Arbor, 1881; aged 74; died at his home, April 5, from influenza.

J. W. McCulloch, M.D., Argyle, Texas; Washington University, St. Louis, 1865; aged 78; died at his home, February 17, from septicemia following a carbuncle.

W. D. Wilson, Beebe, Ark. (license, Eclectic State Medical Board of Arkansas, 1883); aged 74; a merchant of Beebe for sixteen years; died at his home, March 1.

George Edward Friend, M.D., Stetson, Me.; Dartmouth Medical School, Hanover, N. H., 1895; aged 61; died at his home, January 29, from acute gastritis.

Ovila Mallet, M.D., Troy, N. Y.; Laval University, Montreal, 1880; aged 58; a Fellow of the American Medical Association; died at his home, March 25.

Edwin Henry Peck, M.D., Cleveland; Homeopathic Hospital College, Cleveland, 1867; aged 76; died in the Mount Sinai Hospital, Cleveland, April 8.

Duncan Hyndman, M.D., Norvell, Mich.; Western Reserve University, Cleveland, 1869; aged 71; died in Jackson, Mich., January 31, from paralysis agitans.

Martha E. Keller, M.D., Indianapolis; Hahnemann Medical College, Chicago, 1884; was burned to death in her apartment in Indianapolis, April 19.

James Locke Bowles, M.D., South Charleston, W. Va.; North Carolina Medical College, 1914; died at his home, January 14, from heart disease.

Clifford Vaiden McConnico, M.D., San Bernardino, Calif.; University of Pennsylvania, Philadelphia, 1902; aged 38; died at his home, about March 30.

Henry Elwood Retan, M.D., Phoenix, Ariz.; Detroit College of Medicine and Surgery, 1909; formerly of Sturgis, Mich.; died recently in Phoenix.

Wilbur F. Sadler, M.D., Montgomery, Ala.; College of Physicians and Surgeons, Baltimore, 1881; aged 69; died at his home, March 26.

Albert C. Phillips, M.D., Elk Point, S. D.; Sioux City, Iowa, College of Medicine, 1897; aged 43; died at his home, March 31, from pneumonia.

Ephraim A. Knodle, M.D., Arthur, Ill.; Missouri Medical College, St. Louis, 1893; aged 67; was found dead in his room in Arthur, April 3.

Otto B. Poppe, M.D., Chicago; Hahnemann Medical College, Chicago, 1870; aged 75; died at his home, April 15, from spinal sclerosis.

Theodore Louis Adams, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1880; aged 59; died at his home, April 12.

John C. Ducker, M.D., Alma Center, Wis.; Lincoln Memorial University, Knoxville, Tenn., 1894; aged 55; died at his home, April 7.

Francis Eugene Harpel, M.D., Danville, Pa.; Hahnemann Medical College, Philadelphia, 1871; aged 72; died at his home, April 3.

Ansel LeRoy Thomas, M.D., Bardstown, Ky.; University of Louisville, Ky., 1908; aged 33; died at his home, March 25, from nephritis.

William Gower Branscombe, M.D., New Bedford, Mass.; New York University, New York, 1867; died at his home, April 10.

Michael Lowenrosen, M.D., Chicago; Harvey Medical College, Chicago, 1897; died at his home, March 29, from pneumonia.

Emil Jeserich, Kansas City, Mo. (license, Missouri, 1873); aged 80; a practitioner since 1860; died at his home, March 30.

Dan Osro King, M.D., Auburn, R. I., Medical School of Maine, Brunswick, 1875; aged 66; died at his home, recently.

Correspondence

"PEPSODENT"

To the Editor:—Of the making of dentifrices there appears to be no end. One of the latest of the patented products "to end the plaque" and "to save the teeth" is called "Pepsodent." This tooth paste, which is said to do "what was heretofore impossible," is now being widely advertised as an "efficient mucin digestant." Its sponsors claim that "Pepsodent," when applied to the teeth as a dentifrice, attacks the mucin plaques which are "the source of most tooth troubles," and that *"Pepsodent attacks this plaque with pepsin."* The individual tubes containing this paste, as it is put on the market, are labeled: *"Pepsodent; proteolytic tooth paste (dental mucin digestant)."* Advertisements in dental journals assert that "the whole object of Pepsodent is to *dissolve* the film" (mucin plaque).

During the course of the research we have been conducting under the auspices of the First District Dental Society of the State of New York, Miss Franke and I took occasion, recently, to inquire into the validity of these plausible claims in behalf of "Pepsodent." We have found that none of these digestive claims is warranted in any degree.

"Pepsodent" is devoid of the digestive power on dental mucin plaques that is commercially ascribed to it. Mucin plaques cannot be digested from teeth by any advertised use of "Pepsodent." There is about as much common sense in the proposed application of "Pepsodent" for this purpose as there is in the oral administration of a few grains of lactopeptin to improve impaired tryptic digestion in the intestine.

The details of the biochemical findings that enforce these conclusions will be published in the next issue of the *Journal of the Allied Dental Societies.*

Our results make it evident that "Pepsodent" is put on the market in utter ignorance of the dental and biochemical principles involved, or with intent to mislead the multitude that may usually be deceived by plausible advertisement.

William J. Gies, New York.
Department of Biologic Chemistry, Columbia University, College of Physicians and Surgeons.

THE THOMPSON MALTED FOOD STOCK PLAN

To the Editor:—I want to call your attention to the efforts being made by the Thompson Malted Food Company in interesting the profession in the sale of their stock here. An agent of this company recently showed me a check from one of our leading physicians for $150, payable to this company for an interest in the business, as an inducement. I cannot see that this is any different morally than for doctors to be interested in certain dairies, or any other business, in which they and their patients have common dealings in the practice of their professions.

They offered to sell me stock, and I told them that under no conditions would I be financially interested in any surgical instrument house, drug store, milk concern or food company, all of which were necessary to the sick and to me in the practice of my profession.

The moral is that if a doctor becomes financially interested in a food factory, he will prescribe the product of that factory in preference to others, on the assumption that it is just as good as others, though it may be inferior. He will resolve any doubt that may exist, in his own interest, and he will be tempted to prescribe a certain food, as he would a certain drug or appliance, regardless of cost to the patient and whether necessary or not.

This agent showed me a list of physicians who were financially interested in this concern. I know of physicians and surgeons who have received commissions from surgical instrument houses for every abdominal belt or elastic stocking prescribed for their patients. Men who will do this would accept a commission from a drug store or food company.

As in "fee splitting," the patient is generally ignorant of the transaction. In the former, as in the latter, the physician would not wish the public to know of the transaction, or of his relation to the business. It is professionally indefensible, and if the profession permits a commercial organization to prescribe its code of morals it corrupts its own ranks and degrades the practice of medicine. It violates the time-honored traditions of the profession which in all times have made the medical profession distinct from other callings in its daily humanitarian services to the sick.

We cannot afford to permit the high aims and purposes of the profession to be abused and debased by the spirit of commercialism, which is common to the ordinary business affairs of life. For the good of the profession and the public, the standard should be exalted, not pulled down.

W. W. Grant, M.D., Denver.

[Note.—The stock-selling scheme of the Thompson's Malted Food Company has been in operation a good many years. In 1911, attempts were made to interest physicians by telling of the glowing prospects that might follow an investment. We have yet to hear of any dividends being paid. The Journal discussed this concern in the Propaganda Department, Oct. 24, 1914, and a reprint of this article will be sent on receipt of a 2 cent stamp. It seems worth while, in view of what Dr. Grant has said, to quote the closing paragraph of the article in question:

"Disregarding the question whether or not this is a stock jobbing scheme or whether the purchase of the stock is a good investment, there is another side to the matter. It must be evident that the public is not getting a square deal when physicians are financially interested in the products they prescribe for, or recommend to, the sick. Whatever the value of the Thompson products, the method of exploitation and the attempts on the part of the company to get physicians financially interested in its ventures are to be deprecated. If laymen of a speculative turn of mind wish to invest in the stock of companies putting out 'bottled energy,' 'blood builders' and 'nerve repairers' that is their business, but it is certainly neither conducive to the scientific practice of medicine nor to the interest of the public for physicians to be financially interested in products of this sort."

—Ed.]

COMPULSORY HEALTH INSURANCE

To the Editor:—Writing on the merits of the present propaganda for compulsory health insurance (The Journal, March 17, 1917, p. 865), Dr. Frederick L. Hoffman, statistician of the Prudential Insurance Company, arrives at the following conclusions:

"Thus, briefly restated, organized labor is not in favor of compulsory health insurance, but opposed to it; organized industry and business interests are not in its favor, but opposed to it; and the organized medical profession is not in its favor, but opposed to it."

If this is the situation, and if this situation is accepted as decisive and final, then what is the use of even talking about compulsory health insurance any further? A proposal to which all interested parties are opposed should have little chance of realization.

Surely the bare fact that a few misguided enthusiasts and fanatics in New York are advocating it would not be responsible for the entire movement.

That a real movement exists can scarcely be denied at present. Two state commissions on social insurance have already reported, and both enthusiastically, in favor of the principles of compulsory health insurance (California and Massachusetts), as any one can ascertain by consulting the published reports, or the extracts printed in the *American Labor Legislation Review* for March, 1917.

Governor Johnson of California and Governor McCall of Massachusetts have freely expressed their enthusiastic support of health insurance. What chance would there be for these two experienced and sagacious statesmen supporting a proposal to which employers, employees and the medical profession are opposed? Only a few days ago, the Ohio legislature passed a bill authorizing the appointment of a commission to study health insurance, and that there is great likelihood of similar commissions being appointed in other states as well Dr. Hoffman will not deny.

The facts cited by Dr. Hoffman in support of his broad assertion are of course correct, but they are one sided, and they do not offer a sufficient basis for the assertion.

1. Organized Labor: Mr. Samuel Gompers' opposition to compulsory insurance is well known, but it is far from being

decisive of the attitude of the membership of the American Federation of Labor.

It may be pertinent to point out that Mr. Gompers is also a very violent opponent of voluntary insurance of workingmen through private insurance companies.

It would not be fair, however, to draw the conclusion therefrom that all organized labor is opposed to life insurance, since industrial life insurance companies boast of over 35,000,000 policies in this country, most of them among wage workers.

Dr. Hoffman also refers to the resolution adopted at the last annual convention of the American Federation of Labor. The resolution was against compulsory insurance and especially against private insurance companies in industrial, social and health insurance.

After all, health insurance is a matter of state and not national legislation, for some time. The action of state federations of labor is perhaps equally important. Several state federations, notably those of Wisconsin, Ohio and Pennsylvania, have endorsed compulsory health insurance. The California federation referred the question to a committee, but the fact that the chairman of the federation, Mr. Murphy, is an advisory member of the Social Insurance Commission which strongly endorsed the compulsory plan, is strong evidence as to where labor stands in California.

The names of two or three individual representatives of organized labor are quoted in opposition to compulsion. May I quote, therefore, in support of compulsory insurance such men as William Green, secretary-treasurer of the United Mine Workers and a vice president of the American Federation of Labor: "I do not share the belief of some men that a compulsory plan of health insurance will be detrimental to the wage workers. I can conceive of no other plan which would be successful." The names of Mr. James H. Maurer, president of the Pennsylvania Federation of Labor, John Mitchell, James Duncan and John Golden, president of the United Textile Workers of America, may also be referred to.

Several large international unions have endorsed compulsory insurance, including the International Typographical Union, the United Textile Workers and the Ladies Garment Workers.

In short, organized labor is *not* opposed to compulsory health insurance, but its opinion is divided, with the advocates of compulsory insurance rapidly gaining as they are studying the subject.

2. The Medical Profession: Quoting Dr. Ira S. Wile's statement that "physicians in general are in favor of the general proposition of health insurance," Dr. Hoffman says, "This assertion is a flat contradiction to the fact that the American Medical Association has adopted no resolution on the subject one way or the other," etc.

We beg to submit that there is no such "flat contradiction" between an observation as to the opinion of "physicians in general" and a lack of formal endorsement of the great national association.

It is again true that physicians are not at all in agreement on the subject, and that in several localities medical organizations have gone on record as opposing health insurance. Some of them, as, for instance, the Medical Economic League of New York, have even adopted contradictory resolutions at different times. But at public meetings for discussion of social insurance, physicians' voices are heard both in support and in opposition to it, to which I can easily testify, having spoken before medical organizations in perhaps a dozen states.

3. Organized Industry: The National Association of Manufacturers had a committee on industrial betterment which *did*, after a careful consideration, clearly endorse compulsory insurance. It now appears that the association only *received* and did not accept this report. But that a growing number of large employers fully endorse the principle is evidenced by organizations of sick benefit funds, and in other ways. At the public hearings in San Francisco, Nov. 20-22, 1916, several of the largest employers came out in favor of compulsory health insurance, as, for instance, Col. H. Weinstock, the "Emporium Department Store" and others.

It is an oversight that in the list of the opponents of compulsory health insurance the strongest of them were not mentioned by Dr. Hoffman. These are the private insurance companies, operating directly and through their state insurance federations. After fighting fraternals for years, they have fallen in love with them in California in order to use them in their fight against health insurance. Here is what the Fresno *Republican* (Mr. Chester Rowell's paper) says of this phase:

> With amusing stupidity the argument contends that social insurance is a fatally bad policy for the people, but it will be all right provided the insurance companies are permitted to get their share of the business. It is the stock companies who are paying for this page, and they are trying to crawl in under the protection of the fraternal companies, which there is no purpose in injuring.

Though exploiting the medical profession for five years under compensation, they have engineered a campaign among medical societies in New York City for which unfortunately many physicians have fallen, so that for several weeks a prominent spokesman of the casualty companies was present and spoke at a large number of meetings. And now the casualty companies applaud Mr. Gompers, whose frank opinion of private insurance companies I have quoted above.

I think it would be well if the motives of this campaign were examined by fraternals, labor and physicians, for it has been repeatedly admitted that this opposition of insurance companies would disappear if they were permitted to come in and make profits.

In a page advertisement in the San Francisco *Chronicle*, January 17, these insurance companies stated that: "The proper economic solution of this problem calls for the retention in the field of all carriers and agencies now in existence. . . . Any plan adopted by this or any other state should retain stock insurance organizations." *There* is the true motive of the most obstinate opposition, often disguised and always misleading.

I. M. RUBINOW, M.D., New York.
Executive Secretary, Committee on Social Insurance, Council on Health and Public Instruction, American Medical Association.

DUTY OF PHYSICIANS IN URGING ECONOMY OF FOODSTUFFS

To the Editor:—There is danger of shortage in the food supply, particularly of wheat foodstuffs. Every effort, therefore, should be made to meet this contingency. Physicians should realize that they can help in this important form of preparedness.

At the present time, the kind of flour which is employed most widely, the patent flour, contains only from 60 to 65 per cent. of the wheat berry. The remainder is utilized mainly for cattle feed.

Flour which is made of 75 per cent. of the wheat berry is only a little darker in color than the patent flour, and the bread made from it is only slightly less white. Its cost is less and its nutritional value is great, as it contains the bran and the embryo, which have particular virtues. From an economic point of view, it would seem desirable to substitute the coarser type of flour for one that is superrefined. In England at the present time, the mills are required to use 76 per cent. of the wheat in making flour.

It requires no comment to indicate what a saving of 10 per cent. in the utilization of the wheat berry would mean in relation to the wheat crop of the United States, which aggregates hundreds of millions of bushels. The main difficulty in accomplishing this change is the education of the public. The millers are quite willing to supply the grade of flour which the public demands. An educational propaganda is needed to inform the people of the urgent necessity of this economy and also to assure them that the alteration in diet would have no deleterious effect on their health. It would seem that such a propaganda could best be undertaken by the 140,000 or more physicians throughout the United States. If they served on their tables bread made from a coarser flour and if they urged its use to their patients, there would be more likelihood of its general adoption than if it were urged

by those whose opinion did not carry the weight of medical authority.

There are a number of other economic dietary measures which could well be urged by the physician, for example, the extended use of rice, more particularly unpolished rice (as is well known, unpolished rice possesses food value which is lacking in the polished variety), and the use of corn cereals, such as hominy, or the use of whole wheat instead of the refined wheat cereals. A personal experience last year showed that even small infants thrive on a cereal composed of two-thirds farina and one-third wheat middlings or germ.

The use of margarin as a substitute for butter would constitute another economy. The sale of skimmed milk, which is now prohibited by the sanitary codes of New York and many other cities, should be encouraged for its use in cooking. These and many other changes of diet could be carried out to advantage, primarily in the households of physicians and in the many institutions with which they are connected. This embraces a large field when we consider that the dietary of thousands of people in various hospitals, homes and asylums throughout the United States is controlled or guided by the opinions of their physicians.

Alfred F. Hess, M.D., New York.

PRIORITY IN OBSERVATION OF AUSCULTATORY BLOOD PRESSURE DETERMINATION PHENOMENA

To the Editor:—In The Journal, April 14, 1917, p. 1088, Cooke and Taussig call attention to certain abnormalities in auscultatory phenomena which they preface by stating that "it has doubtless been observed by others, but so far as we know there is no mention of it in the literature." I wish to put on record the fact that in the second edition of my book on "Blood Pressure," prepared in 1915 and printed in September, 1916, casual mention of the occasional absence of the second phase was made on page 97, while on page 320 a chart indicates this phenomenon and specific mention is made of it.

Francis A. Faught, M.D., Philadelphia.

SWINDLER WITH A HARD LUCK STORY

To the Editor:—There is a slick individual hereabouts who works on the sympathy of the doctors by means of a hard luck story.

He is about 25 or 30, dark complexioned, about 5 feet 5, weighs about 130, is thin and anemic, and speaks with a German accent.

After insinuating himself into the inner office he points to a scar on his right cheek and asks if the doctor remembers having operated on him. Then he goes on to say that in an automobile trip he ran short of funds, which never happened to him before, and all he wants is just enough money, $4, to get home, when he will promptly return the money.

He got $4 from me and $9 from another doctor.

The publication of this letter may be the means of having the swindler caught and his dream of easy money not too joyously ended. Walter A. Landry, M.D., Chester, Pa.

The Loss from Alcoholism.—We lose each year in New York as many lives from alcoholism as the devastating epidemic of infectious colds cost the city of New York last winter, as many as all the deaths from the epidemic of poliomyelitis which has raised the whole Eastern coast of this country to a point of panic. And what is to be done, and what has been done to prevent these regiments and more from marching this year, as last, out of New York City to the graveyards? Education coupled with enthusiasm must not be mistaken for fanaticism. Legislation has never changed habits, but may follow a change in popular convictions. To convince the people of this country that the use of alcohol internally is to their disadvantage would seem a simple matter to any one with an elementary understanding of physiology and the action of the anesthetic group of drugs.—Haven Emerson, M.D., "Preparedness for Health."

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INTRADURAL INJECTION OF SALVARSAN—BOOKS ON LABORATORY TECHNIC

To the Editor:—1. Where can I obtain the technic employed for the intradural injection of salvarsan or salvarsanized serum? I am familiar with the method used, some months ago described in The Journal, which consists in the withdrawal of 60 c.c. of blood and the injection of a 40 per cent. solution into the spine one hour after giving salvarsan. I understand that the method is changed both as to the amount given and the location, the injection being directly into the intradural cavity.

2. I should like your advice as to what book to use for laboratory methods. Louise H. Rice, New Castle, Ind.

Answer.—1. The intradural injection of salvarsan, as described by U. J. Wile ("Treatment of Syphilis of the Nervous System by Intradural Injections [Old Salvarsan]," *Jour. Lab. and Clin. Med.,* November, 1915), is as follows:

The patient is punctured in the usual Quincke position, lying on his left side. After the canal has been successfully entered, the barrel of a 40 c.c. Lüer syringe is attached to the needle by means of rubber tubing about 8 inches long. The cylinder barrel is then lowered below the level of the point of puncture and the fluid is collected until about 10 c.c. have flowed back. The salvarsan is a freshly prepared solution of 1 decigram to 30 c.c. of water. Of this solution an amount corresponding to one-third milligram (approximately 2 minims) is now carefully dropped into the fluid by means of a specially graduated syringe, the assistant in the meantime holding the barrel containing the fluid. The 2 drops are carefully stirred into the cerebrospinal fluid by means of a sterile glass rod. The syringe barrel is then raised above the level of the puncture, and the salvarsanized cerebrospinal fluid is allowed to run back into the canal by gravity. The patient is then placed on his back and the bed elevated from six to twelve hours and the patient kept in bed for forty-eight hours, after which he is permitted to get up. Strict surgical technic is observed throughout the procedure.

2. A selection from the following list should be satisfactory:

Webster, R. W.: Diagnostic Methods, Ed. 5, Philadelphia, P. Blakiston's Sons Company, 1916, $4.50.

McJunkin, F. A.: Hospital Laboratory Methods for Students, Technicians and Clinicians, P. Blakiston's Sons Company, 1916, Philadelphia, $1.25.

Hill, Lewis Webb: Manual of Practical Laboratory Diagnosis, Boston, W. M. Leonard, $1.50.

Williams, B. G. R., and E. G. C., with Introduction by V. C. Vaughan: Laboratory Methods, with Special Reference to Needs of the General Practitioner, St. Louis, C. V. Mosby Company, 1915, $2.50.

Barton, W. M.: Manual of Vital Function Testing Methods and Their Interpretation, Boston, Richard G. Badger, 1916, $1.50.

Sahli: Diagnostic Methods of Examination, Philadelphia, W. B. Saunders Company, $6.50.

Emerson, C. B.: Clinical Diagnosis, Philadelphia, J. B. Lippincott Company, $5.

ORDERS FOR DRUGS FOR PATIENTS IN HOSPITALS DO NOT HAVE TO BEAR REGISTRY NUMBER OF PHYSICIAN

To the Editor:—If I write an order for codein, ⅛ grain, every three hours, on the order book of a hospital, is it necessary to give my registered number and is it necessary that I should make a note of it on my narcotic book? W. J. Thornton, M.D., Cleveland.

Answer.—Article 10, Revised Internal Revenue Regulations No. 35, issued May, 1916, provides that hospitals and similar institutions are required to keep accurate records of all narcotic drugs used therein. No special form of record is required, but it must enable an inspecting officer to estimate quickly the quantity and kind of narcotic drugs used and show the names and addresses of patients to whom administered and indicate the authority for such administration. The initials of the physician giving order for the administration of a narcotic should appear on the chart of the patient, or separate prescriptions should be required by the pharmacist in charge of the drug room before the narcotic leaves his possession.

Narcotic drugs ordered for patients in the hospital should be entered on the history sheet and should bear the initials of the physician ordering the drug.

Drugs so ordered are not required to be registered in the narcotic register of the physician. Article 10 of the revised

regulations provides that a record must be kept of all such drugs dispensed, distributed or administered in his office and all such drugs left with any person or patient to be taken in his absence. An order on a hospital history sheet, however, does not constitute dispensing drugs. It is the same as a prescription. The responsibility for keeping this record and making it acceptable to the inspector lies with the hospital and not with the physician. Physicians are required only to enter in their record drugs which are actually dispensed by themselves.

BERTRAND'S MODIFICATION OF FEHLING'S SOLUTION

To the Editor:—Please let me know where I can find reference to Bertrand's modification of Fehling's solution. Please omit my name in answering.

M. W.

ANSWER.—According to Merck's "Reagenzien-Verzeichnis" (Chemical Tests), 1913, Bertrand's reagent for the estimation of glucose is as follows:

A. Copper Solution: Copper sulphate, 40 gm., to 1 liter of water.

B. Alkaline Solution: Rochelle salt, 200 gm., sodium hydroxid, 150 gm., to 1 liter of water.

C. Iron Solution: Ferric sulphate, 50 gm., sulphuric acid, 200 gm., to 1 liter of water.

D. Permanganate Solution: Potassium permanganate, 5 gm., to 1 liter of water.

By heating the alkaline copper solution (made from Solutions A and B) with glucose, cuprous oxid is formed. This is treated with the ferric sulphate solution, and the ferrous sulphate so formed is titrated with the solution of potassium permanganate. Full details of Bertrand's method, as well as a modification of it may be found in "Physiological Chemistry" by Albert P. Mathews, Edition 2, pages 990-996.

EXTRA-UTERINE PREGNANCY WITH RETENTION OF FETUS

To the Editor:—I have recently had under my care a patient in whom exploratory laparotomy revealed a full term ectopic gestation with death of the fetus and retention for eight months. I am anxious to get some literature on this rare condition, and should be pleased if you would publish references.

EDGAR G. MATHIS, M.D., Austin, Texas.

ANSWER.—

Jardine: Case of Extra-Uterine Pregnancy Beyond Full Time, *Glasgow Med. Jour.*, September, 1916.
Farrer, E. M.: Case of Extra-Uterine Pregnancy with Prolonged Retention (Two Years) of Fetus, *Lancet*, London, Sept. 26, 1914.
Clineco, A., and Lombardo, M.: Relics of Three Ruptured Tubal Pregnancies of Different Dates Found at Laparotomy, *Semana méd.*, Aug. 7, 1913.
Yeager, F. N.: A Case of Ectopic Gestation at Full Term with Fetus Carried in Abdomen for Thirty-Five Years, THE JOURNAL, Aug. 10, 1912, p. 443.

PARAFFIN

To the Editor:—In the article by Lieut.-Col. A. J. Hull of the Royal Army Medical Corps (JOURNAL A. M. A., Feb. 3, 1917, p. 373) a formula is given in which "Paraffin molle [soft]" and "Paraffin durum [hard]" occur. Does this mean that a mixture of a soft grade of solid paraffin and a harder grade is to be made? Please do not use my name if you answer in THE JOURNAL.

A. B. C., St. Louis.

ANSWER.—"Paraffinum durum" of the British Pharmacopeia corresponds closely to the product sold in this country as paraffin or solid paraffin. On the other hand, "Paraffinum molle" is not soft, solid paraffin, but is essentially the substance which in the U. S. Pharmacopeia is called petrolatum. In other words, Lieut.-Col. Hull's formula directs the use of solid paraffin and ordinary petrolatum.

ABROGATE THE PATENT ON SALVARSAN

To *the Editor:*—In a recent issue of THE JOURNAL you stated that Mr. Metz had informed you that there was an ample supply of salvarsan and neosalvarsan for immediate use. I am unable to get it at all, whereas two months ago I was using, on an average, fifteen ampules weekly.

My telegrams and letters to Farbwerke-Hoechst Company, 111 Hudson Street, New York, are ignored absolutely. If there is any way I can assist in helping to get the patent off this valuable product, kindly let me know.

E. L. BIGGS, M.D., Los Angeles.

ANSWER.—Yes: Write your congressman and senators and ask them to do their best to get the patent abrogated. And get others, laymen and doctors, to do likewise.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.
ARKANSAS, ECLECTIC: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.
ARKANSAS, HOMEOPATHIC: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.
GEORGIA: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.
HAWAII: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.
ILLINOIS: Chicago, May 3-5. Sec., Dr. C. St. Clair Drake, Springfield.
LOUISIANA: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.
MASSACHUSETTS: Boston, May 8-10. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
NEVADA: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.
NEW YORK: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.
OREGON: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.

Extension of Time Granted by Ohio Board to Graduates of Chicago College of Medicine and Surgery

The following resolution was adopted by the State Medical Board of Ohio at its meeting held April 3, 1917:

GEORGE H. MATSON, Secretary.

WHEREAS, The attention of the board has been called to the fact that several students, residents of Ohio, have obtained diplomas of graduation from the Chicago College of Medicine and Surgery since June, 1912, and other students residing in Ohio are now in attendance at the same institution, and,

WHEREAS, The board in October, 1911, declared this institution unworthy of recognition and refused to accept for registration diplomas granted subsequent to June, 1912, therefore be it

Resolved, That in order to work no undue hardship on such graduates, or the students now in attendance at the Chicago College of Medicine and Surgery, a diploma of graduation from this institution, granted prior to July, 1917, will be accepted for registration provided the applicant presents with it a certificate of intern service from a hospital approved by the board as competent to teach interns, which certificate must indicate a full and satisfactory service of not less than twelve months; be it further

Resolved, That the secretary of this board be directed to cause the publication of this action in order to prevent any further misunderstandings on the part of those now in attendance at the Chicago College of Medicine and Surgery.

Illinois Reciprocity Report

Dr. C. St. Clair Drake, secretary of the State Board of Health of Illinois, reports that the following candidates were licensed through reciprocity:

FROM JAN. 1 TO MARCH 31, 1916

College	Year Grad.	Reciprocity with
Keokuk Medical College, Coll. of Phys. and Surgs.	(1908)	Arkansas
Kentucky School of Medicine	(1905)	Indiana
University of Louisville	(1914)	Kentucky
Kansas City Hahnemann Medical College	(1910)	Kansas
National University of Arts and Sciences	(1914)	Missouri
John A. Creighton Medical College	(1911)	Nebraska
Marquette University	(1914)	Wisconsin
University of Heidelberg	(1905)	Wisconsin

FROM APRIL 1 TO JUNE 30, 1916

George Washington University	(1905)	U. S. Navy
Hering Medical College	(1913)	Kentucky
Northwestern University	(1911)	N. Dakota
State Coll. of Phys. and Surgs., Indiana	(1907)	Indiana
Keokuk Med. Coll., Coll. of Phys. and Surgs.	(1907)	N. Dakota
University of Louisville	(1912) (1915)	Kentucky
Tulane University	(1914)	Louisiana
Baltimore Medical College	(1907)	Indiana
University of Maryland	(1903)	Maryland
St. Louis University	(1911) (1912) (1913) (1914)	Missouri
John A. Creighton Medical College	(1911)	Nebraska
Ohio State University, College of Medicine	(1915)	Ohio
Vanderbilt University	(1908)	Kentucky
Marquette University	(1915)	Wisconsin
Trinity Medical College	(1901)	Michigan

FROM JULY 1 TO SEPT. 30, 1916

Chicago College of Medicine and Surgery	(1913)	Missouri
Indiana University	(1908)	Indiana
University of Michigan, Homeopathic Medical School	(1909)	Michigan
Beaumont Hospital Medical College	(1900)	Missouri
Cleveland College of Physicians and Surgeons	(1912)	Ohio
Vanderbilt University	(1915)	Kentucky

FROM OCT. 1 TO DEC. 31, 1916

Rush Medical College	(1913)	Missouri
University of Michigan, Homeo. Med. School	(1914)	Michigan

University of Michigan Medical School	(1914)	Michigan
National University of Arts and Sciences	(1915)	Missouri
St. Louis University	(1914)	Missouri
Western Reserve University	(1911)	Ohio

Nebraska November Report

Dr. E. Arthur Carr, secretary of the Nebraska State Board of Health, reports the oral, practical and written examination held at Lincoln, Nov. 8-9, 1916. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 12, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	80.2
Bennett Medical College		(1915)	76.6
Chicago Coll. of Med. and Surg.	(1914) 75;	(1916)	81.4, 82.4
Harvard University		(1916)	84
John A. Creighton Medical College	(1915) 86;	(1916)	77.9
Lincoln Medical College		(1916)	75, 80.5
University of Nebraska		(1916)	80.1, 82.4

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that the following candidates were licensed through reciprocity from Aug. 28 to Dec. 22, 1916:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1905)	Arkansas
University of Colorado		(1907)	Colorado
Bennett Medical College		(1913, 2)	Illinois
Illinois Medical College		(1900)	Illinois
Northwestern University		(1915)	Illinois
Rush Medical College	(1911)	(1914, 4)	Illinois
University of Illinois	(1911, 2)	(1914)	Illinois
		(1913)	Missouri
University of Louisville	(1910) Virginia;	(1915, 2)	Kentucky
Tulane University of Louisiana		(1913)	Louisiana
Johns Hopkins University	(1901) (1902) New York;	(1908)	Maryland
Detroit College of Medicine		(1894)	Iowa
University of Michigan Med. School		(1904)	Alabama
Barnes Medical College		(1897)	Missouri
St. Louis University	(1904) Illinois;	(1913) (1914)	Missouri
Washington Universitiy		(1911)	Illinois
Dartmouth Medical School		(1883)	New Hamp.
New York University		(1898)	Nevada
Cincinnati College of Medicine and Surgery		(1899)	Ohio
Cleveland College of Physicians and Surgeons		(1908)	Ohio
Laura Memorial Woman's Medical College		(1901)	Ohio
Hahnemann Med. Coll. and Hospital of Philadelphia		(1905)	Penna.
Jefferson Med. Coll. of Philadelphia		(1914)	Penna.
Medico-Chirurgical College of Philadelphia		(1897)	Penna.
University of Pennsylvania		(1907)	Penna.
University of Nashville		(1901)	Arkansas
Vanderbilt University		(1914)	Tennessee
Medical College of Virginia		(1915)	Virginia
Marquette University	(1915)	(1916)	Wisconsin
Wisconsin College of Physicians and Surgeons		(1907)	Wisconsin
McGill University		(1906)	Maine

Pennsylvania Reciprocity Report

Mr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports that 6 candidates were licensed through reciprocity from Aug. 29 to Dec. 16, 1916:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University		(1903)	W. Virginia
Johns Hopkins University		(1912)	Maryland
Dartmouth Medical School		(1911)	New Hamp.
Starling-Ohio Medical College		(1908)	Ohio
Western Reserve University		(1911)	Ohio
University of Texas		(1914)	Missouri

New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that twelve candidates were licensed on satisfactory credentials at examination held at Sante Fé, Jan. 8-9, 1917. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
University of Colorado		(1912)	1
Hahnemann Medical College and Hospital of Chicago		(1893)	1
Northwestern University		(1916)	1
Rush Medical College		(1916)	1
University of Louisville		(1912)	1
Tulane University of Louisiana		(1907)	1
Baltimore Medical College		(1906)	1
College of Physicians and Surgeons, Baltimore		(1904)	1
Bellevue Hospital Medical College		(1884)	1
McGill University		(1888)	1
National School of Medicine, Mexico	(1899)	(1911)	2

Book Notices

Diseases of Children. By Edwin E. Graham, A.B., M.D., Professor of Diseases of Children in the Jefferson Medical College. Cloth. Price, $6. P. 902, with 93 illustrations. Philadelphia: Lea and Febiger, 1916.

This book was written, its author declares, not from a theoretical but from a practical standpoint. Special effort, he states, has been made to bring the book thoroughly up to date. All of the important matters included in this very important branch of medicine have been treated, especial attention being paid to such subjects as infant mortality, heredity, environment, puberty, fresh air, and diseases of the liver, spleen and thymus glands, all of which, in view of their increasing importance to the practical physician, have been allotted separate chapters.

In a work so comprehensive in scope, it is naturally difficult to present the facts with the clearness and coherence required for complete understanding. The chapter on infant mortality and general statistics contains sixteen pages of statistical information, quoted from numerous authors. These are loosely collected, somewhat difficult to read and more difficult to follow. The author, moreover, has drawn no definite conclusions or deductions from the figures, which should have been done to make them of value. The chapter on heredity is not set forth with sufficient clearness, even for the student who is familiar with the theories and speculations on the subject, while to the uninitiated it cannot fail to be misleading. For example:

> The individual inherits one half of his characters from the two parents, one fourth from the four grandparents, one eighth from the great-grandparents, one sixteenth from the great-great-grandparents, and so on. This is true, not so much in an individual case, as when a large number of individuals are observed in the aggregate.

This is rather a dogmatic statement, and not entirely in accord with modern ideas on the subject.

The photographic reproduction on page 139, illustrating a case of achondroplasia, is more suggestive of a severe case of rickets with infractions than a typical case of achondroplasia. The following describes the mental characters of achondroplasic children:

> Mentally the children are usually rather subnormal, but their mental powers are not markedly defective and they may even be normal. As a rule, however, they develop slowly, are late in talking, and behind the normal child in acquiring knowledge.

These contradictory statements would leave one in doubt as to the mental status of these children if one did not know from previous knowledge that the vast majority of these children are mentally normal. Other incoherent and contradictory statements follow, and the chapter concludes:

> Many of the children die during birth or owing to poor development afterward. Others, as has been stated, may live to extreme old age. They may marry and have children, and their offspring may show either achondroplasia or be absolutely normal.

The arrangement of the presentation of the subject of gastro-intestinal diseases of infancy is rather faulty. In Chapter IX, treating of the child's normal digestion, considerable space is devoted to nutritional disturbances, particularly to the classification of Czerny, Keller and, to a less extent, that of Finkelstein. Then, in Chapter XIII, after a lapse of four chapters, the subject of the diseases of the gastro-intestinal tract is resumed. Having considered dyspepsia according to the classification of Finkelstein on page 206, the author reintroduces the subject on page 267. In the latter instance he treats of fat indigestion, carbohydrate indigestion, protein indigestion, and closes with a discussion of acute gastric indigestion. The confusion is aggravated by a subsequent chapter on acute gastritis and acute gastroenteritis.

On page 150, discussing the use of alkaline diluents, the author advises lime water or sodium bicarbonate, saying, "It is a matter of clinical experience that the addition of either of these alkalies is of service in infant feeding, and their *beneficial* effect is due to the fact that they tend to retard the action of the rennet ferment in the stomach on the casein." On page 189 the author sees the advantage of Nature's effort to coagulate milk in the stomach by means of rennin and by delaying the passage of food into the duodenum. This forma-

tion of curd should, therefore, be encouraged, he concludes, evidently on second thought, as it probably influences the muscular development of the organ to considerable degree. To say the least, there is in these few pages a rather remarkable change of mind.

The value of the book is further impaired by the carelessness of statement in which the thought is insufficiently worked out. In treating the subject of tetanus in the newly born, the author advises that the antitoxin be administered by lumbar puncture, intravenously or subcutaneously. He does not speak of the difficulties or the dangers attending the injection of the antitoxin into the central canal of the spinal cord. He not only fails to speak of the difficulty of the intravenous method of injection, but he makes no suggestion whatever as to the technic of such injection. While the latter method may be dismissed in a summary manner, every one of experience knows that to inject into the vein of the young infant is an extremely difficult operation, feasible only in rare instances. As a rule it is impossible.

The chapter on asthma in infants omits some important data, for instance, the relationship of eczema to asthma. The subject of exudative diathesis is neither affirmed nor denied. It is not even mentioned. In the chapter on tuberculosis, the investigations of Gohn and his students, referring to the primary bronchogenic lesion, are not mentioned.

RECOLLECTION OF AN ALIENIST, PERSONAL AND PROFESSIONAL. By Allan McLane Hamilton, M.D., LL.D., F.R.S. Cloth. Price, $3.50 net. Pp. 416, with illustrations. New York: George H. Doran Company, 1916.

"I was born in the year 1848, 'the year of trouble,' when most of Europe was in a turmoil" is the first sentence in the first chapter of this book. Being of a noted family—he was the grandson of Alexander Hamilton, the great federalist—it was natural that the author in his younger days should be brought into contact with noted men of the period—with such men, for instance, as Washington Irving and Tom Moore, and later in life with Pierpont Morgan, Max Bierbohm, Abraham Lincoln, Professor Hutchings, the lightning calculator, and Louis Agassiz. It is the fact of his wide personal acquaintance with men of note both in this country and abroad that makes these recollections interesting reading. One could wish that fewer people had been referred to and that more was said about the prominent ones.

As Dr. Hamilton had a busy professional life in a large city, came in contact with all classes and conditions of men, and in addition has been a world traveler, his recollections naturally cover a wide observation of men and of affairs. The book covers a period of more than half a century and includes comments on exciting times, taking in the Civil War, and memories of active and well known personalities.

The later chapters, constituting about a third of the book, are of special interest to medical men. They are devoted almost entirely to professional matters, and call to mind many incidents that were of national importance or the subject of newspaper notoriety. The Dis Debar case is one of these. This, it will be remembered, concerned a woman spiritualist entrapping a distinguished lawyer. Then, the sensation caused by the necropsy made on the famous mind-reader Irving Bishop aroused much interest at the time, and it will be remembered, in connection with this, that Dr. J. A. Irwin and Dr. Frank Ferguson, who performed the postmortem, obtained some unpleasant notoriety through its being alleged, without any basis in fact, that Bishop was not dead but in a trance when the necropsy was made. There also are mentioned other more or less noted cases in which alienists especially would be directly or indirectly interested.

Of particular interest is the chapter on "Political Murders," in which Dr. Hamilton gives us the alienist's point of view of Booth, Guiteau and Czolgosz, the assassins, respectively, of Presidents Lincoln, Garfield and McKinley.

The author devotes one chapter to a description of his visit to Mrs. Mary Baker Glover Eddy. It is enlightening and so lacking in prejudice or bias that even the Christian Scientist can read it with profit and without taking offense.

While it was written with the lay reader in mind, physicians will find the book both instructive and entertaining, if for no other reason than that the author has made reference to men and affairs in whom and in which they will be interested. And those whose professional life "harks back" more than a quarter of a century will enjoy the reminiscences that carry them to the days of Oliver Wendell Holmes, Marion Sims, Henry B. Sands, T. G. Thomas, J. C. Dalton, Willard Parker, Alonzo Clark and James W. McLain, not to mention others of more recent years who also have passed away.

Social Medicine, Medical Economics and Miscellany

Venereal Disease in the Italian Army

The *Medicina Contemporanea* of Lisbon, Feb. 25, 1917, gives a summary of an account by C. Simon of what has been accomplished in the active Italian army in prophylaxis of venereal diseases. He states that drastic measures are taken to prevent clandestine prostitution. Women, even married women, are forced to submit to medical inspection when the concordant testimony of infected soldiers points to them as the source of their contamination. These women recognized as sources of venereal infection are isolated in special services and are kept there until cured. In the course of two recent months, 277 women were thus arrested and 232 were found liable to transmit infection. The military authorities have ample power to expel from the war zone every vagabond prostitute. On the other hand, the brothels are inspected four times a week, once by an army medical officer. These brothels are installed close to the firing line, there being, for example, three at Cervignano, two at Palmanova and two at Caporetto. The latter place is so close to the line that shells sometimes fall there. The houses are well installed and abundantly supplied with "preventives" and calomel salve. The women are not allowed to admit any men but soldiers. He adds that the establishment of these brothels caused considerable protest, as it was argued that the regions having been deserted by the populace, there is no occasion for the wearied soldiers to break their enforced continence.

The treatment, he continues, can be applied to the men as outpatients where most convenient, near the resting places of the troops. In regard to prophylaxis, very strict measures are enforced; the men are given frequent "sanitary inspections," and men going out and returning from a furlough are examined with special care. Talks, lectures, lantern slides, moving pictures and other means are used to impress on the men the advantages of continence, the dangers of visiting such women, and the consequences of venereal diseases from the point of view of the individual, of the family and of society at large, grave if untreated, but generally benign if treated from the start by a physician. The use of the preventive disinfection stations is also explained. These cabinets for disinfection post coitum are installed in the different camps and abundantly provided with 1:4,000 solutions of potassium permanganate and of mercuric chlorid, with Metchnikoff's salve; 1:200 protargol solution, and syringes for preventive intra-urethral injections. These stations are in charge of a military orderly under the direction of a physician.

The results demonstrate the efficacy of the measures that have been taken and promise still more success when the projected organization is complete. In the course of November and December, 1915, the number of cases of venereal disease recorded was 5,422 and 5,409. In the month of April, 1916, the number was only 3,224.

Professor Stanziale of the chair of syphilography at the University of Naples has been delivering addresses on the "Profilassi celtica" in war time. The addresses were delivered at Rome, Naples and elsewhere before crowded representative audiences. He extolled the measures that have been enforced in the war zone by the military authorities, but emphasized the necessity for supplementing them with coordinated measures throughout the rest of the country where soldiers on leave or passing through are free from all restraints. He

urged that the whole question of venereal prophylaxis should be placed in the hands of a central administrative body with full powers to act, entrusting it with the responsibility of warding off venereal diseases, and of combating in particular clandestine prostitution which now escapes all restraining measures according to the present laws. He advocated the organization of special dispensaries with laboratory equipment for medical inspection of suspects. Inspection at the home, he declared, is uncertain and fruitless. He emphasized the increasing prevalence of extrasexual contagion, especially of syphilis, wherever there is crowding in home or at work, above all in factories where the mutual use of tools, dishes, etc., throws wide the portals to infection. Urgent measures are needed without delay to prevent the further spread of venereal diseases throughout the country, as the men of the troops come and go and industrial crowding becomes more acute. He remarked in conclusion that the war has awakened the public conscience and the state to many salutary reforms, the benefit from which will long outlast the war, and the social problems are not the least to be considered.

Venereal Prophylaxis

Surgeon C. E. Riggs (*U. S. Naval Med. Bull.*, January, 1917) gives some figures as to the effectiveness of artificial venereal prophylaxis among the men at the naval training station at Norfolk. The treatment consists of calomel ointment of about 33 per cent. strength and an injection of some silver salt of moderate strength. A book is kept in which is recorded the date of the treatment and the number of the hour subsequent to the exposure during which the treatment was taken. Great care is taken to obtain accurate information as to the time of exposure. In a record of 3,556 treatments, 67 turned out to be ineffective. Treatment was administered in 674 instances within the first hour after exposure, and no cases developed; in the second hour, 657, with 4 cases developing; in the third hour, 298, with 2 cases; in the fourth hour, 223, with 1 case; in the fifth hour, 156, with 3 cases; in the sixth hour, 285, with 4 cases; in the seventh hour, 247, with 5 cases; in the eighth hour, 359, with 16 cases; in the ninth hour, 272, with 9 cases; in the tenth hour, 190, with 10 cases; in the eleventh hour and over, 195, with 13 cases developing; so that out of the 3,556 treatments, 67 were ineffective, the percentage, from 0.60 in the second hour, gradually increasing to 6.66 in the eleventh hour and after. It is said that owing to the small number of cases on which the percentages are calculated there is no marked period at which it can be said that the treatments cease to be effective. Even the highest percentage, however, does not seem great when it is considered that practically all prostitutes are diseased. The average rate of venereal infection following illicit intercourse is not known, but probably varies greatly in different communities. Taking the highest percentage of infections above, 6.66, at the eleventh hour and after, as the time when the prophylaxis became ineffective, in the 674 cases of the first hour this would give 44.8 as the probable number of cases of disease prevented Figures for the subsequent hours of treatment can be computed in the same way, subtracting the number of cases of disease actually occurring.

The Mail of War Prisoners

The *Progrès médical* cites statistics published by the Swiss postoffice to the effect that during the month of January, 1917, it received and forwarded to prisoners of war in Austria, France, Germany, Great Britain and Italy a daily average of 426,439 letters and postals, over 20,000 small packages, and 75,889 up to 10-pound packages, in addition to 9,069 postal orders, representing a total of over $15,000. The postal orders were made out again and forwarded. Nearly 4,000,000 packages of bread have also passed through the hands of the Swiss postoffice, representing since the war began a total of 7,115,268 kg., about 16,000,000 pounds. This does not include express packages. The total cash sent in, over 6,000,000 money orders, represents nearly $18,000,000.

Medicolegal

Physicians May Testify in Will Contests as to Competency of Testators

(*In re Golder's Estate* (*S. Dak.*), *158 N. W. R. 734*)

The Supreme Court of South Dakota reverses a judgment admitting a will to probate, for error in the exclusion of evidence including the testimony of two physicians who attended the testator at about the time of the execution of the will, which testimony was excluded on the ground that it was inadmissible under Section 538 of the code of civil procedure. The court says that it must be conceded that an attending physician—often the family doctor who was long acquainted with the testator—is, both from his special training and education and from his opportunity to observe, generally the best qualified of any person to testify in relation to the mental condition of his patient. There can be no presumption of bias. At common law he was a competent witness. A statute rendering him incompetent, being in derogation of the common law, should be strictly construed and held to apply only where the clear wording of the statute requires such a holding. Section 538 provides, among other things, that "a physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient." It is to be noted that the section places no limitation whatsoever on the nature of the proceeding wherein attorneys, clergymen and public officials are incompetent, while in the case of physicians it is expressly provided that one is incompetent "in a civil action." The term "civil action" is distinguished from all other proceedings throughout both the South Dakota code of civil procedure and its probate code. Section 12 of the former defines an action as "an ordinary proceeding in a court of justice, by which a party prosecutes another party for the enforcement or protection of a right, the redress or prevention of a wrong, or the punishment of a public offense." Part 2 of the code of civil procedure treats of civil actions, and a reading of it clearly shows that the term as used in such code is restricted to the meaning given in the definition quoted. Is the court justified in extending its meaning as here used so as to include something not clearly within its terms? This question has never before been presented to this court. This is clear from a reading of those cases wherein such evidence was offered in will contests. The decision here is against holding a will contest to be a "civil action," within the meaning of Section 538, but holding that in such a contest the testimony of attending physicians as to the testamentary capacity of the testator at the time of executing the will is admissible.

Validity of Proceedings to Annul License After Failure of Criminal Prosecution

(*State vs. Lewis* (*Wis.*), *159 N. W. R. 746*)

The Supreme Court of Wisconsin says that the proceedings in this case were instituted under Sections 1436e and 1436f of the Wisconsin Statutes to revoke and annul the license granted to the defendant to practice medicine and surgery within that state. In the complaint he was charged with having procured, aided and abetted a criminal abortion on a pregnant woman, and that as a result thereof the woman died. The defendant interposed as a defense to these proceedings an allegation to the effect that he had been tried in the municipal court for Milwaukee County for the same offense, and that judgment had been rendered in his favor. He further alleged that the prosecution on which the complaint herein was based was actuated by malice and ill will toward him. Taking up the latter point first, the court holds that a motion to dismiss the defendant's appeal from an order striking out the allegation in his answer that the proceedings herein were actuated by malice and ill will must be granted, as such an order is not one subject to review by this court by direct appeal therefrom. And to the defense first stated the court holds that a

demurrer was properly sustained. By Section 5, Chapter 426, Laws of 1913, there was incorporated into the law and made a part of what is now Section 1435i the provision: "If any person licensed or registered by said board (i. e., of medical examiners) shall be convicted of any crime, committed in the course of his professional conduct, the court in which such conviction is had shall in addition to any other punishment imposed pursuant to law revoke such license or certificate." The defendant contended that where these proceedings were instituted for the canceling or revoking of his license, and that the same canceling and revoking could have been done in the proceedings in the municipal court in case of conviction, pursuant to this provision of Section 1435i, he was in effect being put in second jeopardy. He also contended that in any event the judgment of acquittal in the municipal court might be pleaded as a bar to these proceedings. But these proceedings are declared by the express language of the legislature to be civil proceedings. They have been so held by this court; that this is a civil action and not one which imposes a penalty or prescribes a forfeiture. The effect of the portion of Section 1435i quoted above, therefore, is simply to give, as an incident to such conviction, power to the court in the criminal proceeding to do directly and forthwith what might be done in subsequent civil proceedings. It therefore does not change the nature of the proceedings now before the court from civil to criminal, and unless it does so change their nature there can be no application of the doctrine of former jeopardy, for that applies only as to criminal proceedings. The court must therefore hold that by the present proceedings the defendant was not put in jeopardy for a second time for the same charge on which he was acquitted in the proceedings in the municipal court. Nor does the court agree with the contention that the acquittal in the criminal prosecution of the charge of abortion might be pleaded in bar to these civil proceedings, the court being of the opinion that the difference between the criminal proceedings and these was such that the general well recognized rule applied, namely, that a judgment in a criminal proceeding is neither a bar to a subsequent civil proceeding involving the same state of facts, nor proof of anything in such subsequent civil proceedings except of the fact of conviction. Proceedings such as these are not in their nature an effort further to punish one who may already have been punished for the same offense, but are a rightful exercise of the power of the state to protect its citizens from physicians of bad character. The trial, therefore, of the defendant in this action did not amount to substantially the same thing as a new trial in a criminal prosecution after an acquittal in it. The court remands the cause for further proceedings.

Follows Rule of Nonliability of Charitable Institutions

(Bishop Randall Hospital vs. Hartley (Wyo.), 160 Pac. R. 385)

The Supreme Court of Wyoming, in reversing a judgment obtained by plaintiff Hartley, says that he fell on the sidewalk and broke a bone in his hip. Subsequently he was taken to the defendant hospital and put under the influence of an anesthetic for the purpose of reducing the fracture. A bed was prepared for him, in which hot water bottles were placed to warm it, and when he was put in the bed the hot water bottles were removed to the corners of the bed, and were left along the edge of the bed. In some manner, not explained in the evidence, one of the bottles got under his shoulder, and caused the burn and injury complained of. Two questions were presented for determination: First, was the hospital a charitable institution? Second, if so, was it liable for an injury to a patient caused by the negligence of one of its nurses, in the absence of allegation and proof of negligence of its officers or managers in the selection of such nurse? The court answers the first question in the affirmative, and the second in the negative. The fact that hospital charged for the accommodation and care bestowed on patients who were able to pay did not change its character. That rule is well established by the decisions. The authorities are also almost unanimous in holding that such institutions are not liable in damages for the negligence of their physicians or nurses, in the absence of proof of negligence in their selection.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gastro-Enterological Assn., Atlantic City, April 30-May 1.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Arkansas Medical Society, Little Rock, May 1-3.
Association of American Physicians, Atlantic City, May 2-3.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Kansas Medical Society, Salina, May 2-4.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
North Dakota State Medical Association, New Rockford, May 9-10.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
Oregon State Medical Association, Portland, June 28-30.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Washington State Medical Association, Spokane, June 17-19.
Wyoming State Medical Society, Casper, May 9.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-Fourth Annual Meeting, held at Nashville, April 3-5, 1917

The President, DR. C. N. COWDEN, Nashville, in the Chair

Responsibility of Medical Profession with Regard to Prevention and Control of Cancer

DR. W. M. JOHNSON, Sparta: The death rate from cancer is increasing at the rate of 2.5 per cent. per annum. In 1881 the mortality was 48.06 per hundred thousand; in 1913 it was 89.03, an increase of 76.01 per cent. Our duty is to instruct the laity to have moles, nevi and keratoses removed in order to prevent the formation of external cancer. The hope of the control of cancer lies in the dissemination of scientific knowledge.

DISCUSSION

DR. J. M. CLACK, Rockwood: It is important to educate the laity as to the outcome of any suspicious growth. Women should be taught that every lump in the breast should be removed, and that every irregular flow from the uterus should be looked on with suspicion.

DR. MARCUS HAASE, Memphis: A fully developed epithelioma is an indictment of carelessness against some medical man because the laity does not recognize these precancerous growths. Any physician can destroy these preepitheliomatous growths regardless of his ability as a surgeon.

DR. A. F. RICHARDS, Sparta: No treatment is so successful as the knife. Every practitioner can remove these precancerous growths from the skin There is never any reason for leaving a growth of any kind on the skin.

DR. H. L. FANCHER, Chattanooga: Ninty-nine times out of a hundred it is either pain or loss of earning capacity that brings patients to us. The precancerous period, in which we can offer 100 per cent. cures, neither gives loss of earning power nor produces pain. The "cancer doctor" often gets credit for curing a cancer because he applies a remedy in the

precancerous period. Until doctors take up this work where the "cancer doctor" takes it up, we cannot offer 100 per cent. of cures. Surgery offers the only cure.

Inguinal Hernia

DR. H. L. FANCHER, Chattanooga: Inguinal hernia is not an accident, but is of gradual formation owing to a preexisting anatomic defect. Operation is the treatment of choice. The recurrences are less than 5 per cent., and the mortality less than 1 per cent. Success depends more on the individual operator and the finer points of technic than on any one of the so-called classical operations.

DISCUSSION

DR. JOHN A. GAINES, Nashville: Instead of making the ordinary longitudinal incision in line with the sac, I make a transverse incision. This avoids the plexus of vessels, gives a good exposure, obviates the difficulties of dressing the wound, and avoids infection by carrying the wound down to the scrotal line.

DR. C. N. COWDEN, Nashville: The problem of hernia is one of education. Tell a man wearing a truss how little inconvenience it would be for him to be operated on, and how little danger there is attached to the operation. In 99.5 per cent. of the cases the patients get well without a recurrence.

Leukemia

DR. WILLIAM ST. JOHN, Bristol: The course of leukemia is variable, not uncommonly lasting ten years, the average being about two years. There are periods of relative ill health and periods of well being. The cause of death is usually asthemia. Quite a number, however, die from septic bronchopneumonia. The treatment recommended is arsenic, salvarsan, Roentgen ray, benzol (benzene, C_6H_6), radium, thorium and mesothorium. Removal of the spleen has been attempted, but usually with fatal results. As the marrow is the primary seat of the disease, it is not to be expected that splenectomy would serve any useful purpose. The treatment at best can only relieve symptoms and prolong life.

DISCUSSION

DR. JOHN A. WITHERSPOON, Nashville: In the last six months I have seen two cases of acute lymphatic leukemia, both of them lasting but a short time, in which the lymphocytes were largely in excess. One patient, a young man, had a tonsillar infection; his tonsils were removed, and he began to improve. The man developed a lymphatic enlargement, the spleen became enlarged, he became very anemic, and died in great prostration within a month. He had diarrhea, with hemorrhages of all kinds, vomited blood, passed blood by the bowel, and had the rapidly developing symptoms of an acute lymphatic leukemia. The other case was in a child that died within a month after onset of the disease, which first began as an ordinary diarrhea.

Nonspecific Measures in the Treatment of Certain Infections

DR. J. O. MANIER, Nashville: We have used intravenous injections of a 1 per cent. solution of secondary proteose in the different types of so-called infectious arthritis, gonorrheal epididymitis and erysipelas. We begin with a dosage of from 2 to 4 minims of this solution, increasing daily, in the endeavor to obtain a moderate but definite reaction after each injection. Of our series of twenty-four joint cases, five were acute, six subacute and thirteen chronic. Of the acute cases, two were definite cases of acute rheumatic fever; one of these, in a child of 12 years with multiple swollen, tender joints, fever, acid sweats, etc., cleared up entirely within twenty-four hours after a single injection; while the other, in a woman, with multiple involvement, rise of temperature, etc., was entirely relieved after eight injections, except for some residual pain in one shoulder. In the other three acute cases —all of gonorrheal joints—an average of eight injections was given with moderate improvement in two instances, and only mild temporary relief in the third case. In the six subacute cases, an average of six injections was given with complete relief of all symptoms and a return to normal of the involved joints. In thirteen cases of chronic arthritis there were varying degrees of disability from slight stiffness in the milder cases up to complete ankylosis of the majority of the bones of the body in the most severe case. The injections given these patients varied in number from two to eighteen, with an average of seven treatments per patient. The results were complete subjective relief in five, marked improvement in five, and noticeable change in three. In all our cases we have used a secondary proteose, a midproduct of protein digestion. It is our belief that the results obtained are entirely nonspecific in nature and would have followed a similar use of any foreign protein not too toxic in nature.

DISCUSSION

DR. JAMES W. JOBLING, Nashville: In investigating the serum reactions, we have noticed the changes mentioned. We believe the serum changes are secondary in character so far as they relate to the actual results obtained. If you give a guinea-pig a small dose of horse serum, wait fourteen days, and give it another dose intravenously, the guinea-pig will die immediately from anaphylaxis. Somewhat similar results have been obtained in human beings. We have read of instances in which, following a second dose of diphtheria antitoxin, the patient suddenly collapsed, and occasionally death occurred within a few minutes. This is a state of hypersensitiveness to a particular type of protein. This is now believed to be also an explanation of what is termed an infection, such as typhoid fever. Our work has shown the futility of insisting on autogenous vaccines. It has been demonstrated conclusively that autogenous vaccines are not necessary if we use any type of vaccine in a dose sufficiently large. If we use it in a dose sufficient to get a good general reaction, we obtain as good results as with any specific vaccine.

DR. I. G. DUNCAN, Memphis: I always use stock vaccines first, and then, if the results are not satisfactory, I have an autogenous vaccine made. In several cases the stock vaccine seemed to do little or no good, but after the use of an autogenous vaccine the cases cleared up quickly. I want to insist that we try to find out what germ is producing the trouble and give that particular vaccine. If this is done, we shall obtain much better results from vaccine therapy.

Left-Sided Appendicitis

DR. JERE L. CROOK, Jackson: The patient was seized with a severe pain in the left iliac region, followed by nausea and vomiting, and a few hours later by fever. After two or three days he was dismissed practically free from symptoms. Five days later the symptoms recurred with more severity. On examination a tumor was found in the left iliac region at the site of the previous pain. The tumor was tender on pressure and dull on percussion. The temperature was 101 F. Blood examination revealed a leukocytosis of 15,000. A tentative diagnosis was made of left-sided appendicitis and abscess, but on account of the rarity of this condition, a median incision was made which revealed that the line of adhesions extended from the middle line entirely toward the left iliac region. A second incision was then made beyond the outer border of the rectus muscle directly over the tumor. This opened up a large abscess containing a gangrenous appendix which had entirely sloughed off. This was removed and free drainage inserted. The patient made an uneventful recovery.

Traumatic Hysteria

DR. WILLIAM G. SOMERVILLE, Memphis: To treat successfully the neuroses, whether the so-called traumatic or the plain neuroses, it is of special importance for every physician to understand fully not only the motive but also its mechanism. In the case of a supposed traumatic neurosis, the physician must, first of all, satisfy himself by a careful examination that he has to deal with a neurosis, and that the injury is not in itself the cause, then he must frankly state this to the patient, explain to him the mechanism of its development, and make him see his motive. In other neuroses the motive and mechanism can be arrived at by psychanalysis. The patient should be isolated from the family, so that the work

of the physician will not be counteracted by a sympathetic mother, wife or husband.

A New Species of Streptothrix Isolated in a Case of Rat-Bite Fever

DR. WILLIAM LITTERER, Nashville: Rat-bite fever is a rare disease; only eighty-one cases have been recorded. My case is the first one that has been reported in the South. A streptothrix similar to the Blake-Tunnicliff type was isolated from the blood. The employment of an autogenous streptothrix vaccine has apparently cured the patient.

Surgery of the Prostate

DR. T. G. POLLARD, Nashville: Prostatectomy may be done equally as well by the suprapubic as by the perineal route, but the mortality is lower in the perineal operation. The principal point to be considered is the proper preliminary treatment looking to the residual urine, renal impairment, infection and cardiovascular changes.

DISCUSSION

DR. EUGENE J. JOHNSON, Memphis: I want to emphasize the importance of careful preparation of old men before their prostates are removed. Acidosis is destructive to them. I prefer the suprapubic route because in using a local anesthetic it is better and makes the operative field more accessible.

DR. I. G. DUNCAN, Memphis: In operating on the prostate, my experience with local anesthesia has not been quite so favorable. There is a certain amount of shock and the patient squirms and wriggles.

Roentgen Therapy of Uterine Fibromyomas and Hemorrhagic Metritis

DR. W. S. LAWRENCE, Memphis: I do not advocate Roentgen therapy for all cases of fibroids. Surgery is the method of choice in most cases, and certainly in young women. These cases should be selected carefully. In cases of hemorrhagic metritis, Roentgen therapy is the method of choice.

Syphilis and Internal Medicine

DR. JAMES S. MCLESTER, Birmingham, Ala.: Of 567 consecutive private patients, ninety-four, or 16.5 per cent. gave a positive Wassermann reaction. In addition, seven others with a negative Wassermann reaction gave unmistakable clinical evidence of syphilis, thus bringing the percentage to 17.8. This furnishes a fair estimate of the frequency of syphilis in the better class of patients. Among the sick negroes and poor whites in our hospitals, approximately half have syphilis. It is the etiologic factor in from 90 to 95 per cent. of cases of aortitis. Of sixty-one neurasthenics, twenty, or 32 per cent., gave a positive Wassermann reaction. Examination of the spinal fluid suggested paresis in only one, and yet the other syphilitics may all be regarded as potential paretics. There were twenty-six cases in my series which gave roentgenographic and other appearances of ulcer of the stomach or duodenum, and eight of these gave a positive Wassermann reaction. Five of the latter have apparently recovered under the influence of salvarsan, as well as dietetic and other measures. There were twenty-eight cases of pulmonary disease apparently tuberculous. Six of these gave a positive Wassermann reaction and of these only two showed the tubercle bacillus in the sputum.

Fractures of the Neck of the Femur

DR. WILLIS C. CAMPBELL, Memphis: In old ununited fractures a bone graft is removed from the tibia and placed through the trochanter, neck and head to within one-fourth inch of the articular surface. In hopeless cases the head of the femur may be removed for pain with much relief. Impaction should not be disturbed in the aged. A simple plaster spica or other splint is applied without disturbing the position of the limb. The Whitman procedure is far superior to other methods, although occasionally good results may occur from any. I have seen one instance of firm union by the Hodgen splint, one with simply Buck's extension, and one in which no treatment was given at all other than rest in bed. Early diagnosis and early treatment by the Whitman technic will undoubtedly prevent a large number of hopeless cripples.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

April, LXXV, No. 4

1 Tissue Tone as Index of Vital Resistance, with Special Reference to Prolapse of Uterus. R. R. Huggins, Pittsburgh.—p. 545.
2 Use of Radium in Gynecologic Diseases. H. Bailey, New York. —p. 556.
3 *Cholesterol in Blood of Mother and Fetus. J. M. Slemons and C. S. Curtis, New Haven, Conn.—p. 569.
4 *Simultaneous Occurrence of Carcinoma and Sarcoma in Uterus. G. W. Outerbridge, Philadelphia.—p. 575.
5 Hydatidiform Mole and Chorio-Epithelioma. M. Caturani, New York.—p. 591.
6 Obstetrics: Review and Forecast. A. B. Emmons, 2d, Boston. —p. 636.
7 Attempted Abortion in Absence of Uterine Pregnancy. A. Stein, New York.—p. 644.
8 *Analysis of Vaginal Flora in Late Pregnancy. H. H. Permar, Pittsburgh.—p. 652.
9 *Microbic Flora in Parturient Vagina, Mouth and Rectum of New-Born. A. Hymanson and J. J. Hertz, New York.—p. 662.
10 Right Sided Pain in Young Women. H. S. Lott, Winston-Salem, N. C.—p. 666.

3. **Cholesterol in Blood of Mother and Fetus.**—The significant results obtained by Slemons and Curtis are: (1) In normal cases delivered without anesthesia the difference between the total cholesterol of maternal and fetal blood is accounted for by the quantity of cholesterol esters in the former; (2) the quantity of free cholesterol is the same in both circulations; (3) the placental partition is permeable for free cholesterol and impermeable for cholesterol esters; (4) practical application of blood cholesterol estimations is made in the clinical examination of cases of autointoxication.

4. **Carcinoma and Sarcoma of Uterus.**—Two cases of combined carcinoma and sarcoma of the uterus are reported by Outerbridge. The first occurred in a woman 73 years of age. The uterus was enlarged, owing to the presence of a partly necrotic submucous tumor, which consisted of sarcomatous and carcinomatous elements, and had apparently arisen by sarcomatous degeneration of a submucous myoma, with carcinomatous degeneration of the overlying endometrium. The second patient was 48 years of age. There was a small but definite area of adenocarcinoma in the fundus, removed by curettage. On examination of the uterus after subsequent hysterectomy the site of the small area of carcinoma was clearly distinguishable, but no further carcinoma could be found. A small intramural nodule, lying in the posterior uterine wall, was found histologically to be a myoma with areas of definite sarcoma.

8. **Vaginal Flora in Late Pregnancy.**—A study of the vaginal flora in pregnancy, carried out by Permar according to the ordinary modern routine laboratory methods, reveals a variety of organisms, and various definite strains of each, and is of particular interest in regard to the types of the streptococci and the organisms of the typhicoli group. A relation apparently exists between the ability of various groups of organisms to flourish in an acid medium, and the presence of these organisms, notably the streptococci, the members of the typhicoli group, and the blastomycetes, in the vagina. The presence in the vagina of streptococci giving the carbohydrate reactions of virulent organisms, as well as those of less virulent character but corresponding to forms recognized as having definitely invasive qualities, is comparable to that recognized in the other cavities, in which virulent or apparently virulent organisms are constantly present without giving rise to disease processes.

9. **Flora in Parturient Vagina, Mouth and Rectum of New Born.**—Of forty-two cases tabulated by Hymanson and Hertz, resultes were positive in sixteen and negative in twenty-six. In but four cases were the same organisms found in the maternal passages and baby's mouth and rectum (staphylococcus 3, streptococcus 1). In the other six postive cases the finds were not uniform. In one case the streptococcus was found in the vagina, the staphylococcus in the mouth and the colon

bacillus in the meconium. In a second case the streptococcus and *B. coli* and *Staphylococcus albus* were found in the vagina and streptococcus and *Staphylococcus albus* in the rectum, with an absence of *B. coli,* and no growth in the mouth. In one case the staphylococcus was found in the vagina and the colon bacillus in the meconium. In another case the staphylococcus was found in the vagina, and also in the meconium, the streptococcus being present in the mouth. In a third case the gram-positive bacillus was found in the vagina only.

American Journal of Physiology, Baltimore

April, XLIII, No. 1

11 *Microdissection Studies. Visible Structure of Cell Protoplasm and Death Changes. R. Chambers, Jr., New York.—p. 1.
12 Oxygen Pressure Necessary for Tissue Activity. M. T. Burrows, Baltimore.—p. 13.
13 Physiology of Atrioventricular Connection in Turtle. Influence of Vagi and of Sympathetic Nerves on Its Rhythm Forming Power. C. C. Gault, New Haven, Conn.—p. 22.
14 Conditions Determining Rate of Entrance of Water into Fertilized and Unfertilized Arbacia Eggs, and General Relation of Changes of Permeability to Activation. R. S. Lillie, Woods Hole, Mass. —p. 43.
15 Effect of Starvation on Catalase Content of Tissues. W. E. Burge and A. J. Neill, Chicago.—p. 58.
16 Changes in Amount of Salivary Secretion Associated with Cerebral Lesions. K. S. Lashley.—p. 62.
17 *Studies in Physiology of Respiration. Capacity of Air Passages and Percentage of Carbon Dioxid in Alveolar Air During Rest and Exercise. R. G. Pearce, Cleveland.—p. 73.
18 Gradient in Susceptibility to Cyanids in Meridional Conducting Path of Ctenophore Mnemiopsis. C. M. Child, Chicago.—p. 87.
19 *Carbon Dioxid Acidosis, Cause of Cardiac Dyspnea. J. P. Peters, Jr., New York.—p. 113.
20 Reactions of Kittens After Decerebration. L. H. Weed, Baltimore. —p. 131.

11. **Visible Structure of Cell Protoplasm.**—The bulk of Chambers' paper deals with results obtained from studies on the protoplasm of *Asterias* and *Arbacia* ova. He claims that protoplasm is a hydrophilic colloid which, in early germ cells, egg cells and protozoa, usually exists in the sol state with a surface layer in the gel state, which is very extensile and contractile and is readily regenerated on injury. Tearing of this surface, if unrepaired, results in the pouring out of the internal cytoplasm and dissolution. A remarkable property of protoplasm is its ability to form a protective gel film not on its external surface but also around an injured area which is in the process of disorganization. The disorganized mass thus insulated is eventually expelled from the cell. A continuous but gradual application of mechanical injury can be sustained by a cell for some time without evidence of harm done. A short but rapid application produces instant local destruction, the spread of which may involve the entire cell. The germinal vesicle of an immature egg consists of a hyaline liquid enclosed in a gel-like membrane. The cytoplasm of an immature egg is comparatively impervious to mechanical tearing, that of a mature egg is very much more senstive. In the mature egg the nucleus behaves as a fluid droplet whose substance is immiscible with the cytoplasm. It may be divided into two droplets which unite on touching. It coagulates with ease on mechanical injury.

17. **Physiology of Respiration.**—Methods for calculating the dead space and the percentage of carbon dioxid in the expired alveolar air are proposed by Pearce in which the necessary data are obtained by determining the amount of air and the percentage of carbon dioxid in the air of a normal and deep expiration. By the use of these methods, only a small variation in the dead space or the percentage of carbon dioxid could be determined between the conditions of rest and exercise consisting of walking 3½ miles an hour. A recalculation of the data given by Douglas and Haldane, using the proposed method, fails to confirm their conclusion that the capacity of the dead space increases to anything like the extent they claim. The Haldane-Priestley method for the estimation of the carbon dioxid percentage in the alveolar air gives results that are too high.

19. **Carbon Dioxid Acidosis and Cardiac Dyspnea.**—This paper deals with the discrepancies observed by Peters in a series of cases in a comparison of the carbon dioxid of the alveolar air and that of the plasma. Five normal cases, eleven diabetics, one case of starvation acidosis, one gout, one arthritis deformans with obesity, five acute nephritics, two cases of mild chronic nephritis, eight cases of advanced chronic nephritis, and one of renal tuberculosis and chronic nephritis were studied; in all thirty-five cases, with seventy-six determinations. Fifty-two ratios fall between 0.90 and 1.10; sixty, or 79 per cent., between 0.85 and 1.15. In all but three persons a normal relation was at some time observed, and in two of these only single studies were made. The fifteen abnormal readings were distributed among seven cases; three diabetics, one starvation acidosis, one gout and three chronic nephritics. The alveolar readings in those with normal ratios varied from 19.6 to 47.6 mm. Hg, while the plasma values varied from 21 to 48. The relation, therefore, seems to be independent of the carbonate content of the plasma. In the five normal persons the eighteen ratios obtained all fell between 0.94 and 1.10 giving a maximum variation of 0.10 or a mean variation of 0.04.

In the majority of cases, then, there is a very close correspondence between the two, so close as to suggest that a ratio below 0.85 or one above 1.15 denoted some abnormality in the respiratory mechanism. Nineteen other cases were examined. In all there was cardiac decompensation with more or less dyspnea, and usually some degree of cyanosis. The first five cases had hypertensive nephritis with cardiac decompensation. All had very definite dyspnea. In other words, the dyspnea was not due to an acidosis. The remainder of the cases were simple cardiac cases with dyspnea. Of these only one showed an acidosis in the plasma determinations, and this was very slight. All but two, however, showed an alveolar plasma ratio below 0.85 at some time during their course. Of these, one went as low as 0.86 and the other showed no definite decompensation. In almost all cases with marked improvement, or where the studies were continued into the period of compensation, the ratio increased, approaching or attaining the normal. In some cases, with an interval of improvement a normal relation was established, only to fall away again with development of a new insufficiency. Three cases with extreme pulmonary disease showed a similar disturbance of the alveolar plasma ratio.

American Journal of Roentgenology, New York

April, IV, No. 4

21 Relation of Bodily Habitus to Visceral Form, Position, Tonus and Motility. R. W. Mills, St. Louis.—p. 155.
22 Coolidge Tube Technic with New Type Transformer. A. M. Cole, Indianapolis.—p. 170.
23 Roentgen Diagnosis of Gastrocolic and Duodenocolic Fistulae. M. P. Burnham, San Francisco.—p. 173.
24 Rhinoscleroma and Roentgen Ray. G. M. Mackee, New York. —p. 180.
25 *Improved Cancer Prognosis Justified by Deep Roentgen Treatment. A. F. Holding, New York.—p. 183.
26 Head Leveler for Study of Pituitary Fossa and Accessory Sinuses. G. E. Pfahler, Philadelphia.—p. 193.
27 Roentgenography of Prostate. W. A. Evans, Detroit.—p. 196.

25. Abstracted in The Journal, Nov. 18, 1916, p. 1549.

Boston Medical and Surgical Journal

April 5, CLXXVI, No. 14

28 History of Military Medicine and Its Contributions to Science. Chamberlain.—p. 479.
29 Eclampsia at Boston City Hospital; Review of Cases of Twenty-Three Years. E. B. Young, Boston.—p. 486.
30 *Remissions in Leukemia Produced by Radium in Cases Completely Resistant to Roentgen Ray and Benzol Treatment. T. Ordway, Albany, N. Y.—p. 490.
31 *Metabolism Study of Case of Leukemia During Radium Treatment. A. Knudson and T. Erdos, Albany, N. Y.—p. 503.

30. **Radium Treatment in Cases of Leukemia Resistant to Roentgen Ray and Benzol Treatment.**—Surface applications of radium in leukemia, Ordway says, produce striking, indeed remarkable, improvement in (*a*) the blood picture which becomes almost normal, (*b*) in the size of the spleen and glands, which are reduced almost to normal, (*c*) in the general condition of the patient, who, from an emaciated and weak condition, may become plump and strong. The duration of remission is variable; it may last from months to years. The results of radium treatment are not regarded as curative. It is believed, however, to be the safest as well as the most prompt palliative measure in cases of chronic leukemia, whether refractory or not to benzol or roentgenotherapy.

From the results of radium therapy in leukemia it is believed to be the best form of treatment now at our disposal.

31. **Radium in Treatment of Leukemia.**—Knudson and Erdos found that the excretions of total nitrogen, urea, ammonia and phosphates are enormously increased immediately after the action of radium. The uric acid output is only slightly increased compared to the other nitrogenous constituents. Surface applications of radium over the spleen accelerates the disintegration of nuclein tissue, resulting in the above increases. The uric acid which would be expected to be formed by disintegration of nuclein is probably broken up further so that it is not increased. The phosphates show the most remarkable results, increasing as high as 400 per cent., at times, over the excretions at the beginning of treatment.

Bulletin of Johns Hopkins Hospital, Baltimore

April, XXVIII, No. 314

32 Recent Epidemic of Infantile Paralysis. H. Emerson, New York.—p. 131.
33 *Placental Transmission; Creatinin and Creatin in Whole Blood and Plasma of Mother and Fetus. E. D. Plass, Baltimore.—p. 137.
34 *Obstetric Significance of Blood Sugar with Special Reference to Placental Interchange. W. H. Morriss, New Haven, Conn.—p. 140.
35 *Changes in Blood Picture after Nucleic Acid Injections. C. A. Neymann, Baltimore.—p. 146.
36 *Leukemia, Pseudoleukemia and Hodgkin's Disease. C. H. Bunting, Madison, and J. L. Yates, Milwaukee, Wis.—p. 151.

33. **Creatinin and Creatin in Whole Blood and Plasma of Mother and Fetus.**—Simultaneously collected samples of maternal and fetal blood were analyzed by Plass by Folin's method for preformed and total creatinin. The determinations on unhemolyzed and hemolyzed whole bloods brought out no definite information with regard to the exchange between mother and child, but when serum or plasma was used, a definite relation was clearly established. The concentration of both fractions is the same under normal conditions in the plasmas which are naturally the fluids concerned in the placental interchange. The plasmas of both mother and child contain the same amounts of preformed and total creatinin. The values are the same as those found in non-pregnant women. The preformed and total creatinin apparently pass between the mother and fetus by simple diffusion.

34. **Blood Sugar During Pregnancy.**—According to Morriss, who examined the blood of eleven patients at various periods of gestation, normal blood sugar values (0.09 to 0.11 per cent.) prevail during pregnancy and the puerperium. During the early part of labor the values are normal, but in the second stage the blood sugar is increased. In twenty-eight cases at the moment of birth the average maternal blood sugar was 0.132 per cent. The rise in the blood sugar is partly due to the mother's voluntary afforts to expel the fetus, and it is accentuated by the use of an anesthetic. At the moment of birth the fetal blood sugar is lower than the maternal. In twenty-four normal cases, in most of which an anesthetic was used, the average fetal value was 0.115 per cent. The concentration of glucose in the two circulations is such that the placental interchange may readily be explained by the process of diffusion; and the lower concentration in the fetal blood assures a flow of glucose from mother to fetus. After obstetric operations higher values are found for the blood sugar in both mother and fetus, and are explained by the influence of the anesthetic. Normal blood sugar values prevail in preeclamptic toxemia though a rise occurs just after a convulsion. Also after repeated convulsions, or with pronounced renal involvement, the percentage of blood sugar may be notably increased.

35. **Changes in Blood Picture After Nucleic Acid Injections.**—Four patients (one represented a depressive paranoid reaction type; one a hysterical reaction type with schizophrenic features; one an undoubted schizophrenic reaction type, and the last a depressive reaction type with marked schizophrenic features) were injected with Lundvall's solution by Neymann. Three main facts stand out: the comparatively short time that the leukocytosis lasts, the gradual increase in doses necessary to produce leukocytosis as the patient develops a tolerance for the drugs, and the decrease in the percentage of hemoglobin and in the number of erythrocytes. The differential counts showed a relative increase of polymorphonuclear cells and eosinophils. No pathologic elements were observed. The psychic behavior of the patient was similar to that which one would expect after any shock. The injections are very painful. The rise in temperature of from 2 to 3 degrees causes a feeling of being ill at ease, with headache and nausea as accompanying factors, and the whole procedure, necessarily carried on in spite of the protests of the patient, is a cause for excitement. As a result of this shock the patients transfer their attention to the difficulties caused by the treatment and place their own internal difficulties more in the background. Thus, the three schizophrenics who showed a catatonic tendency, were more inclined to talk, and were generally brighter during the twenty-four hours directly following a treatment, whereas the depression case, whose worries were centered on the imaginary prospect of being put in jail and castrated, now worried about the time of the next treatment. Though the patients quickly regain their original number of erythrocytes, it takes several weeks for the percentage of hemoglobin to reach the normal figure. These disadvantages would in themselves seem to preclude the continued regular injection of the solution.

36. **Leukemia, Pseudoleukemia and Hodgkin's Disease.**—The evidence which Bunting and Yates claim points toward etiologic significance of the diphtheroid organism found by them in the lymph nodes of these cases is in outline as follows: 1. The constant occurrence of the organisms in Hodgkin's disease and in the allied group under discussion. This is true not only for single determinations but for repeated examinations, as, for example, seven successful cultures from one case over a period of five years (neck, groin and axilla). 2. The occurrence of the organism where it would explain the lesion. 3. The occurrence of the so-called Hodgkin's blood picture in the whole group of cases enumerated, in laboratory animals (monkey, rabbit) inoculated with the living organism, and in one normal individual inoculated with the dead organisms (vaccine). 4. The occurrence of abscesses in laboratory animals (monkey, dog, rabbit, guinea-pig and horse) at the portal of inoculation, with lymph nodes changes similar to those seen in early Hodgkin's disease. 5. The occurrence of complement deviation by the use of the patient's serum and diphtheroid organisms (unpublished series of experiments by Yates and Kristjanson). 6. The occurrence of a glandular reaction and of a skin reaction in patients injected with immune serum resulting from the use of a diphtheroid antigen.

California State Journal of Medicine, San Francisco

April, XV, No. 4

37 Students' Health Insurance at University of California. R. T. Legge, Berkeley.—p. 102.
38 Symptomatology of Hyperthyroidism. H. H. Lissner, Los Angeles.—p. 104.
39 Treatment of Syphilis. G. MacGowan, Los Angeles.—p. 106.

Delaware State Medical Journal, Wilmington

January, VIII, No. 1

40 History of Bodysnatching. L. Eliot, Washington, D. C.—p. 3.

February, No. 2

41 Clinical Manifestations of Pituitary Disorders. C. H. Frazier, Philadelphia.—p. 2.
42 Symptoms and Diagnosis of Gallstones. P. R. Smith, Wilmington.—p. 4.

Journal of Medical Research, Boston

March, XXXVI, No. 1

43 Anatomic Study of Fifteen Cases of Acute Poliomyelitis. W. B. Blanton, New York.—p. 1.
44 *Case of Metastatic Leiomyosarcoma Primary in Uterus. L. U. Gardner, Boston.—p. 19.
45 Influence of Serum on Staining of Bacteria in Suspensions. M. S. Fleisher, St. Louis.—p. 31.
46 Some Morphologic Effects of Prolonged Inanition. A. W. Meyers, San Francisco.—p. 51.
47 *Part Played by Goblet Cells in Protozoan Infections of Intestinal Tract. P. B. Hadley, Kingston, R. I.—p. 79.
48 *Acute Mercury Poisoning. Parallel Histologic and Chemical Study of Renal and Hepatic Tissue Changes as Compared with Rapidity of Absorption and Amount of Mercury Present in Circulating Blood at Time Such Changes Occur. W. H. Burmeister and W. D. McNally, Chicago.—p. 87.

49 Classification of Streptococci. F. G. Blake, Boston.—p. 99.
50 Cultural and Antigenic Differences in Strains of Bacillus Typhosus and Studies in Paratyphoid Group. H. Weiss, New York.—p. 135.
51 *Bacteriologic Observations in Experimental Poliomyelitis of Monkeys. E. C. Rosenow and E. B. Towne, Rochester, Minn.—p. 175.

44. **Case of Metastatic Leiomyosarcoma.**—In Gardner's patient metastases were found in the scalp, left orbit, right breast, abdominal wall, right infrascapular region, and right lumbar region. The left side showed extensive involvement of the first three ribs, apparently extending from the spinal column. Heart: aortic stenosis and microscopic focus of tumor cells in the myocardium. Lungs: numerous metastases scattered throughout the entire substance of both lungs. Liver, kidney and pancreas, numerous tumor nodules. Pelvis: in the position of the broad ligaments were large, nodular masses. Spinal cord: tumor in the upper dorsal region. The patient was 55 years of age. She had been ill four years.

47. **Goblet Cells in Protozoan Infections.**—Hadley presents observations which demonstrate that, in the case of the flagellate protozoan, trichomonas, the cause of an acute malady of several species of birds, notably the turkey (blackhead), the avenue of invasion of the subepithelial tissues is the goblet or chalice (gland) cells located in the fundus of the crypts of Lieberkühn. It is suggested that the passage of the parasites through these cells is not inadvertent, but due to a natural invasive power present in the motile flagellate trophozoite which accomplishes the infection of the deeper tissues.

48. **Acute Mercury Poisoning.**—The experiments made by Burmeister and McNally showed that mercury can be detected chemically, frequently quantitatively, in the blood of animals poisoned with mercuric chlorid, within a very few minutes after it is administered. Degenerative changes, leading to individual cell death, take place rapidly in the kidney and occur simultaneously with the presence of mercury in the circulating blood. In massive intoxication immediate renal changes vary with the size of the dose. Hepatic changes vary as the duration of the intoxication. In smaller doses renal changes vary as the duration of the intoxication. The degree of renal or hepatic degeneration does not necessarily vary directly as does the amount of mercury contained in the circulating blood.

51. See The Journal, April 14, p. 1122.

Kentucky Medical Journal, Bowling Green

April, XV, No. 4

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62 Nature and Control of Hemorrhage in Nasopharyngeal Operations. J. Weinstein, New York.—p. 145.
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67 Osteomyelitis of Sinuses of Nose, Complicating Scarlet Fever. H. L. Lynah, New York.—p. 176.
68 Calomel Fumigations in Treatment of Constitutional and Local Conditions. E. J. Brown, Minneapolis.—p. 181.
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70 Two Unusual Cases of Mastoid Disease with Severe Complications; Operations; Recoveries. J. C. Keeler, Philadelphia.—p. 188.
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Medical Record, New York

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77 Relation of Roentgenography to Diagnosis and Therapy of Nontuberculous Diseases of Lungs and Pleura. H. Lilienthal, New York.—p. 587.
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80 Modern Conception of Inebriety. M. S. Gregory, New York.—p. 625.
81 Mentality of Alcoholic. S. E. Jelliffe, New York.—p. 629.
82 Surgery of Nasal Accessory Sinuses. G. M. Coates, Philadelphia.—p. 635.
83 Some Problems of Ureteral Surgery. W. R. Jackson, Mobile, Ala.—p. 639.
84 Incontinence of Urine in Women. W. P. Healy, New York.—p. 642.
85 Condenser Discharge; Its Use in Diagnosis and Therapeutics. F. B. Granger, Boston.—p. 644.
86 Some Phases of Intestinal Stasis and Its Treatment by Physical Measures. W. Martin, Atlantic City, N. J.—p. 645.
87 Contraindications to Use of High Frequency Current. F. de Kraft, New York.—p. 647.
88 Few Words About Liquor of Magnesium Hypochlorite. D. H. Stewart, New York.—p. 648.

Southwestern Medicine, El Paso, Texas

March, I, No. 3

89 Consideration Aside from Appendectomy in Surgery of Appendix. J. Vance, El Paso.—p. 13.
90 Kanavel Tube, Valuable Adjunct in After-Treatment of Abdominal Surgery. F. W. Noble, Tucumcari, N. M.—p. 17.
91 Nomenclature of Tuberculosis. W. W. Dill, Albuquerque, N. M.—p. 31.
92 Pellagra in Rio Grande Valley. W. F. Wittwer, Las Lunas, N. M.—p. 27.
93 Acute Catarrhal Jaundice in Childhood. J. A. Rawlings, El Paso.—p. 36.
94 Hay Fever in Southwest. E. R. Carpenter, El Paso.—p. 39.
95 Public Health Organization. C. C. Pierce, San Francisco.—p. 43.

United States Naval Medical Bulletin, Washington, D. C.

April XI, No. 2

96 *Intravenous Administration of Concentrated Solutions of Soluble Quinin in Malaria and Hemoglobinuric Fever. A. D. McLean.—p. 135.
97 Cases of Hemoglobinuria in Haiti. R. A. Torrance and F. H. Bowman.—p. 141.
98 Quinin and Malaria. W. H. Michael.—p. 150.
99 Mechanical Devices for Ventilation and Air Renewal on Submarine Balilla. J. S. Taylor.—p. 156.
100 Complement Fixation Test for Syphilis Using Human Complement. S. B. Myer.—p. 175.
101 Advisability of More General Use of Wassermann Test in Service. G. F. Clark.—p. 177.
102 *Wright's Solution in Conjunction with Argyrol in Treatment of Gonorrhea. C. H. Dragoo.—p. 179.
103 *Intravascular Injection of Oxygen. J. J. A. McMullin.—p. 181.
104 Iodized Catgut; Drying, Sterilizing and Storing. M. M. Robinson.—p. 219.
105 *Simple Method for Fixation of Thorax. W. A. Brams.—p. 220.
106 Adjustable Head Rest. C. B. Camerer.—p. 221.
107 Case of Mcgacolon. L. W. Johnson and C. W. Depping.—p. 223.
108 Accidental Explosion of Six-Pounder Projectile while Held in Hand. E. P. Huff.—p. 224.
109 Case of Bichlorid of Mercury Poisoning with Suicidal Intent. F. W. F. Wieber.—p. 226.
110 Gonorrheal Proctitis; Report of Two Cases. W. W. Cress.—p. 228.

96. **Quinin in Malaria and Hemoglobinuric Fever.**—In order to prevent alarming reactions in debilitated patients, McLean says that quinin intravenously must be given in concentrated solutions, that is, 10 to 15 mils, and not in dilute solutions of 200 to 300 mils. In malaria and blackwater fever the use of concentrated solutions of quinin intravenously is the method par excellence. Under ordinary precautions and sterile technic the concentrated solution is practically free from danger. The attack can be cut short and terminated, the patient saved much suffering and discomfort, and in a military service much saving of money, time and services to the government can be made. The results obtained are sufficient to make it not only

a safe method but by far the quickest and surest way of eliminating the malarial organisms from the system.

102. **Wright's Solution in Gonorrhea.**—Irrigations of Wright's solution with injections of argyrol (10 per cent.) have been combined by Dragoo in the treatment of acute gonococcic infections of the urethra. The many small glands which line the urethra act as a trap for the germs in gonorrhea and make local treatment very unsatisfactory. The osmosis resulting from the irrigations would seem to flush out these glands and mechanically remove the gonococci, while the injections of argyrol serve as a germicide for any remaining cocci which resist the flushing process. The irrigations were given, with the patient sitting on a chair, with a soft rubber catheter which had been perforated in many placed for about 2½ inches of its length. This was inserted into the urethra and attached to an irrigator, with the solution flowing about as in the Murphy drip method of proctoclysis. There was no pain connected with this treatment.

103. **Intravascular Injection of Oxygen.**—The experiments reported by McMullin demonstrated that oxygen can be introduced freely into the circulating blood, and that such injections are not necessarily fatal.

105. **Fixation of Thorax.**—The method described by Brams is said to have all the good features of strapping the thorax, with the following additional advantages: It is easily applied and removed, does not irritate the skin, can be adjusted to any chest and with any degree of tightness, is simple and inexpensive, and acts as a splint for the entire circumference of the chest to which it is applied. The appliance consists of a piece of canvas about 30 inches long and about 9 or 10 inches wide. The length should be about 6 inches less than the circumference of the chest. Six eyelets are placed at each end. A pad of gauze is placed under the lacing and eyelets, and the appliance is laced as tightly as may be necessary. No slipping occurs if care is taken when first applied. It may be loosened or tightened at will, without discomfort to the patient, or it may be removed periodically to permit of an alcohol rub or other local treatment.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 17, I, No. 2933

1 *Effects of High Explosives on Ear. J. G. Wilson.—p. 353.
2 Results of Scopolamin-Morphin Treatment During Labor in One Hundred and Fifty Consecutive Cases. W. O. Greenwood.—p. 355.
3 Intravenous Injection of Hypochlorous Acid in Treatment of General Sepsis. J. S. Fraser, A. Campbell and E. D. D. Dickson.—p. 357.
4 Case of Acute Hemorrhagic Pancreatitis, Laparotomy; Recovery. G. W. K. Crosland.—p. 359.
5 *Appendicitis Consequent on Acute Pharyngitis. C. Bennett.—p. 360.
6 Use of Bismuth Iodoform Paste After Bone Grafting. H. S. Brander.—p. 360.
7 Case of Gas Gangrene Associated with B. Edematiens. E. J. Dalyell.—p. 361.
8 Recent Cases of Dysentery. F. H. Edgeworth.—p. 362.

1. **Effects of High Explosives on Ear.**—In considering deafness due to high explosive, Wilson says, one should not only avoid the term "shock," but also so far as possible the terms "hysteria" and "neurasthenia." The cases that are admitted to the hospital suffering from "nerve deafness due to shell concussion" can be divided into three groups: 1. Those with nerve deafness. 2. Those who have had nerve deafness of a varying degree, and who have still the fixed idea that they cannot hear. 3. Malingerers. It is with the first group that this paper is concerned. The cases of nerve deafness which have come under Wilson's observation are divided as follows: 1. Cases of nerve deafness associated with damage to the conducting mechanism. 2. Cases of nerve deafness without any visible or demonstrable lesion in the conducting mechanism when they came under observation. 3. Cases of nerve deafness in which there has been destruction of the cochlea and of the semicircular canals or their nerves. In each of the first two groups the loss may be partial or total; the third always causes total loss.

The symptoms associated with loss of hearing from high explosives fall within that group of nerve diseases called traumatic neuroses. In many cases there is a recognizable physical trauma in the head or elsewhere received during a period of mental excitement. The symptoms are varied and complex. There are present, for instance, exaggeration of tendon reflexes, tremors, vasomotor disturbance, sweatings, lethargy, sleeplessness and headaches. There is unsteady equilibrium with vertigo. There is a concentric narrowing of the field of vision. In many cases fields of anesthesia were present. In two cases of total deafness there was complete anesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other there was anesthesia on one half of the body and hyperesthesia on the other. Speaking generally, there are here included some symptoms which are frequently grouped under the term "hysteria," others under the term "neurasthenia."

Over eighty cases of nerve deafness due to high explosives were examined and treated. Prognosis is good as a rule, especially in cases in which there is no trauma demonstrable in the peripheral organ, and a normal caloric reaction. The most noteworthy exception met with so far is damage to the seventh nerve. In these cases hearing returns but slowly, and, so far as observed, not perfectly; even with a normal drum membrane, little if any signs of middle ear inflammation, and a caloric reaction present. As the deafness diminishes there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it; or, if he be asked to repeat two or three numbers given consecutively, he will repeat the last one; he knows that there were others but did not get them.

5. **Appendicitis Consequent on Acute Pharyngitis.**—By the findings in this case, both at the operation and at the subsequent histologic examination, Bennett is convinced that it is an example of infection of the appendix from an acute inflammation of the fauces and pharynx, and that the infection was conveyed by the blood stream. He believes that when the etiology of appendicitis has been determined, no one universal cause will be found; the cases will resolve themselves into a number of groups with a definite cause for each.

Indian Medical Gazette, Calcutta

February, LII, No. 2

9 Scurvy. T. C. Boyd.—p. 41.
10 Treatment of Diabetes by Alimentary Rest. E. E. Waters.—p. 42.
11 *Surgical Aspect of Ruptured Spleen; Report of Cases. P. H. Hennessy.—p. 46.
12 Gangosa; Report of Case. D. A. Turkhud.—p. 53.
13 Comparative Mortality of Towns in Nadia District. S. L. Sarkar.—p. 58.
14 *Case of Lumbar Puncture for Relief of Teething. T. Jackson.—p. 60.

11. **Surgical Aspect of Ruptured Spleeen.**—Nine cases are reported by Hennessy. All but one were cases of simple rupture caused by trauma; the exception was a stab wound. Five of the patients died. In only two cases was the tear on the external surface of the organ, while the rupture was on the internal surface in seven. In the two cases multiple injuries to the lungs and other viscera were noted. Both patients were fatally injured as the result of great violence. Of the nine cases in which a rupture occurred, two were the result of very severe injury, five patients received blows with fists, one was kicked, and one fell from a tree a height of 8 feet.

14. **Case of Lumbar Puncture for Relief of Teething.**—A strong and robust child, aged 5 months, was admitted to the hospital with a history of high fever of an irregular type and convulsions. On admission the temperature was 99 with rapid pulse and respiration. There were no signs of trouble in either chest or abdomen. In the evening the temperature was 104, there was restlessness, and it was quite evident the gums were teasing the patient. The provisional diagnosis of "pyrexia due to teething" was made. The usual remedies adopted in such case were employed, but without much success in relieving the symptoms. Though the gums were inflamed, it was not thought advisable to lance them as the teeth were not near the surface. The temperature came to

normal after ten days' irregular course, with occasional attacks of convulsions, and remained normal for five days, when the pyrexia returned. It was of the same type as before and complicated by convulsions. There now appeared retraction of the head, and, thinking there might be cerebrospinal trouble, Jackson decided on performing lumbar puncture. About 4 c.c. of cerebrospinal fluid were withdrawn and 2 c.c. of normal saline injected into the spinal canal. Beyond being slightly blood tinged, to the naked eye the cerebrospinal fluid appeared normal and proved to be sterile and otherwise normal on both microscopic and cultural examination. On the day following the lumbar puncture the temperature became normal and remained so till discharge from the hospital a fortnight later. Since the patient was discharged from the hospital until quite recently there was no return of fever or convulsions. Jackson thinks it is not unreasonable to assume that the trouble was cerebrospinal irritation due to teething and that the withdrawal of a small amount of cerebrospinal fluid in some way relieved the irritation and consequently the symptoms.

Lancet, London

March 17, I, No. 4881

15 *Modern Aspects of Heart Disease. G. A. Sutherland.—p. 401.
16 Anthrax; Simulating Cerebrospinal Fever. R. J. Reece.—p. 406.
17 *Latent Period in Acute Perforations of Stomach or Duodenum. D. Kennedy.—p. 410.
18 Mechanical Supports in Plastic Surgery. H. D. Gillies and L. A. B. King.—p. 412.
19 Plastic Repair in War Injuries to Jaw and Face. P. P. Cole.—p. 415.
20 *Antibody Content of Cerebrospinal Fluid in Meningococcal Infection, with Special Reference to Vaccine Treatment. F. E. Taylor.—p. 418.

15. **Modern Aspects of Heart Disease.**—Sutherland cites several cases of acute development of auricular fibrillation and rapid cardiac failure. One of these was a man, aged 46 years, who was admitted to the hospital in a state of extreme respiratory distress. The history was that the same morning, about 8 o'clock, he had complained of a painful feeling of tightness in his chest. This was followed almost immediately by difficulty in breathing, which gradually became worse, until he was unable to move or exert himself in any way. The patient was breathing with extreme difficulty, unable to lie down, and the respirations were slow, with prolonged wheezing expiration. The face, lips and hands were cyanosed. The pulse was feeble and irregular, at the rate of 130 per minute, beats of different strength being mixed up in a hopeless jumble. A pulse tracing showed this well. A venous tracing could not be taken owing to the overaction of the neck muscles. The history subsequently obtained was that the patient had had rheumatic fever thirty years previously, and had been discharged from the navy fifteen years previously because of heart disease. Since then he had been driving a two-horse van, a form of occupation sufficiently arduous. He had had no cardiac symptoms until three weeks previously, when, while lifting a heavy weight, he was seized with a severe pain across his chest and in the left arm, the power of which was lost. He recovered entirely in three days and resumed work, which he continued until seized with the present attack.

When the respiratory distress had quieted down it was possible to make out the cardiac condition. The rate had slowed down under treatment but the action was still irregular. The presence of auricular fibrillation was demonstrated by means of electrocardiograph and polygraph tracings. The heart was much dilated and there were some powerful beats felt, among many weak ones. The signs of mitral and aortic regurgitation were present. As is usual in such cases, rapid relief from all distressing symptoms soon followed after the heart was slowed, and the patient was able to be up and about. The condition of auricular fibrillation persisted during the following two years, after which the patient passed from observation. During this time the patient was always free from urgent cardiac symptoms when his heart rate was controlled by digitalis.

Sutherland states that formerly such an attack of cardiac failure would have been described as due to "broken compensation," and would now be described as due to "the onset of an abnormal rhythm," which in this case was auricular flutter or fibrillation. The term "broken compensation" did not convey much information as to the cardiac changes, and so treatment was guided by the general signs and symptoms—an empirical treatment, even if often singularly successful. Now treatment is directed to the cardiac changes, and more especially to the effect which these produce on the efficiency of the left ventricle. The term "failure of compensation" is wrong in such cases, because the compensatory changes have not broken down. The compensatory changes which have automatically taken place in the heart under these conditions do not break down at the onset of an abnormal rhythm like auricular fibrillation. They are there, and are still efficient if given suitable conditions for their action. This is shown by the fact that if the abnormal rhythm ceases, or if its effects are removed by treatment, the compensatory changes are found to be as efficient in carrying on the circulation as they were before.

17. **Latent Period in Perforations of Stomach.**—To look at these cases of perforation from a proper standpoint, Kennedy says, one must remember that an interval varying in length elapses between the two acts of the tragedy—first the perforation, then peritonitis; and that for treatment to be successful interference must take place before the second act is staged, or, at all events, before it is long in existence. Consequently, early diagnosis is essential. Kennedy considers it convenient to divide the course of events as regards symptoms and signs into three stages; (1) the stage of shock and collapse, (2) the stage of reaction, (3) the stage of diffuse peritonitis. It is frequently during this time of reaction or latent period that the medical attendant first sees the patient after the attack has begun. Consequently his difficulty of diagnosis. How, then, is the diagnosis to be made? (1) from the history of the attack; (2) an increasing pulse rate without corresponding increase in temperature; (3) localized rigidity of the abdominal muscles; (4) localized abdominal tenderness; (5) beginning abdominal distention.

20. **Antibody Content of Cerebrospinal Fluid.**—From a consideration of experimental results Taylor concludes that the weight of evidence goes to prove that bacterial antibodies do not pass over, at least in any quantity, into the cerebrospinal fluid, and that therefore little benefit can be expected to result from the subcutaneous administration of vaccines in cerebrospinal meningitis.

Medical Journal of Australia, Sydney

March 3, I, No. 9

21 *Peculiar Blue Spot Eruption in Soldiers. H. Lawrence.—p. 180.
22 Dermatology on Active Service with Royal Army Medical Corps. R. R. Wettenhall.—p. 181.
23 Duodenal Ulcer Complicating Burns in Infant. I. E. Ashby.—p. 183.

March 10, No. 10

24 Medical Experiences in War Zone. E. T. C. Milligan.—p. 201.
25 Prostatectomy under Local Anesthesia with Narcosis. W. R. Groves.—p. 203.
26 Carbuncle. J. F. Mackenzie.—p. 204.
27 Jaundice in Early Syphilis. G. V. Hickey.—p. 205.

21. **Peculiar Blue Spot Eruption in Soldiers.**—Four cases are reported by Lawrence, in each of which there was an elevation of temperature, varying from 101 to 103 F.; this feverish period lasted about three or four days. On the temperature becoming normal the patients felt comparatively well. From two of the patients meningococci were obtained from the throat; but none of them developed symptoms of cerebrospinal meningitis. A rash appeared on the second or third day. The eruption was macular in type, the individual lesions being of a slate blue or steel gray color, and not palpable, giving rather the appearance of a depression in the skin. The macules varied in size from that of a split pea over the abdomen to that of a sixpenny piece on the lumbar regions and the back of the thighs. The eruption appeared on the abdomen and sides of the chest, small of the back, the buttocks, back and front of the thighs. It was not accompanied by any symptoms. It appeared quickly over the parts mentioned; only a few spots developing later. The spots did not disappear on pressure, although they did not become more evident under pressure with convex glass, as is the

case of purpuric spots. The spots remained of the same color for several weeks (three or four), and then gradually disappeared, some being still noticeable up to the seventh or eighth week.

Sei-I-Kwai Medical Journal, Tokyo

March, XXXVI, No. 3

28 Spinal Anesthesia for Laparotomy. M. Suga.—p. 15.
29 Disinfective Power of Iodin. Y. Takaki.—p. 16.
30 Clinical Experiences of Cyanocuprol. Z. Inoue and K. Hanaoka. —p. 17.

Bulletin de l'Académie de Médecine, Paris

March 13, LXXVII, No. 11, pp. 345-374

31 *Discussion of Measures for Welfare of Factory Workers' Nurslings. (Vœux relatifs à la protection maternelle et infantile dans les usines de guerre.) Doléris and others.—p. 354.
32 Rebuilding the Face after War Wounds. (Des autoplasties en jeu de patience.) H. Morestin.—p. 371.
33 Relapsing Fever in Serbia. (Contribution à la pathologie des Balkans. II.) C. J. Duchamp.—p. 372.

31. **Welfare Work for Factory Mothers.**—After six weeks of discussion of practical measures to recommend to the authorities to protect pregnant factory workers and their nurslings, the Académie finally voted resolutions asking that prospective and nursing mothers in factories, especially munitions factories, should be given work requiring only moderate effort in form and duration. All kinds of work exposing to slow or abrupt traumatism, entailing fatigue and insufficient sleep should be proscribed for them. The half-day system, with six hours as the maximum, should be preferably applied to them, with no night work. Rest from work should be enforced for the last four weeks of the pregnancy. Opportunities for consulting a physician on the hygiene of mother and child should be provided, and the physician in charge of this service should see that provision is made for a change to lighter work or to abstention from work when he deems her work prejudicial to her own or her infant's health. A woman superintendent to look after the hygiene of the women workers should be provided in the factory, as is the custom in England. Provisions should be made for factory workers to suckle their babes, and prizes should be given to those who accomplish their duties as nurses. The pregnant and suckling women obliged by their condition to reduce or stop their work, shall receive an indemnity to compensate the reduction or loss of their wages. The expenses of this are to be guaranteed by the state, working through an *organisme de prévoyance et d'assurance.* Besides rooms where the mothers can suckle their infants, arrangements should be made for keeping the children while the mothers are at work, wherever there is need for this.

Paris Médical

February 24, VII, No. 8, pp. 153-168

34 *Medical Prophylaxis of Syphilis. Leredde and M. Rubinstein.—p. 153.
35 Device to Aid Roentgen Localization of Foreign Bodies. (Le localisateur-guide.) Gudin.—p. 155.
36 *Tardy Tetanus after Pneumococcus Infection. Maclaud and E. Lévy.—p. 163.
37 *Improved Technic for Determination of Sugar. (Dosage du glucose.) P. Vansteenberghe and L. Bauzil.—p. 164.
38 The Income Tax. (L'impot général sur le revenu.) L. Bocquet. —p. 165.

34. **Medical Prophylaxis of Syphilis.**—Leredde and Rubinstein urge the necessity for special dispensaries, with laboratory equipment, at accessible points to diagnose and treat venereal disease. As an important supplementary measure they emphasize the need of training physicians in this special field. They mention that there is a special chair of serology at Amsterdam, in charge of Sormani, and Germany, Denmark, Sweden and Norway also have provisions for teaching serology. At Moscow there is a school of serology that gives diplomas to its graduates. Mastery of the technic for and interpretation of the results of the biologic reactions require thorough training in applied serology.

36. **Tardy Tetanus after Pneumococcus Infection.**—The case reported shows that a medical infection is able to cause the flaring up of tetanus infection over a month after the wound.

37. **Potassium Cyanid Test for Sugar.**—This communication is supplementary to one published last December. The technic is further simplified.

Journal d'Urologie, Paris

1914-1915-1916, VI, No. 6, pp. 601-724

39 *Better Results with Local Anesthesia for Prostatectomy. F. Legueu.—p. 601.
40 *The Blood Findings with Enlarged Prostate May Exclude Cancer. (L'éosinophilie, peut-elle aider au diagnostic de l'adénome prostatique?) F. Legueu and L. Morel.—p. 605.
41 Vesical Concretions after Wounds of the Bladder. (Des calculs vésicaux chez les blessés de la vessie.) F. Legueu.—p. 611.
42 *Stitch Lesions in the Kidneys. (Sur les lésions déterminées par les points de suture dans le parenchyme rénal.) F. Misuraca. —p. 615.
43 *Modified Technic for Fixation of Kidney. A. Brandão, Jr. (Rio de Janeiro).—p. 631.
44 Calcareous Infarcts in the Kidney. G. Bolognesi (Bologna).—p. 639.
45 Cystoscopic Diagnosis of Neoplasms of the Prostate. L. A. Surraco (Montevideo).—p. 653.
46 *Importance of Peri-Urethral Adenoma with Stricture of the Urethra. Idem.—p. 659.
47 *Present Status of Technic for Nephrectomy. G. Marion.—p. 665.
48 *Improved Technic for Catheterization of the Ureters. (Nouvelles sondes urétérales à olive à introduction rétrograde.) M. Gudin (Rio de Janeiro).—p. 681.

39. **Local Anesthesia for Prostatectomy.**—Legueu here brings his report down to date, March, 1917, in No. 6 of the *Journal d'Urologie.* He now has a record of 150 cases of prostatectomy done under local anesthesia alone. At his first communication in the opening number of the same volume, June, 1914, he had had only fourteen cases to report. The results on the whole are much better than when the patient has to bear the strain of general anesthesia besides the prostatectomy. His mortality was only 5 per cent. This is the lowest mortality in any series of his 450 prostatectomies. In other cases, in which for any reason general anesthesia had to be used, the mortality was 10 per cent. The local anesthesia also permits prostatectomy in many cases in which it would be impossible if general anesthesia were required as, for instance, with valvular disease or bronchitis and in the obese with huge prostate. The only contraindications are irritable bladder, from cystitis or a concretion, and sclerous prostatitis without adenoma. Under other conditions, regardless of the size of the adenoma or the mode of access, local anesthesia answers every purpose. And no technic, he says, is as simple, rapid and perfect in its results as the one he uses. He makes no attempt to anesthetize the wall of the bladder directly, but he injects into the bladder 40 or 50 c.c. of a 1:200 solution of novocain, with 5 drops of 1:1,000 solution of epinephrin to each 100 gm. of the solution. He also injects the same solution into Retzius' cavity. The wall of the bladder, thus acted on by the anesthetic from within and from the preperitoneal cavity, becomes insensible so that its incision causes no sensation of pain. When the bladder is thus incised, he works two fingers of the left hand into the organ, face toward the pubis, and with these fingers he guides the long needles, bent at different curves, and injects 5 or 6 c.c. of the solution into the tissues around the enlarged prostate. The first prick with these needles is sometimes felt but not the following. He anesthetizes in the same way the regions between the rectum and the prostate, and the zone in front of the urethra. The whole operation is complete in fifteen minutes, and he has never been obliged to give any supplementary anesthetic by inhalation or in any way. He uses a total of 250 or 300 gm. of the solution and begins to operate almost at once. No by-effects or inconveniences of any kind were ever observed except a little sloughing around the incision. This he traced to the epinephrin, and since he reduced the amount from 25 to 5 drops he has never had this mishap.

40. **Eosinophilia as Excluding Cancer of the Prostate.**—Legueu and Morel noticed eosinophilia of 14 per cent. in a patient with enlargement of the glandular structure of the prostate. This was three years ago, and they have recorded the blood count systematically since in all their patients with hypertrophied prostate. In the cancer cases they found always

subnormal figures for the eosinophils while the polynuclear neutrophils were in numbers much above normal. These characteristic blood findings were not invariable however, as among 150 patients they found one case of malignant disease of the prostate with high eosinophilia, and two cases of simple hypertrophy with low. At the same time, the discovery of eosinophilia is presumptive evidence of simple adenoma. They regard 2.5 per cent. as pathologic, and they warn that various influences may affect the eosinophilia infection, the retention catheter, transient fever or hematuria may modify in a few hours the leukocyte count. The incident once past, the eosinophil count returns to its former figures. The blood count should therefore be made on a day free from fever, the catheter and hematuria. It is instructive to repeat the count every three or four days for two or three weeks. The polynuclear neutrophils are usually within normal range with simple adenoma. With cancer, they average 87 per cent. while the eosinophils average 0.4 per cent.

42. **Stitch Lesions in the Kidney Parenchyma.**—Misuraca reports the results of considerable experimental research on dogs to determine the fate of sutures in the kidneys. He compares his findings with those that have been published by others. He never found appreciable macroscopic lesions but the microscope showed along the track of each suture thread phenomena of necrosis, inflammatory reaction and sclerosis. There was also a transient circumscribed parenchymatous nephritis which reached its height in twenty-five days and then retrogressed.

43. **Improved Technic for Nephropexy.**—Brandão's method is a modification of Albarran's technic which he regards as superior to all others. But it has two drawbacks and he has suppressed these, so that the technic as he has modified it seems exceptionally rational and effectual. The drawbacks in question are the stripping of the capsule from the anterior wall of the kidney. This, he shows, is unnecessary while it entails adhesions with important organs in front. They do not help in fixation but contribute by their weight in dragging down the kidney. He avoids this by refraining from stripping the anterior wall, taking two stitches in the turned back capsule just back of the convex edge. The capsule is cut away over the larger part of the rear wall but enough is left to cover the edge all around. As the capsule is peeled off, it is divided two-thirds of the way down into halves, leaving a broad pedicle below. Each half is then tied separately with catgut to form a stout pedicle, as with Albarran's technic. If the capsule is flabby, it is better to tie it to make one pedicle instead of two. By refraining likewise from peeling off the capsule from the lower pole of the kidney, there is no danger of its tilting. Brandão reports seven cases in which he has applied this technic. The seven women were between 19 and 39 years of age. Necropsy in one case after appendicitis showed the kidney was fastened rather low. This woman of 33 had complained of abdominal pains, vomiting and constipation. Neurasthenia was evident also, with a suicidal tendency. No improvement followed the nephropexy. All the others were completely cured of all disturbances from this kidney. The article is illustrated.

46. **Enlargement of the Prostate in connection with Stricture of the Urethra.**—Surraco describes four cases which demonstrate the falsity of the old saying that stricture and hypertrophy of the prostate never occur together. They show that elderly persons with pronounced symptoms from stenosis of the urethra seldom have the prostate enlarged so that it can be felt through the rectum. It is usually enlarged, however, but it protrudes into the urethra or bladder. After the stricture has been conquered, symptoms on the part of the prostate may become manifest. They may have existed before and been masked by the symptoms from the stenosis.

47. **Technic for Nephrectomy.**—Marion's description of the usual methods of nephrectomy is accompanied by seven illustrations.

48. **Segregation of the Urine from Each Kidney.**—Gudin remarks that if any urine escapes along outside the catheter in the ureter, our estimation of the kidney functioning is liable to be based on mistaken premises, as he explains in detail. To obviate this he has his ureter catheters made with a long olive, broader in diameter than the cystoscope, and introduced backward into the latter. The article is illustrated.

Progrès Médical, Paris

February 24, XXXII, No. 8, pp. 61-68

49 *Paraffin-Film Treatment of Wounds. (Service de l'ambrine.) B. de Sandfort.—p. 61.
50 *Case of Paratyphoid A plus Typhoid. (Cas de paratyphoïde A avec rechute en infection éberthienne.) P. Gérard and Fenestre.—p. 65.
51 *Iodoform Mixture for Spraying Wounds. (De l'emploi de la méthode de Mencière.) Cheyrou.—p. 66.
52 Importance of Vegetation for Human Physiology. (Le rôle physiologique de la végétation.) A. Satre.—p. 67.

March 3, No. 9, pp. 69-76

53 Extraction of Projectiles in the Chest. A. Binet and F. Masmonteil.—p. 69.
54 *Intermittent Fever of Syphilitic Origin. A. Vahram.—p. 72.
55 *Cirrhosis of the Liver in Children. A. Satre.—p. 73.

49. See Sollmann's article in The Journal, April 7, 1917, p. 1037.

50. **Mixed Paratyphoid and Typhoid.**—The case described illustrates anew the interest and precision of the agglutination test when no germs can be found in the blood. The case warns further that with mixed infection one of the bacilli is liable to crowd out the other in the culture mediums and give atypical growth.

51. **Spray Embalming of Wounds.**—The spray used is a mixture of 10 gm. each of iodoform, guaiacol, eucalyptol and Peruvian balsam, with 100 gm. alcohol, and ether to 1,000 gm. After the surgical toilet of the wound, this fluid is sprayed forcibly into all the cavities and crevices of the wound. This takes only a few seconds; the hands do not come in contact with the wound; only a small total amount of the mixture is used, while the powerful disinfectants in the measure destroy germs and thus ward off complications. Cheyrou has found this technic, introduced by Mencière, extremely useful, especially on the firing line when the wounded are coming in in large numbers and every minute counts. The mixture has a kind of embalming effect on the tissues, and the dressing does not have to be changed until the man reaches the base hospital.

54. **Intermittent Fever of Syphilitic Origin.**—Vahram has had three cases of this kind recently, in all of which mercurial treatment was followed by complete recovery. One patient was a woman of 30 who for five months had had a daily attack of fever, coming on between 2 and 3 p. m. and lasting for several hours. Each began with a chill, the temperature ran up to 104 F. and then came sweating. Courses of quinin and arsenic had shown no effect. The second patient was a man of 40 who had had malaria for years but no manifestations of it for seventeen years. Then he began to have a chill, fever and sweating every day, the attack coming on about 3 or 4 p. m. and not terminating until about midnight. This had been going on for twenty-five days. The third patient, a man of 38, had been having fever every day toward evening, with sweats and headache. In eight months he lost nearly 27 pounds, and as he had a cough, he had been labeled tuberculous. On suspicion of syphilis the Wassermann test was applied, and the response was positive in each case. Under mercurial treatment clinically normal conditions were promptly restored.

55. **Cirrhosis of the Liver in Children.**—Satre reviews the present state of our knowledge on this subject. His attention had been attracted to it by a case personally observed in a boy of 9. No decision is possible yet as to its exact cause, but the frequency of nephritis with the cirrhosis of the liver in children suggests a common cause for each. Alcoholism and scarlet fever seem to be mainly responsible; he incriminates the former in his case. Scarlet fever is incriminated in England, but, he adds, this disease is so common there that any and every ulterior affection seems to have some more or less direct connection with it. Klein has published eight cases of cirrhosis of the liver developing immediately after scarlet fever. Measles was mentioned in six cases, but only when there was a history of scarlet fever. Palmer declares

that in about 8 per cent. of the cases tuberculosis is responsible. In Stack's twenty cases of cirrhosis of the liver in children, several were tuberculous. In seven cases on record, acute nephritis accompanied the cirrhosis. Only in two of these cases was there jaundice, and ascites was reported only in one of the seven nephritis cases. In Stack's twenty cases in children, only three were girls. The cirrhosis develops with an exceptionally rapid course in children, sometimes complete in a month, but it averaged five months. Ascites was almost constant except in two cases in which syphilis could be incriminated. The fibrous tissue develops so rapidly in children that the portal system does not have time to adapt itself to the cirrhosis, and consequently symptoms become manifest almost from the first. In one case the necropsy findings were exactly like those found in adults, but there was no trace of ascites. This case had been distinguished by nervous phenomena, loss of speech, contractures and extreme emaciation. Similar nervous phenomena were manifest in Satre's personal case described. There was only slight and transient jaundice; in some other cases jaundice did not develop until the last twenty-four hours before death. His little patient presented no complications, but the cirrhosis ran its course to a fatal termination in less than three weeks. The rarity of jaundice is a striking feature of cirrhosis of the liver in children, and seems inexplicable.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 10, XLVII, No. 10, pp. 289-320

56 *Gas Cysts of the Intestine. (Zur Lehre der Pneumatosis cystoides intestini hominis.) K. Schnyder.—p. 289.

March 17, No. 11, pp. 321-352

57 *Diarrhea in Infants from General Infections. (Ueber Durchfälle bei Säuglingen infolge parenteraler Infektionen.) Bernheim-Karrer.—p. 321.

58 Roentgen Treatment as Adjuvant to Heliotherapy. E. Amstad.—p. 335.

56. **Gas Cysts of the Intestines.**—In the first of the two cases described, a man of 46 who had never complained of bowel trouble died with symptoms of uremia. Necropsy disclosed that the walls of the large intestine were set thick with gas cysts, mostly in the muscle and submucosa. The intestinal emphysema was found likewise in a boy of 5 who had succumbed to diphtheria with acute myocarditis. The gas cysts were found likewise in the lymphatics of the small intestine, the mesentery and the mesenteric glands. The tendency to gas cysts has never been diagnosed during life. In some cases the gas cysts caused no symptoms, in others bowel and stomach disturbances brought the patient to the surgeon. In some cases the cysts retrogressed completely after an exploratory laparotomy. Spontaneous recovery is the rule. The proliferating lymphangitis with gas production is analogous to emphysema of the vagina and bladder.

57. **Diarrhea in Infants from General Infections.**—Karrer specifies parenteral infections as affecting the digestive tract, emphasizing the deleterious influence on the digestion of tonsillitis, influenza, pyelitis, etc. The influence seems to be more pronounced the younger the child, but even older children are liable to severe derangement from this cause. The vomiting is often ascribed to a stomach trouble, and unnecessary and harmful dietetic restrictions are imposed. As the children lose in weight the vital processes are unfavorably modified. Coccus infections seem to be the most potent in this respect. He has seen influenza induce in young infants phenomena suggesting dysentery or cholera, even without much catarrh of the upper air passages. This may occur in epidemic form in institutions, and simulate food poisoning. The infants affected are always the youngest or those with digestive disturbance. More frequent than this dysentery form is simple dyspepsia, and this may persist after recovery from the influenza. The severity of the gastro-intestinal disturbance may be out of all proportion to the mild general infection. The affinity of the streptococcus for the bowel mucosa is like that of the diphtheria bacillus for the motor nerves. He gives some charts showing the local and time incidence of the gastro-intestinal disturbances in three infant wards. Over half of the nineteen infants developed bowel trouble. Treatment should be along the same lines as for digestive disturbances of alimentary origin. The lack of substitute nurses in his institution (Zurich) renders it impossible to exclude from the service every nurse who develops a catarrhal "cold." It is impossible also to exclude visitors. New buildings should be provided with glass partitions to keep the visitors from direct contact with the children. In house practice we must protect infants less than a year old against infections, and especially those with unstable digestive apparatus. But it is difficult to keep infection away from infants even in luxurious homes, and diarrhea from parenteral infection is common in the crowded homes of the poor.

As, in his experience, streptococci were found most frequently in grippe, he vaccinated the infants with an anti-streptococcus vaccine when grippe appeared in the institution. Only 9 of the 28 vaccinated children escaped the infection; 9 developed grippe but in 7 it was very mild, with no fever and no diarrhea, and in 3 others there was only an insignificant rise in temperature. Only 35 per cent. of those affected developed diarrhea and only one had much vomiting. The vaccine was borne well, without local or appreciable reaction. The vaccination was preventive in 12 cases and in 16 the grippe was already installed. In the first group seven and eight weeks elapsed before the influenza developed. He regards these tentative experiences as promising, and declares that they encourage continuation and further development of vaccination against influenza in infants.

Pediatria, Naples

February, XXV, No. 2, pp. 65-128

59 *Prophylaxis of Cerebrospinal Meningitis. E. Carapelle.—p. 65.

60 Leukotoxins in the Blood Stream in Internal Leishmaniosis. S. Maggiore and M. Sindoni.—p. 81.

61 Present Status of Polyserositis. (Ascite epato-pericardica di origine polisierositica.) C. Martelli.—p. 89.

59. **Prophylaxis of Cerebrospinal Meningitis.** — Carapelle writes from Palermo that the mortality in a recent epidemic of meningitis there was 92 in 158 cases, but the larger proportion of the deaths occurred in the home; 38 died of 48 meningitis patients treated at their residence. Only 33 per cent. of the total cases were in adults; 16 cases were in infants less than a year old, 49 between 1 and 6 years, and 52 between 6 and 15. The meningitis was generally preceded by an epidemic of influenza, pneumonia or catarrh. Fatigue and overcrowding enhance the predisposition. Carriers seem to be mainly responsible for transmission of the disease. Those in direct attendance on the sick transmit the germs to other carriers, and thus link by link a long chain of carriers is formed. Isolation of the sick in a public hospital or contagious diseases hospital is of extreme importance as it not only prevents the starting of the chain of carriers, but because the patient gets specialist and systematic care. When cases develop in an institution or barracks it is advisable to move into a temporary camp for eight or ten days and to insist on repose for all who have inflammatory lesions in the nose or throat. Search for carriers in the civilian population is fruitless and useless. The reliance in treatment is on the specific antiserum given by intraspinal injection. It should be made in some laboratory on the spot. He gives a map showing the incidence of the disease at Palermo, commenting on the widely scattered cases and the greater number in the more crowded quarters.

Policlinico, Rome

March 4, XXIV, No. 10, pp. 305-336

62 *Appearance of Trichinosis in Italy. (La comparsa della trichina spiralis in Italia.) G. Volpino.—p. 305.

63 Pneumothorax from Tearing of Old Pleural Adhesion. G. L. Fiori.—p. 306.

64 Slight Clinical Importance of the Permanganate Reaction in Urine of the Tuberculous. (La reazione di Moritz-Weisz nelle urine dei tuberculosi.) C. Lollini.—p. 308.

65 Necessity for Services of Dentists for the Troops. (L'odontoiatria potrebbe ridare all' Esercito piu di centomila uomini, ora riformati o dichiarati inabili alle fatiche di guerra.) A. Chiavaro.—p. 311.

February, Medical Section No. 2, pp. 53-100

66 Generalized Echinococcus Disease. (Cisticercosi umana generalizzata. Ricerche cliniche, chimiche e serologiche.) A. Roccavilla.—p. 53.

67 *Vaccine Therapy of Typhoid. IV. V. Pensuti.—p. 83.

62. **Trichinosis in Italy.**—Volpino relates that for some years there have been no reports of the finding of trichina in Italy. But recently there have been quite a number of cases in the Bergamo district. He warns that during war time hygienists should be on the lookout for unusual germs, in addition to the ordinary ones, to protect the country against imported scourges.

67. **Vaccine Therapy of Typhoid.**—Pensuti here presents his fourth report on his experiences with vaccine therapy of typhoid. He began this treatment in 1913 and soon became convinced that better results were obtained with small daily doses of the vaccine. There is a great difference, he says, between the response in the healthy and in the typhoid patient. In the latter the defensive forces of the organism are already mobilized and at work, and hence it is not necessary to give it time to develop antibodies; the vaccine should be given without longer intervals than twenty-four hours. The typhoid patient shows no reaction to the injection except possibly transient rise in temperature. Another principle he proclaims is that the vaccine therapy is not distinct from the natural defense the body is offering the infection but is of the same nature as this. The dose of vaccine can be reduced the more advanced the disease. The body has already very nearly enough antibodies by this time; only a very small amount of the vaccine is needed to bring the total to the effectual point. He regards the relapse as merely one and the same disease, a latent period having intervened. For this reason he keeps up very small doses of the vaccine after defervescence to ward off a possible relapse. Vaccine therapy must be applied only after studying subject by subject and infection by infection, being guided in the dosage by the fever curve, the stage of the infection and the response to treatment, thus continuing, suspending or resuming it in accordance with the individual conditions. He cites a number of cases which sustain the assumption that the vaccine has some chemical action neutralizing the toxins. Late or lacking agglutination was frequently noted in those refractory to the vaccine therapy. He noticed also that over 50 per cent. of those refractory to the vaccine therapy developed suppurative processes.

Riforma Medica, Naples

January 27, XXXIII, No. 4, pp. 85-112

68 *The Blood Findings after Vaccination against Typhoid in the Healthy and in Those with Typhoid. F. Ravenna.—p. 93. Commenced in No. 3, p. 65.

69 *Epidemic Cerebrospinal Meningitis. U. Gabbi.—p. 98. Commenced in No. 2, p. 38.

70 Intoxication from Asphyxiating Gases in War; Eighty-Two Cases. G. Gallo.—p. 100.

February 3, No. 5, pp. 113-140

71 *Epidemic Cerebrospinal Meningitis. M. Cassella.—p. 119.

72 Present Status of Synkinesia and Associated Reflexes. A. Ferrannini.—p. 129.

February 10, No. 6, pp. 141-168

73 The Medical Sciences in Italy. (Rinnovamento.) A. Ferrannini.—p. 141.

74 *Technic and Interpretation of the Findings of Roentgen Examination. (Lezioni di radiologia medica.) M. Bertolotti.—p. 143. Commenced in No. 1, p. 1.

75 Paralysis of Hand, Fingers or Arm after Minor War Wound. C. Pastine.—p. 149.

68. **The Blood Findings after Vaccination against Typhoid.**—Ravenna tabulates the blood findings in thirty healthy men from two to ten months after vaccination against typhoid, as also the average immediately after the vaccination. It seems to affect the blood much as does actual typhoid, but the blood gradually returns to normal, the different elements recuperating after different intervals. The proportion of neutrophil polynuclears persisted low for several months in about half the patients, and in 50 per cent. of the men the eosinophils were within normal range; in 33 per cent. they were below 2 per cent. and in 20 per cent. above 5 per cent. The lymphocytes were above normal in 50 per cent., and below in 16 per cent.

69. **Epidemic Cerebrospinal Meningitis.**—Gabbi says that among the affections liable to be confused with epidemic cerebrospinal meningitis are tetanus, tuberculous meningitis, malaria of the pernicious type with convulsions, influenza of the cerebral type, and the meningitic form of acute pneumonia. Tuberculous meningitis usually develops more insidiously, and the tuberculin reaction and profuse sweats aid in differentiating, as a rule, the tuberculous and epidemic types. In malaria, there is generally enlargement of the spleen. With influenza, the catarrhal condition of the upper air passages suggests the true nature of the trouble. Inquiry as to other cases of meningitis in the neighborhood may disclose its epidemic form. In case epidemic meningitis is suspected, the patient should be isolated without waiting for absolute certainty, and carriers should be sought in the environment. Some recent experiences in the troops during an epidemic demonstrated that the epidemic died out on removing the troops from an infected barracks and living in tents for a time. Formaldehyd seems to have proved the most effectual disinfectant. Serotherapy is lauded by some, while others have had disappointing results. Gabbi declares the difference in results probably was due to the difference in strains of the meningococci. The homologous serum should be used whenever possible. Pellegrino says that the dosage should be proportional to the severity of the case.

71. **Epidemic Cerebrospinal Meningitis at Naples.**—Cassella reviews the recent epidemic of meningitis at Naples, a total of 171 cases, nearly all in the winter and spring of 1915 and of 1916. The mortality was over 58 per cent. in the first period and over 51 per cent. in the second. No case of familial contagion, he says, was known, the experiences in this epidemic confirming the assumption that cerebrospinal meningitis is a disease that is rarely propagated by the sick. Bellei thinks that the explanation of this is that during the period in which the germs in the nasopharyngeal secretions are virulent, the patient is usually in a comatose state, not speaking nor sneezing nor coughing, and thus not scattering the germs about him. Cassella's patients, however, were seldom comatose, and one attendant, at least, in waiting on them, became a carrier. One of the patients was a teacher, but no cases developed among his pupils, showing that the prodromal stage is not infectious. Cassella examined 412 of the soldiers to detect carriers, and found 3.9 per cent. harboring the germs. These were isolated at the military hospital until negative findings. None of them developed meningitis. He thinks it probable that the meningococcus acquires special virulence in a case of meningitis and thus sets up a new train of carriers. These feel no bad effects from them until their resisting powers become depressed from any cause; then they are liable to develop the disease. The healthy carriers of the virulent germs are not numerous, and the germs lose their virulence before long. After a few sporadic cases and a long interval, suddenly the disease may develop in epidemic form, the cases widely scattered. No other disease, he declares, shows so plainly the influence of some special conditions affecting the germs themselves, to enhance their virulence, and affecting the individual predisposition. Many of the first cases were in new recruits. The changed mode of life and fatigue from the military training may have cooperated in enhancing the predisposition. In the civilian population the cases were almost exclusively in the poorer classes. He gives a chart showing weather conditions, but no connection is apparent between them and the epidemic. The severer cases were all in the earlier period.

74. **Medical Radiology.**—This is the sixth and last instalment of Bertolotti's study of the technic and interpretation of the findings in Roentgen examination of the spine and chest, especially with congenital anomalies of the skeleton. A number of typical cases are described, with the Roentgen findings. He urges the importance of study of the normal and pathologic anatomy as shown in roentgenograms. This is indispensable for the orthopedist, especially study of the laws governing the formation of bone, and the numerous deviations from these laws in congenital anomalies of the skeleton.

Brazil-Medico, Rio de Janeiro

February 17, XXXI, No. 7, pp. 51-62. Cruz Memorial Number

76 Life and Work of Oswaldo G. Cruz. C. Chagas and others.—p. 51.

February 24, No. 8, pp. 63-72

77 Brazilian Beetles. II. (Tetrameridae brazileiras.) L. Travassos.—p. 65.

March 3, No. 9, pp. 73-80

78 Brazilian Endoparasitic Nematode Worms. V. (Trichostrongylinas brazileiras. Oswaldocruzia n. gen.) L. Travassos.—p. 73.
79 Heliotherapy in Brazil. A. Moncorvo Jr.—p. 74. Continuation.

Siglo Medico, Madrid

March 3, LXIV, No. 3299, pp. 129-144

80 *Clinical Value of the Determination of Pepsin in the Stomach Content. T. Hernando and T. Alday.—p. 130. Commenced in No. 3298. p. 114.
81 *Correction of Facial Deformities. (Las restauraciones bucofaciales.) D. F. Aguilar.—p. 138. Commenced in No. 3296, p. 90.

80. **Clinical Importance of Determination of Pepsin in Stomach Content.**—Hernando and Alday found the Mett technic most exact and the Fuld-Levison the simplest, but for practical purposes, they say, Boas' method is sufficiently reliable. They report that in 10 cases of anachlorhydria, pepsin was found always present in their tests although in proportions much below normal, and not paralleling the hydrochloric acid content. Each should be determined separately in watching over the progress of a stomach affection. In 10 cases of noncancerous hypochlorhydria, the proportion of pepsin was unusually low in some but normal in others. In 22 cases of gastric cancer, no pepsin could be detected in 3 cases by the Mett technic; in 16 only small amounts; in one it was normal and in 2 above normal. With the Fuld method in 29 cases no pepsin could be found in 6 cases, very little in 21, and the findings were normal or above normal in one case each. In 18 cases there was a deficit of hydrochloric acid and in 6 it was present only in moderate amounts. In 30 cases of hyperchlorhydria (Mett) the pepsin content was normal or subnormal in 4 cases each and in 22 above normal. With the Fuld technic, in 35 cases, it was normal in 12 and above the normal range in the others.

In all the 37 gastric or duodenal ulcer cases, and in 34 of 35 (Mett) cases and in 48 of 50 (Fuld) cases of cicatricial stenosis of the pylorus, the pepsin was much above normal. Hence this finding should suggest the possibility of an ulcer. It is possible that in some of the hyperacid cases with high pepsin content there may have been some undetected ulceration. Certain measures known to influence ulcer favorably may owe their efficacy to their action on the pepsin, rather than on the acidity, to which it is generally attributed. This applies particularly to sodium chlorid which seems to have an inhibiting influence on pepsin. Inert powders, to adsorb it, have a similar inhibiting action. Their experience indicates that the pepsin content may aid in the prognosis with hyperchlorhydria, the outlook being better when the pepsin content is low. They warn that pepsin should never be given alone or with an alkali. It requires an acid medium to be effectual. In chronic gastritis of the catarrhal type, tending to atrophy, they found the pepsin content low as a rule.

81. **Correction of Facial Deformities.**—Aguilar's profusely illustrated article gives the "before and after" aspects of numerous cases of congenital or acquired deformities, shell face, fractured jaws, etc., given treatment at the Madrid School of Odontology. He discusses various principles involved, saying that in recent years, and especially in Spain, odontology has developed into a brilliant branch of medicine.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

1916, XVI, No. 1, pp. 1-212. German Edition. Last indexed March 17, p. 885

82 Proportional Weights of Bones of the Feet in Different Races. (Gewichtsproportionen der Fussknochen bei verschiedenen Rassen.) K. Hasebe.—p. 1.
83 A Strain of Atypical Actinomyces. S. Yamakawa.—p. 17.
84 *Necropsy Findings in Case of Paroxysmal Hemoglobinuria. J. Idei.—p. 35.
85 Roentgen Examination of Healthy Stomach in Fifty Japanese. Y. Kato and J. Nakamura.—p. 51.
86 *Nerve Stretching. (Ueber die Nervendehnung. Experimentelle und klinische Untersuchung.) G. Takimoto.—p. 73.
87 The Physiology of the Retina and Its Behavior under Chemical and Physical Stimuli. (Zur Kenntnis der Bewegungsvorgänge in der Netzhaut.) N. Kumagai.—p. 137.

84. **Necropsy Findings in Case of Paroxysmal Hemoglobinuria.**—Idei's patient was a fish merchant of 36, and the attacks of hemoglobinuria lasted for ten days and were followed by reduction of the daily output of urine to from 8 to 40 c.c. This reduction in the amount of urine kept up for ten days, the man finally dying from anuria after one such attack. A congenital defect in the aortic valve was found at necropsy. The hemoglobin was accumulated mostly in the convoluted tubules and below, both kidneys presenting indications of acute parenchymatous nephritis.

86. **Nerve Stretching as a Therapeutic Measure.**—Takimoto devotes sixty-six pages to his account of his experimental and clinical research on nerve stretching. It is accompanied by three colored full-page plates. The latter show the histologic changes in a nerve after it has been stretched. The axis cylinder as it is stretched breaks up into short segments, with gaps between. This interrupts the continuity of the nerve almost as if it had been cut across. This segmentary interruption of the continuity of the nerve is accompanied by bleeding, hyperemia, tearing of the fibers of the connective tissue, and enlargement of the lymph spaces in the epineurium and perineurium, while the segmented nerve fibers degenerate. All the therapeutic effects of nerve stretching can thus be readily explained, he says, as due to blocking of the nerve. From the theoretic standpoint, the measure is of only palliative value, and uncertainty as to the outcome and recurrences must be counted with. At the same time, nerve stretching, properly done, is almost ideally successful in practice, especially in combating unbearable pains. It arrests them even in cases in which no other measure gives relief. He regards it as indicated in all such cases when everything else has failed and the pains are very violent, and when the functional disturbances liable to result from the nerve stretching would not be of such a nature as to entail much disturbance. It seems to be adapted to any and every affection connected with nerves. With affections of the central nervous system, pains and spasms in the periphery can be arrested by the nerve stretching, but this of course does not act on the central affection. He adds that sensory and motor disturbances at the periphery are also amenable to nerve stretching. With peripheral nervous affections, nerve stretching is indicated only in the period of irritation; under other conditions it is liable to be directly harmful. Erythromelalgia is a favorable field for nerve stretching, as this abolishes not only the pain but also the redness and the swelling. The effect realized confirms the assumption that erythromelalgia is caused by abnormal conditions in the vasodilators. The bibliography appended nearly all dates from 1883 or before; Neri's article on stretching the sciatic nerve is the only original article cited published in this century.

Hospitalstidende, Copenhagen

February 21, LX, No. 8, pp. 173-196

88 *Splenectomy with Certain Internal Diseases. (Om Miltexstirpation ved Polyglobuli, Morbus Banti og Icterus haemolyticus.) T. Rovsing.—p. 173. Commenced in No. 7, p. 149.

88. **Splenectomy for Internal Diseases.**—Rovsing remarks that removal of the spleen is a comparatively simple and harmless measure when the spleen is sound and has been injured in some accident or is the seat of some buried morbid process. Splenectomy, however, is quite a different matter when the enlarged spleen is adherent to other organs. In malaria and leukemia the results have been so disappointing, he continues, that splenectomy has certainly played out its part in these affections. In polycythemia, Banti's disease and hemolytic jaundice the outlook is more promising. He reports in detail five cases in which he removed the spleen on these indications. The first patient was a man of 42 with symptoms suggesting chronic gastric ulcer and great enlargement of the spleen. The blood count showed 9,000,000 reds and 12,500 whites, hemoglobin 105, and the Pirquet test was strongly positive. The spleen was found studded with nodules which confirmed the assumption of tuberculosis of the spleen and he removed it. Numerous adhesions made this very difficult, and persisting capillary bleeding followed to which the patient succumbed. Rovsing has been convinced by this case that splenectomy is absolutely contraindicated with polycythemia

if the spleen is adherent to other organs over any extent. Uncontrollable hemorrhage is almost certain to follow. The nodules on the spleen in his case proved to be merely infarcts, but there were calcified patches in the liver, a tuberculous focus in one kidney and a simple ulcer in the stomach.

The second patient was a man of 23 in the third, advanced, stage of typical Banti's disease, with atrophic cirrhosis of the liver and ascites. He had also had hematemesis on several occasions which had entailed extreme anemia. As splenectomy seemed to be the only chance, the patient insisted on it in spite of Rovsing's advice against it. The spleen weighed 1,725 gm. and its removal was difficult on account of adhesions, but the patient began to improve almost at once and the ascites has not returned. The man has kept well during the two months to date, and the blood picture seems to be normal. Rovsing ascribes much of the success in this case to his special incision which gives ample access with the least injury to vessels and nerves. It starts in the epigastrium on the middle line, parallels the left costal arch, 3 cm. below it, to the middle of the left rectus muscle. The incision then swings downward, slitting the upper wall of the sheath of the rectus, along its median line, until the incision reaches the level of the anterior superior spine of the ilium. Although the incision is so long, yet it is not easy to deliver the spleen through it if it has to be first separated from adhesions. He warns further that in Banti's disease the enlarged spleen may push the liver forward and thus give the impression of extreme enlargement of the liver when this is not the case in fact. He had this experience in an earlier case of Banti's disease. As soon as the spleen was removed, the liver slid back into its place and was seen to be of normal size. This latter patient died three months after the operation from thrombosis of an artery passing from the splenic artery to the fundus of the stomach. The Banti's disease in this case was in an early stage. He operated by Mayo's two-forceps method, and he is inclined to attribute the thrombosis to injury from this technic. He has discarded it since, and now works with his gloved hand, separating adhesions cautiously with his fingers, as he describes in detail.

His three other patients were men of 60 and 28 and a woman of 39. All had typical hemolytic jaundice of long standing, with extremely fragile reds and much enlarged spleen. Each had long been incapacitated by their anemia and jaundice. Splenectomy brought a complete and apparently permanent cure of all their disturbances although the reds are still fragile. The enlarged spleen had been destroying too many reds, and as soon as the spleen was removed the numbers of reds returned to normal. The spleen in these hemolytic jaundice cases, although enlarged, was apparently normal, while in the polycythemia cases the spleen showed evidences of fibrous degeneration. The adhesions suggested some old infectious process as responsible for the abnormal behavior of the spleen and possibly also for the fragility of the reds. In conclusion Rovsing mentions that, with the cases here reported, nine cases of splenectomy for hemolytic jaundice have been published in the Scandinavian countries. Adding these to the forty-eight recently compiled by Elliot and Kanavel, brings the total to fifty-seven, with fifty-five recoveries. He adds that Banti's first patient has been free from recurrence during the eleven years to date.

Hygiea, Stockholm

February 28, LXXIX, No. 4, pp. 145-192

89 Treatment of Tuberculous Spondylitis. (Om behandlingen av den tuberkulösa spondyliten med särskilt avseende fästat vid Albees operation.) S. Johansson.—p. 145.

90 *Alcohol Content of the Urine in the Intoxicated. (Några mätningar av alkoholhalten i urinen hos berusade personer.) E. M. P. Widmark.—p. 158.

91 Necropsy Findings in Previously Published Case of Sarcoma of the Carotid Gland. (Ett fall av karotiskörteltumör.) G. Grönberger.—p. 169.

90. **Alcohol Content of the Urine in the Intoxicated.**—Widmark states that his modification of Nicloux' test for alcohol in the blood enables the alcohol content of the urine to be determined rapidly and conveniently. He does not give the technic of the test here, referring to his recent article on the subject in the *Skandin. Archiv für Physiologie,* Vol. 35. He tabulates the findings in thirty-seven intoxicated persons, emphasizing that the presence of the alcohol in the urine is the result of a diffusion process, and does not depend on the secretory capacity of the kidneys. The proportion of alcohol in the urine can never be higher than that in the blood, and consequently if the alcohol content of the urine is 4:1,000, for example, we can be confident that the concentration of the alcohol in the blood during the few hours preceding the test must have at least reached this figure. One table shows under sixteen headings the various features of twenty-seven cases, all but eight habitual drunkards. The highest figure was found in a man of 29 picked up on the street intoxicated but not addicted to alcohol; it was a question whether he was sick or intoxicated. He was not an alcoholic. The alcohol content of the urine was 5.7:1,000. It was 5:1,000 in a man of 51, known to be a habitual drunkard. One man of 60, not addicted to alcohol, had drunk a liter of brandy in an attempt to commit suicide. His urine showed alcohol content of 3.7:1,000. In a prostitute of 22 who had taken six glasses of punch, the urine, six hours after she had been brought into the station, showed 2.3:1,000 alcohol. One man known to be a habitual drunkard was brought in supposedly drunk but there were only traces of alcohol in the urine, and he proved to be suffering from pneumonia. In another case the man was not addicted to alcohol but seemed to be intoxicated. The urine showed only 0.1:1,000 alcohol, and the man confessed that he had taken "nerve drops" with suicidal intent. The data tabulated indicate that symptoms of liquor intoxication can scarcely appear until the concentration of alcohol in the urine is over 1:1,000 at least.

Ugeskrift for Læger, Copenhagen

February 1, LXXIX, No. 5, pp. 185-224

92 *Physical and Dietetic Treatment of Constipation. (Bemærkninger om Obstipationens diætetiske og fysikalske Behandling.) A. Borgbjærg.—p. 185.

92. **Dietetic and Physical Treatment of Constipation.**—Borgbjærg warns that we must not forget that a number of factors may cooperate in producing constipation, such as reduction in the amount of feces, harder consistency, delayed passage through the intestines, infrequent desires, and difficult defecation. The Roentgen rays have shown that mechanical obstacles, such as adhesions, overlong mesentery, enteroptosis and movable cecum do not necessarily entail constipation. The passage through the colon may occur quite normally in spite of them. More important is a weakness of the muscles involved in defecation, or overstrong action of their antagonists. In the great majority of cases there is no mechanical cause to explain the constipation. He has known cases of severe constipation in strict vegetarians and he does not approve of continuing exclusively coarse foods too long. How long the patient can be allowed to go without stool is a question to be decided in the individual case, watching the general condition, exploring the rectum and palpating to see that there is no accumulation of feces. Under these conditions he thinks there is no risk in letting the patient go a week at least; thirteen days was the longest limit in his experience.

He never realized the importance of massage as long as it was applied in the patients' homes and he saw the patients only now and then. But since he has been having the patients under his constant supervision in his private clinic, he has become more and more convinced of its great value as an aid in the treatment of constipation. He always has it combined with gymnastic exercises, especially abdominal breathing exercises. When the constipation is the result of retention of the feces in the sigmoid flexure region or rectum or of inability to expel the feces arriving in the rectum, these measures and dieting do not seem to do much good. It is possible that benefit might be derived from internal massage of the rectum or vibration treatment or intrarectal faradization, as Boas commends. He has not had much experience with these measures but thinks they are promising. He says further that the normal position for defecation is undoubtedly the squatting position. The depression, lassitude, etc., which are usually ascribed to autointoxication in case of constipation, he thinks are more often merely the result of worry over the supposed evil effects of the defective intestinal functioning.

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GUNSHOT FRACTURES OF THE SKULL

STATISTICAL AND CRITICAL REVIEW BASED ON A SERIES OF SEVENTY-FIVE CASES *

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While I was laboring short-handed in a 1,500 bed hospital during the onset of the Somme push last summer, it was my lot to care for several hundred gunshot fractures of the skull. In spite of the stress of operative and directing work and with no clerical help, I made detailed notes on seventy-five patients, including necropsy records in the fatal ones. To group patients and lighten the work for medical officers and nurses it seemed wise to put patients with head injuries in one ward, using a neighboring ward when an overflow of the thirty-five bed unit occurred. As a routine, spinal puncture, roentgenography and scalp incision were employed to establish diagnosis. We were not supplied with a sphygmomanometer, and so could not make observations on the blood pressure findings.



Fig. 1.—Types of missiles found in gunshot wounds. They are compared in size to an empty cartridge shell (9); 1, 2, 3 and 5 are pieces of shrapnel cases; 4 was from a high explosive shell and was removed from a soldier's brain; 6 and 8 are the Teutonic rifle bullet and soft shrapnel bullet; 7 is from the base of a shell.

Routine eye examinations were made in every case. To Major Charles A. Maghy, oculist of our hospital, I am indebted for painstaking and thorough work in this branch, often carried late into the night, because all patients with head injuries were examined at once after being received in a convoy. In the case reports, some points in connection with these examinations may seem to be lacking. To save repetitions, when there were no positive findings, they are not mentioned.

All operations for elective decompression, drainage and removal of bone fragments or foreign bodies were performed under ideal conditions. The asepsis was rigid. An elastic tourniquet was used in every case possible, and subtemporal decompression was performed as the operation of choice for relief of intracranial increased tension when indications did not point to using the wounds already present.

It seems necessary to call attention to the great protection afforded troops within the firing zone by metal helmets. There is no doubt that the present method of trench fighting and the use of machine guns and shrapnel or high explosive shells lead to a high percentage of head injuries. Metal helmets certainly reduce the mortality of this class of injuries either by diminishing the velocity of the missiles or by deflecting them. All the patients here enumerated were questioned on this point. When able to respond, some told of the hole in their helmets, and some brought them along as souvenirs; but although we understood that discarded helmets were so common around the firing zone that they were used for chicken feed basins, not many came for examination to the base 40 miles away. In practically every instance the helmet was being worn at time of injury—in some the shot had struck below the brim.

REPORT OF CASES

CASE 1.—Lance-Corporal W. S., aged 35, Eighteenth Canadians, who had served one year, and was admitted, June 7, 1916, seemed demented from a gunshot wound of the right eye and frontal bone. He asserted that he had had no food for eight days. Spinal puncture revealed a pressure distinctly above normal, and a cloudy fluid which contained about 25 polymorphonuclear cells per cubic millimeter.

On the evening of June 6, his temperature had risen to 101.3 F.; the pulse was 88. June 27, a subtemporal decompression was performed. The cerebrospinal fluid was under excess pressure. The dura was opened and the frontal fossa explored. No abscess of the right frontal lobe was found. A guttapercha drain was inserted.

* From material obtained while the author was officer in command of the surgical division of the Twenty-Third General Hospital, British Expeditionary Force, France, 1916.

* On account of lack of space, this article is abbreviated in THE JOURNAL by the omission of many case reports. The complete article appears in the reprints, a copy of which may be obtained on application to the author.

Progress was favorable until July 10, when the patient became nauseated and restless and had another rise of temperature. Death occurred July 15.

Necropsy.—My craniotomy wound was completed healed and uninfected. The dura had practically closed over the cortex in this area. The *left* hemisphere of the brain, however, showed a diffuse cortical meningitis involving the pacchionian bodies. The left temporosphenoidal lobe, opposite from the enucleated eye, was a softened abscess mass. There was a diffuse basilar suppurative meningitis. The infection had traveled by way of the right eye into the nose, across into the left middle cerebral fossa and to the left hemisphere. There was no direct infection through the right orbit. There

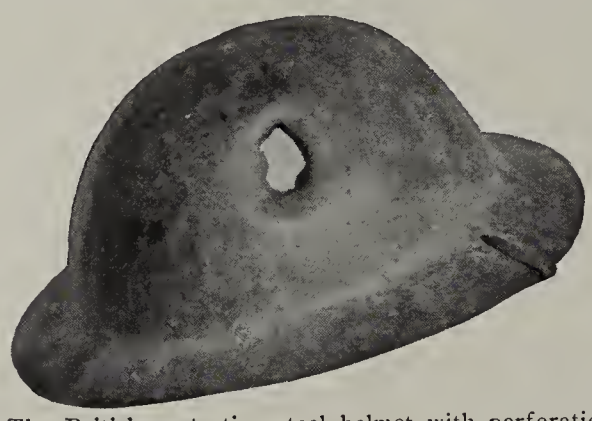


Fig. 2.—The British protective steel helmet with perforation by large shell fragment.

was present also a small linear crack in the right sphenoidal bone, which was uninfected. It was clearly demonstrated that the infection had not traveled by way of the optic nerve.

Case 2.—Private C. T., aged 21, Twenty-Seventh Canadians, who had served one and three-fourths years, admitted, June 8, 1916, had received a gunshot wound of the head from shrapnel in the left frontal region penetrating and depressing the frontal bone. A subtemporal decompression was done immediately and an extradural blood clot found with a torn middle meningeal artery. A small piece of shrapnel lying on the dura was removed. The dura was opened. A gutta percha drain was inserted.

In two days the patient developed convulsions and a right-sided hemiplegia, after which the wound was opened widely and allowed to bleed freely. A hernia cerebri developed. The patient continued in a somnolent condition, and died, June 19.

Necropsy.—There was a bloody extravasation of the scalp and temporal muscle; some clots were present on the cortex with a hernia cerebri. There was no localized infection. On removal of the brain, no other skull fracture was found than the frontal puncture, nor was there basilar hemorrhage or meningitis. There was no foreign body in the brain. The left hemisphere was composed largely of dark blood clots which seemed to originate in the posterior wall of the lateral ventricle. Because of the manner of opening the brain, the choroid plexus could not be satisfactorily examined for a series of hemorrhages or ruptured aneurysms. A diagnosis of ventricular hemorrhage was made.

Case 6.—Private G. M., aged 32, Sixtieth Canadians, who had served eleven months, admitted May 20, 1916, had a gunshot wound in the right occipital region 1 inch behind the ear, over which crepitation was palpable. On the left side of the head in the occipital region just above the base line there was apparently a small wound of exit. The patient did not know whether he was struck by shrapnel or a bullet, but he was unconscious some hours and vomited immediately after the wound, which was received, May 18. His sight remained entirely gone until May 20. May 21, his vision in both eyes was limited to the recognition of fingers, and there was no nystagmus. The right fundus showed the disk slightly blurred at the edges, the left disk being normal. The right superior vein was dilated and there were a few flame-shaped hemorrhages just beyond the disk margin. May 21, operation removed the shattered bone fragments from the wound of entrance, but no extensive decompression was attempted. By May 25, vision in both eyes was 6/6 and both fundi were normal. The fields of vision were normal. The patient made a complete recovery, temperature dropping to normal on the fifth day. The diagnosis was complete penetration of the occipital lobes with symptoms. The patient was sent to England, June 14.

Case 7.—Private J. C., Canadian Royal Mounted Rifles, admitted, June 7, 1916, with diagnosis of shell shock and history of having been blown up in a trench by a shell and of having had several sandbags fall on him, was unable to answer questions correctly, and was incoherent. There was a suffusion in both eyelids, and just above the left supra-orbital ridge there was found a fluctuating tumor the size of a robin's egg. On the day of admission he developed more signs of cerebral irritation, and attempted to get out of bed. In a few hours the pulse became 64, regular and full, and the breathing stertorous. The hematoma on the forehead burst next morning, and fomentations were applied. Retention of urine developed. June 9, an eye examination was made in spite of considerable mucopurulent secretion and conjunctival injection. The pupils were round and equal, and reacted to light and accommodation. Fundus examination revealed tortuous veins in each eye with a blurred disk margin and no hemorrhage. The next day the patient was unable to talk, but was restless and smiled at me.

A subtemporal decompression was performed, and an extensive area of hemorrhage was discovered over the whole left lobe with a ragged wound and a compound fracture in the left frontal bone extending through the frontal sinus. The tract of the missile was discovered running down to the base of the brain, but the metal could not be recovered. Small tubal and gutta percha drains were inserted after ligation of the middle meningeal artery. Death occurred, June 12, with necropsy the next morning.

Necropsy.—This revealed diffuse hemorrhage over both sides of the cortex; some edema of the brain; no basilar or purulent meningitis but considerable hemorrhage at the base; a small fracture of the superior wall of the left orbit, and a small fracture at the midline of the base just back of the crista galli. The cortex was bulging out of the decompression opening. A puncture fracture of the left frontal bone was found, and in the left hemisphere near the middle, not far from the cortical surface, and at the end of the hemorrhagic tract, was found a small piece of shrapnel casing.



Fig. 3.—Felt lining of the British helmet. This softens the pressure of the metal and affords additional protection. Note the perforation by shrapnel.

Case 10.—Private H. G., aged 19, Fifty-Second Canadians, machine-gun section, admitted, June 8, 1916, had a gunshot wound of the forehead which had been received at Ypres six days before, where he had been struck by a shell fragment. There was a large penetrating wound in the *left* frontal region, the edges of which were necrotic and sloughing, and bubbles of gas appeared at its margin. There was a marked ptosis of the right eye, but there were no paralyses or speech disturbance. Roentgenoscopy revealed a large irregular-shaped piece of metal in the *right* frontal region about 2½

inches from the anterior and three-fourths inch from the lateral surface of the skull, and two smaller particles in the region of the ethmoid sinus.

June 8, an operation of decompression in the right frontal region was performed, and the metal located in the brain was removed without difficulty. An abscess was found about this metal and a gutta percha drain inserted, the right eye being enucleated.

Subsequent symptoms were return of consciousness followed in five hours by convulsive twitchings of the right side of



Fig. 4 (Case 9).—Helmet and skull wound: a proof of the life-saving power of the protection.

the face, and gradually deepening somnolence, with death, June 10, at 8 p. m.

Necropsy.—The whole frontal areas of both lobes were pulpified and bloody, and there was an extensive basilar suppurative meningitis. The back wall of the right orbit had been knocked off by the shrapnel, and one small fragment of bone had been driven down to the base of the skull. Death resulted from extensive infection.

CASE 13.—Sergeant W. F., aged 23, Fourth Middlesex, who had served five and one-half years, was injured, July 1, 1916, by rifle fire at Fricourt, and walked to the dressing station. He was admitted to my service, July 2, with a paralysis of the left arm and a wound in the right temporal area accompanied by a depression of the bone.

July 6, a decompression operation was performed over one side, and extensive subdural hemorrhage and brain contusion were found. The dura was lacerated. After the necrotic scalp had been cut away, a plastic operation was performed to cover the defect of the skull. Inside of two days he developed an edema of the right side of the face and forehead, and the paralysis in the left arm remained permanently. Later this condition cleared up and the scalp wound was granulating, and by July 22 was clean; but a hernia cerebri was developing. The patient was perfectly clear mentally, and was anxious to be sent home. The hernia cerebri was increasing gradually, and in spite of all treatment became so large that the prognosis was very unfavorable. Some motion returned in the paralyzed arm. Repeated spinal punctures failed to reduce the size of the protruding brain, and death finally occurred, August 24, after only one day of unconsciousness. At necropsy an extensive delayed meningitis was discovered (Figs. 6 and 7).

CASE 22.—Sergeant H. Q., aged 30, Ninth Staffs, was injured, June 22, 1916, sustaining a gunshot wound of the head and a gunshot fracture of the right femur. He brought a letter from the Second Canadian Casualty Clearing Station as follows: "He has had scalp wounds but no shock. These wounds were explored, showing grazing of bone and line of fracture extending over the longitudinal sinus. The fracture area was cleaned and some slightly depressed bone over the sinus was left undisturbed. A small piece of metal was found and the scalp wound was left unsutured after cutting away its edges." He left the casualty clearing station, June 24, complaining of headache, and was admitted to my service, June 25, with vision and fundi normal, and temperature 97.8. June 30, the wound near the midline of the vertex was opened and a depressed fracture with crater eminence of the inner table was shown. The bone was trephined and the dura was found to be slightly scratched, but evidently not punctured. The dura was opened and no subdural hemorrhage was found, but the cortex appeared edematous. The wound on the right side of the head was also explored, and it was found that the shrapnel had penetrated the skull. This was found lying on the dura, which was not opened. All the wounds were dressed and drained. The patient had some suppuration in the head wounds lasting for ten days, no headache and normal temperature. The wounds were dressed by hypertonic salt solution. By July 21, he had so far regained his health that he was sent to England.

CASE 24.—Private R. J., aged 30, Second South Lancashires, who had served twenty months, was injured, July 2, having sustained a gunshot wound of the head and right leg from rifle fire during an attack on enemy trenches. He lay out in the open two days and three nights, during which time he received three more wounds, including one in the head. He was admitted, July 6. Right and left vision was 6/9, and the fundi were normal. July 7, he was operated on, and a depressed fracture of the frontal bone just to the right of the midline was discovered, a subdural clot exposed, and the brain, found severely lacerated, was drained. A nail extension for the fracture of the thigh was performed. By July 15, symptoms of meningitis appeared, and death occurred, July 21.

Necropsy.—There was a healing wound of the right frontal region; no hernia was to be seen outside the scalp. The right thigh was fractured. There was an infected gunshot wound of the right leg; there was very little pus around the scalp wound, and the brain seemed collapsed. A small hernia cerebri was seen through the dura when the scalp was reflected. The meninges were clean on the outside, but there were a diffuse septic meningitis and encephalitis of both lobes and at the base. There was no brain abscess; there was a fracture of half the temporal bone into the middle fossa and left orbit. The pus from the left frontal sinus had burrowed into the left frontal fossa.



Fig. 5.—Skull wound resulting from the shot through the helmet, shown in Figure 3.

This is an instance in which the infection did not come from the operative wound, but from the extension of the sinus on the opposite side.

CASE 29.—Private T. W., aged 27, Tenth Cheshires, injured near Albert, July 11, by shrapnel, was admitted, July 13, perfectly conscious and with no paralyses (Fig. 10). Roentgenoscopy revealed a foreign body in the right orbit and a large piece of shrapnel at the base of the brain. The right eye was ruptured. Vision in the left eye was normal. At operation the right eye was enucleated, and the shrapnel removed from

the lower wound of the orbit. The penetrating wound on the left frontal sinus down toward the base of the brain and the right orbit were drained, but the shrapnel at its base was not found. This wound was very jagged, and brain substance oozed out of it, the bone fragments having been driven down deeply into the anterior fossa. The deep sloughing wound of the left cheek which had crushed the superior maxilla was



Fig. 6 (Case 13).—Hernia cerebri; large and infected; patient quite conscious.

also drained, the mouth apparently having not been opened into. The metal at the base of the brain could be palpated by sound at a depth of 3 inches. The patient had also a penetrating wound just above the inner end of the left clavicle, multiple small wounds of penetrating character over the left triceps and left deltoid region, and others involving the left costal region, left thigh and right leg, in all twenty-seven different gunshot wounds. He made a complete recovery from his head injuries excepting for a facial paralysis on the left side. The gunshot wounds of the pelvis and right tibia were doing fairly well, and he was sent to England, August 19 (Figs. 10 and 11).

CASE 67.—Private C. H., Eighteenth Australian Infantry Force, had a gunshot wound of the head and right shoulder. He was admitted unconscious, but his field card indicated that he had been wounded, August 4, near Albert. There was a penetrating wound of the left parietal region about 2 inches directly lateral to the obelion. Roentgenoscopy revealed a fracture of the left temporal bone with a large piece of metal in the brain at the depth of 1 inch. The patient was unable to express any thoughts, but by August 7, after lumbar puncture, the pulse rose to 78. August 11, he could move his right leg but not his arm, and the facial paralysis which had been present was nearly gone. August 21, he was quite rational, was improving steadily, and could move both hands and feet. He made a complete recovery without operation and with the metal still remaining within his brain.

COMMENT

In Tables 1 and 2 the cases are summarized according to the bone involved (by wound of entrance), the cranial structures involved by the missile, and hernia cerebri. The number of instances of foreign body in the brain (not bone) was 23; removed, 2; operations, 12; recovery, 15; deaths, 8; no serious symptoms, 15; serious symptoms, 8. Other causes of death were ventricular hemorrhage in Case 2, brain hemorrhage in Case 7, and tetanus in Case 36.

Two patients showed marked symptoms of insanity, and although both were operated on for decompression, no relief of symptoms was obtained.

Two patients developed epilepsy. In the instance of the one on whom operation was performed, recovery followed.

In two patients dying of meningitis, necropsy revealed a conveyance of infection by way of other tracts than the wound caused by the missile. In Case 24, infection was carried in from the sinus opened on

TABLE 1.—SUMMARY OF CASES

	Patients			Results	
	Number	Operated on	Not Operated on	Recovery	Death
Bone involved (by wound of entrance):					
Frontal	22	11	..	14	8
Parietal	17	11	..	14	3
Temporal	19	11	..	15	4
Occipital	17	6	..	13	4
Cranial structures involved by the missile:					
Cranium alone	31	12	19	28	3
Dura opened	9	8	1	5	4
Cortex exposed	4	4	0	1	3
Cortex punctured	29	16	13	20	9

the opposite side to the brain puncture, and in Case 45 infection occurred by way of the middle ear.

Other noteworthy cases were Case 48, in which there were cerebral hemorrhage and sinus thrombosis; Case 67, in which the patient made a perfect recovery after hemiplegia with a large piece of metal still in the brain, and Case 68, in which there were positive eye findings, very slow pulse, and evidence of greatly increased intracranial tension.

Approximately half the number of these patients were operated on. Although the mortality in thirty-



Fig. 7 (Case 13).—Enlargement of hernia in spite of all treatment.

nine operative cases was 46 per cent., and in thirty-six nonoperative cases only 8 per cent., I do not believe operation should be abandoned. Naturally the severe cases, with brain penetration and pronounced symptoms of brain injury or greatly increased intracranial tension, were the ones in which indications were found for surgical decompression. Some patients absolutely astounded me by recovery without operative relief in the face of most serious symptoms and even

large pieces of metal within the cranium. I cannot see that operation has much effect on the stopping of terminal infection when the dura has been opened by the missile.

Complications are less frequent and less severe than one would anticipate. Only two of these patients showed insanity, and also only two showed epilepsy. In the epileptic cases we know that there had been no



Fig. 8 (Case 17).—Healing infected hernia cerebri. The temporal areas seem to offer better prognosis. This wound was drained and skull opening enlarged in the face of serious infection. Recovery.

symptoms of that disease prior to the injury. Of the insane patients we could obtain no past history. Of about 9,000 head injuries in which operation was performed in the Franco-Prussian war in 1870, the records of the German army show that insanity developed later in only thirteen — less than 0.15 per cent.

Since the onset of the war a smaller series of head injuries has been compiled by Lieutenant-Colonel Warren for the British Army; 1,239 patients were studied between two and eighteen months after the infliction of the wound; some of his observations may be quoted.

Forty-six, or 3.7 per cent., died after reaching England. Necropsy in twenty-two of these patients demonstrated that practically all suffered a terminal septic meningo-encephalitis.

Concerning neurologic complications, "there can be no doubt that many patients present symptoms of some degree of mental deterioration, and especially dulness, loss of memory, irritability and childishness, during the early stages after the infliction of the wound; but the reports we have obtained in the later stages, and the records we have been able to examine, tend to show that in the majority of cases these symptoms disappear or diminish."

Serious mental disturbances are rare. Only eight were found, and four of these patients were discharged cured; seven had been operated on. Epilepsy, with seizures of the generalized or jacksonian type, were also infrequent. Convulsions occurred in thirty-seven patients, or 6 per cent., of 610 men on whom complete notes were available. Thirty-three of the thirty-seven had suffered severe open skull fractures with dural and cortical laceration, and four still carried a missile within the brain.

Hernia cerebri is the bugbear of gunshot skull fractures. Nearly half of the seventeen patients of whom I made notes died. All were operated on and seven were improved. Probably some of the ten men discharged to England with a hernia cerebri died at a later period. Warren found that 120 patients out of 610 head injuries reached England with hernia cerebri. Ninety-six of the 610 patients had penetrating wounds with retained missiles. Twenty of them developed hernia cerebri. In sixty-eight patients with through and through wounds, fourteen had cerebral hernia. Finally, in 310 patients with penetrating cranial wounds without retained missiles, eighty-six developed hernia cerebri; nineteen of these died, and sixty-two of

TABLE 2.—RESULTS

	Number	Recoveries	Deaths
Patients operated on	39	21	18
Paralyses improved	8		
Paralyses permanent	4		
Hernia cerebri improved	7		
Hernia cerebri permanent	10		
Terminal meningitis	12		
Brain abscess	1		
Patients not operated on	36	33	3
Paralyses improved	4		
Paralyses permanent	3		
Terminal meningitis	1		

the eighty-six had been operated on abroad. He concludes that there are no grounds for supposing that more radical operations abroad are called for, because it seems doubtful if surgical intervention other than that necessary for the drainage and healing of the wounds diminishes appreciably the risk of later complications, or can modify, except in a harmful direction, the course of these cases from the functional standpoint. Every possible step should, however, be taken to prevent the development of hernia cerebri. The records also show that many patients with foreign bodies lodged deeply in the brain recover, and are scarcely more liable to serious complications than men in whom the brain has been merely exposed and lac-

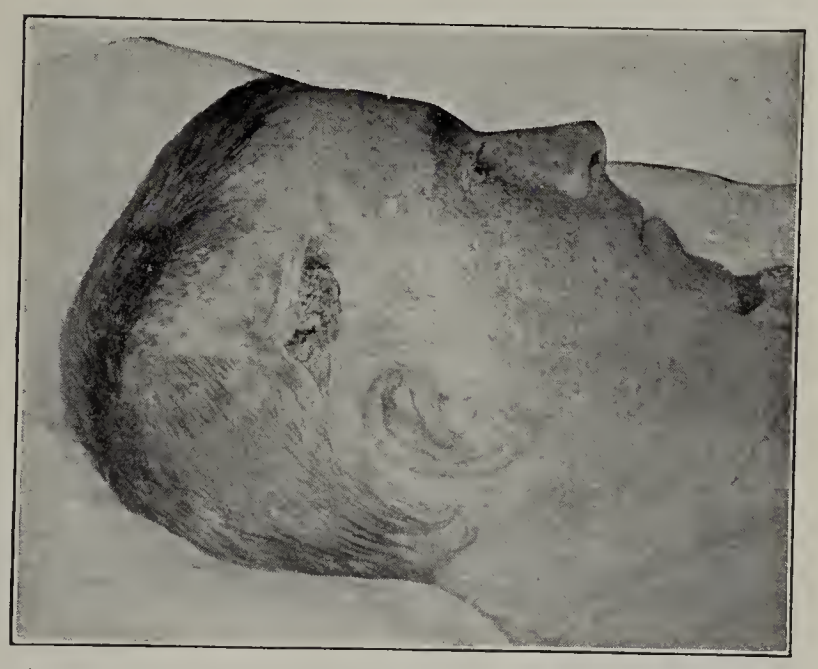


Fig. 9 (Case 17).—Patient eight weeks later; wound about healed; patient ready to be sent to England.

erated. In my series, twenty-three patients had foreign bodies in the brain, and only eight died, while fifteen showed only minor symptoms directed toward the injury.

The value of eye-ground findings in skull fractures has always been interesting to me. I believe they have little prognostic value that can be elicited early. To be of a distinct help to the surgeon, the eye findings must be obtained early and must be positive if they are

to be used in weighing evidence in favor of decompression. It may be said that negative findings or mild evidence of slight optic neuritis probably indicate a good prognosis, barring late infection and plastic meningitis. In these seventy-five cases, less than 8 per cent. gave any positive findings which indicated decompression. A large percentage gave an early reduced vision which



Fig. 10 (Case 29).—Severe skull injury; large piece of metal buried deep in left face; another missile entered at base of nose and lay near sella turcica; right eye destroyed; wounds of face and chin. Besides apparent wounds, the patient had twenty-four other gunshot wounds, one a fracture of the pelvis and one a fracture of the tibia.

alone was not considered an indication for early decompression. In our vicinity Oliver carefully examined sixty-eight patients with gunshot wounds of the skull. He found thirty-seven normal disks and thirty-one instances of optic neuritis which were divided pathologically into two classes: (1) the larger class, showing merely a fulness of veins or blurring of the disks with little swelling, and (2) the smaller class, with marked disk swelling associated occasionally with retinal hemorrhages, the disk being much like that found in tumors of the brain. Of six of the patients with marked neuritis (cerebral compression), four died. All of twenty-five patients with slight optic neuritis recovered after *any form of local wound treatment*. Oliver did not mention late optic neuritis caused by septic meningitis, which I believe may be used in prognosis by observation for several weeks after injury, especially in instances of metal retained within the brain.

My observations make certain points stand out after a small experience with these skull fractures:

A large percentage of patients suffering from gunshot skull fractures reaching the base hospital will recover with no other treatment than thorough rest and a dressing on the wound.

Wounds which involve the cranium alone and give little evidence of injury of the brain tend to rapid cure.

Frontal wounds without deep penetration seem to offer the best prognosis. No conclusions can be drawn from mortality, according to the skull area involved, because it is impossible to weigh the factors of depth of penetration, foreign bodies in the brain, and the amount of infection.

A large majority of the deaths result from septic infection, which often spreads in a slow, insidious manner. Hernia cerebri is not necessarily fatal. It is prone to late and fatal septic meningitis, and no treatment, whether in the nature of an application, as alcohol, hyptertonic salt solution, hydrochlorite, glycerin, phenol (carbolic acid), or posture, repeated spinal punctures or operative removal, is a cure-all.

The finding of bacteria or an excessive number of leukocytes in the spinal fluid offers a poor prognosis

Hernia cerebri should be avoided when it can be If the dura is not opened by the fracture it should not be incised — it may be aspirated for subdural hemorrhage.

Bromids and complete rest should be given gunshot skull fractures.

Gas infections of the brain occur and are not necessarily fatal.

Recovery from very serious symptoms with foreign bodies within the brain is possible without operation.

Eye-ground examination and findings are of little practical value in deciding on indications for early operation. They are helpful in late infection and increase in intracranial tension from other causes.

The purpose of operations on fresh gunshot skull fractures should be: 1. To clear and trim wound edges of the soft parts or to remove loose and floating bone fragments. 2. To decompress, preferably in a clean area, when increased intracranial tension from progressive cerebral or dural hemorrhage threatens life. 3. To remove superficially lying foreign bodies when they can be positively located and easily reached.

It is probably unwise to attempt the removal of deep lying foreign bodies, especially those located near vital parts of the brain.



Fig. 11 (Case 29).—Patient after recovery, ready for transportation to England; metal at base of brain never searched for; right eye gone and gunshot fractures improving.

The dura should be preserved as much as possible, and plastics on the scalp should be done after excision of torn edges to cover deeper defects when it is felt that the infection is negligible.

Bone and dura adherent over the sinuses should be left in place.

122 South Michigan Avenue.

AN EPIDEMIC OF SEPTIC SORE THROAT DUE TO MILK*

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During the early part of March, there occurred in Galesville, Wis., a town of about 1,200 inhabitants, a sudden outbreak of severe sore throat. The symptoms were so severe, and the outbreak so sudden, that the authorities and physicians became alarmed.

March 12, one of us was urged to investigate the epidemic. The symptoms were strikingly like those in the milk-borne epidemic of septic sore throat which occurred in Chicago during the winter of 1911-1912 studied by Capps and Miller, and Davis and Rosenow. The relation of the cases to the milk supply was suspected, and pasteurization or boiling of the milk was advised pending the investigation. March 15, it had become apparent that the cases occurred chiefly in families who used milk from a certain dairy. Inspection of the throat and microscopic examination of a smear from the tonsils in the first case recalled at once the picture that was observed in the Chicago epidemic, namely, the presence of much mucus, diffuse redness of the throat, and enormous numbers of diplococci in smears. The subsequent examination from house to house of some thirty patients showed clearly that this was not an epidemic of ordinary tonsillitis so prevalent at this season of the year, but one presenting the typical picture of "septic sore throat." In some households all members of the family were stricken, from grandparent to child, each being too sick to care for the others.

After an incubation period of from one to three days, the attack usually began with a severe chill or by several less severe rigors. This was usually followed by restlessness, high fever, ranging from 102 to 105 F., intense aching of the muscles, extreme prostration, great pain on swallowing, and tenderness on one or both sides of the neck due to enlarged lymph glands and to the accompanying edema and infiltration. At first the amount of inflammation of the throat was slight, considering the severity of the constitutional symptoms. Later, in the severe cases, intense diffuse hyperemia and edema of the pharynx, tonsils and soft palate supervened. Small superficial ulcers were common on the uvula and pillars. There was temporary edema of lips and eyelids. The pulse was relatively slow. The lips and finger nails were blue. The acute symptoms lasted usually from three to five days, but in some the fever became septic in type as the enlargement of glands and infiltration in the neck persisted for some weeks. Relapses and complications were common. They occurred usually after the first week or ten days of illness. Erysipelas of the face and otitis media were the most frequent complications observed. Pleurisy, pericarditis, endocarditis, arthritis, peritonitis, myositis and synovitis were noted. Symptoms simulating acute rheumatic arthritis, one of the complications, were found in most instances to be due to myositis and tenosynovitis. Pneumonia and nephritis were not observed.

About 200 persons were affected, of which approximately 95 per cent. consumed the contaminated milk. In some instances the drinking of a single glass of the infected milk was followed within forty-eight hours by typical attacks.[1] There have been eleven deaths, due chiefly to erysipelas, peritonitis or cardiac complications. Promptly after the milk was boiled, the spread of the epidemic ceased. The few "secondary" cases which developed were less severe, and complications and relapses were noticeably less common after the milk was boiled. Persons who had had their tonsils removed previously developed mild symptoms or none at all.

Swabs were made jointly with Dr. Thompson from six patients and cultures from the blood in one.

At the dairy it was learned, first, that during the three weeks previously all of the milkers and the wife of one of the dairymen either had been or were still ill with severe sore throat; second, that the milk from well kept, clean Jersey cows was strained into 10-gallon cans and then bottled from a 5-gallon bottler; third, that a number of cows had had mastitis for some weeks, but this condition was no more prevalent this winter than other winters; and fourth, that the milk from infected quarters of the udders was discarded. The milk from three cows (Cows 1, 2 and 3) having mastitis was collected jointly with Drs. Thompson and Henika of the state board of health.[2] This was done by discarding the first strippings and then milking the contents into sterile bottles. In one cow (Cow 1), the right hind quarter of the udder was infiltrated and tender. The material obtained (60 c.c.) looked more like pus than milk. The other quarters were normal, but 90 c.c. of milk were taken from the anterior quarter of the same side for control tests. Smears of the material from the quarter showing mastitis showed an enormous number of gram-positive diplococci (some of which showed capsules) single and in short chains, and many leukocytes. Blood (human) agar plates inoculated with a loopful of this material showed in twelve hours countless numbers of grayish, translucent, moist, spreading colonies surrounded by a rather wide but somewhat hazy zone of hemolysis. Smears from the centrifugalized sediment of the control milk from Cow 1 showed four colonies of the same streptococcus and no other bacteria. Dextrose broth cultures showed marked diffuse turbidity due to diplococci which were single and in short chains. These plated on blood agar yielded the same streptococcus in pure form.

Smears and cultures from the mastitis milk from Cow 3 showed exactly the same streptococcus, while the material from the infected quarter of Cow 2 showed staphylococci and a few grayish colonies of streptococci but not the hemolyzing streptococcus.

Smears from the swabs of the throats of five patients showed many diplococci and leukocytes. The cultures on blood-agar plates yielded large numbers of colonies of streptococci exactly like those from the infected milk. On some of the agar plates were a few green colonies of streptococci, staphylococci, colon bacilli and *Micrococcus catarrhalis*. The preponderance of the characteristic streptococcus on these plates was a striking picture. The colonies like those found in the Chicago epidemic when first isolated differed from the usual hemolytic streptococcus in that they

* From the Mayo Foundation.

1. We wish here to express our appreciation to the mayor of Galesville, A. T. Twesme, who requested the investigation, to Drs. H. A. Jegi and George Christiansen, to the Sacia Brothers, owners of the dairy, and to Drs. I. J. Thompson and G. Henika of the Wisconsin State Board of Health, for their willing cooperation.

2. On arrival at the dairy, Dr. Henika reported the finding of numerous "streptococci" in the centrifugalized sediment of a sample of the contaminated milk procured in the open market.

were larger, less opaque and more moist, and the hemolysis was less marked and less sharply defined. After cultivation for a short time, in some instances in the third culture generation, these peculiar features had disappeared simultaneously with the capsule and the colonies were indistinguishable from the usual hemolytic streptococcus. One of the six patients failed to show the hemolyzing streptococcus. The fermentative reactions of the streptococcus from the milk and throats were identical. Dextrose, lactose, saccharose and salicin were attacked; raffinose, mannite and inulin were not.

ANIMAL EXPERIMENTS

The virulence of the streptococcus, the missing link in the chain of evidence to prove the milk guilty, was demonstrated the next day, March 16, and was so reported to the Galesville authorities. The following protocols suffice to illustrate:

RABBIT 1172.—A medium-sized white rabbit was injected intraperitoneally, March 15, at 11:45 p. m., with 3 c.c. of the puslike material from the mastitis quarter of Cow 1.

March 16, 7:30 a. m.: The rabbit was extremely ill; unable to stand. At 11:30 a. m. it was found dead. The peritoneum appeared opaque and dry. There was no free fluid. There was marked degeneration of the liver and myocardium and cloudy swelling of the kidney. The joints, stomach, spleen and lungs showed no changes. Smears from the peritoneum and blood showed many gram-positive diplococci, single and in short chains.

March 17: The blood-agar cultures of the blood showed large numbers of colonies of the streptococcus injected. Dextrose broth cultures showed diffuse turbidity, and smears showed diplococci, single and in short chains.

RABBIT 1174.—A medium-sized gray rabbit was injected intraperitoneally, March 15, 11:50 p. m., with 1 c.c. of the salt-solution suspension of the swabs for six patients.

March 16, 7:30 a. m.: The rabbit was very ill. At 10:30 a. m. it was found dead. The peritoneum was dry and opaque. There was marked cloudy swelling of the myocardium, kidneys and liver. Smears from the peritoneum showed very many gram-positive diplococci and few leukocytes showing little phagocytosis. Smears from the blood showed a moderate number of gram-positive diplococci in short chains.

March 17: Cultures from the blood on blood-agar plates showed large numbers of colonies of the streptococcus injected. Dextrose broth cultures showed marked turbidity, and in smears diplococci, single and in short chains.

Two white mice (Mice 44 and 45) injected at the same time, one subcutaneously with 0.3 c.c. of the mastitis material, the other intraperitoneally with 0.1 c.c. of the salt-solution suspension of the throat swabs, were ill the next day, and died from streptococcemia, March 17.

A mouse (Mouse 46), injected intraperitoneally with 2 c.c. of the sediment of the mastitis material from Cow 2, in which the blood-agar plate cultures failed to show the streptococcus, died, March 17. There was a dry peritonitis and there were a large number of the typical streptococci in the blood.

The effect of heating the mastitis material from Cow 1 to 60 C. (140 F.) was determined. Cultures made just prior to heating showed countless numbers of the typical streptococcus, while after pasteurization the cultures were sterile. The unheated material was injected as follows: 2 c.c. subcutaneously into one large rabbit, 3 c.c. intraperitoneally into another rabbit, and 0.5 c.c. intraperitoneally into a mouse. The rabbit injected subcutaneously and the mouse died within forty-eight hours from streptococcemia. The former showed marked subcutaneous edema at the point of injection, acute regional lymphadenitis, acute pericarditis and edema of the lungs. The mouse showed peritonitis. The rabbit injected intraperitoneally became ill but ultimately recovered. The animals injected with corresponding amounts of the pasteurized material remained well.

Similar experiments were done with a sample of milk obtained in Rochester, cultures of which showed large numbers of nonhemolyzing streptococci and a moderate number of colon bacilli. Animals were injected as above, first, with this milk as obtained and kept at room temperature for twenty-four hours; second, with the milk inoculated with the virulent streptococcus (Cow 1) and kept at room temperature for twenty-four hours, and third, with the latter after pasteurization. Those injected with the uninoculated milk remained well, as did those injected with the pasteurized material, while those injected with the milk inoculated with the virulent streptococcus either died or became ill.



Monkey showing erysipelas of the face.

It has been held by some that to determine the virulence of streptococci by injection is not sufficient to prove etiologic relationship in these and similar studies. We therefore instituted experiments in which the methods of inoculation simulated those occurring in the epidemic; that is, we fed the infected material and swabbed the throats and scratched the skin. In swabbing the throats, care was exercised to avoid injuring the mucous membrane.

Two mice (Mice 47 and 48), whose throats were swabbed once and which were fed bread soaked in the infected material, died in six and three days, respectively. The latter developed swelling of the left side of the face resembling erysipelas. The former had no evidence of infection of the throat, but showed edema and hemorrhagic infiltration of the visceral pericardium covering a large part of the left ventricle, acute splenitis, and approximately 500 and 1,200 colonies of the typical streptococcus in a drop of blood and pericardial fluid, respectively.

Two mice (Mice 49 and 50), were fed bread soaked in the infected material. Mouse 49 has remained well. Mouse 50 died in six days and showed several small epicardial hemorrhages, acute splenitis, and edema of the tissues surrounding the throat but no apparent enlargement of the lymph glands and no inflammation of the mucous membrane of the throat. The blood showed countless numbers of the typical hemolyzing streptococcus.

The results in a monkey (Monkey 120) are given in detail. March 18, the throat was swabbed with mastitis material from Cow 1, and the skin on the left side of the nose scratched with a wire dipped in the same material. Bread soaked with the material was placed in the cage, no other food being given for one day.

March 19, 10 a. m.: The left side of the face surrounding the scratch was swollen and red, including the lower eyelid. There was no discharge from the nose and no perceptible swelling or redness of the throat. At 5 p. m., the swelling of the left side of the face was more marked and the temperature was 103 F. The throat was again swabbed.

March 20: The swelling of the face was more marked, the left eye was swollen nearly shut, and the edema extended to within 2 cm. of the ear. The right side of the face showed no involvement.

March 21: The swelling of the left side of the face had subsided perceptibly; the skin was wrinkled and beginning to desquamate; there was marked swelling of the right side of the face, as shown in the accompanying illustration; the temperature was 103 F.; the affected area was hot and red.

March 23: The animal's face was still much swollen and red; the monkey seemed ill; the temperature was 103.5 F.

March 24: The swelling of the left side of the face had markedly subsided.

March 25, 10 a. m.: The swelling of the face was more marked, especially on the right side; the right eye was nearly closed; the animal appeared ill; the temperature was 103 F. At 12 noon, it was found dead. There was marked swelling and edema of the whole face extending to the ears on both sides, well into the neck, and over a large portion of the scalp. The submaxillary lymph glands were enlarged and edematous. In the pharynx was a small amount of pus. The tonsils were not perceptibly enlarged, but the adjacent lymph glands and surrounding tissues were edematous and hemorrhagic. A small amount of slightly blood-tinged fluid was found in both middle ears. The mucous membrane of the nares was normal, but that in the pharynx, including that surrounding the eustachian tubes, was hyperemic and covered with much mucus. In the peritoneal and pericardial cavities was a large amount of slightly turbid fluid containing hemolyzed blood, leukocytes and many streptococci. The epicardium was moist and edematous, particularly along the blood vessels and at the base. The anterior leaflet of the mitral valve was edematous at the base, and near the periphery were two small hemorrhages. There was hemorrhagic edema along the base of the pulmonary and aortic valves. The middle aortic semilunar cusp contained a large edematous nodule along the line of closure. The myocardium, kidneys and liver showed cloudy swelling. The left infrapatellar bursa was hemorrhagic and edematous. There were no other lesions. The blood was markedly hemolyzed.

March 26: Blood agar plates from the subcutaneous fluid, the peritoneal fluid, the pericardial fluid and the blood showed the typical streptococcus in large numbers in pure form. The exudate from the middle ears showed chiefly green-producing streptococci resembling pneumococci and a few colonies of the typical streptococcus.

SUMMARY AND CONCLUSIONS

The clinical picture in this epidemic was typical of "septic sore throat" as described in numerous other milk-borne epidemics. Etiologic relationship of the streptococcus found in the milk was proved. The disease occurred almost exclusively in persons who consumed the milk. In some instances the drinking of one glass was sufficient to bring on an attack. The streptococcus was found in enormous numbers in the material from mastitis quarters of the cows' udders and in small numbers in a normal quarter. It was also isolated in large numbers from the throats of patients. High virulence of the streptococcus was proved by inoculation of animals. The lesions produced resembled those found in patients, especially in those animals in which the methods of inoculation simulated those which occurred in the epidemic. Erysipelas was produced in a monkey by scratching the skin with a wire dipped in the infected material. In the same monkey inflammation of the throat associated with acute enlargement of the lymph glands in the neck, with surrounding edema and otitis media followed swabbing the throat with cotton saturated with the same material. Peritonitis, pericarditis, endocarditis, myocarditis and synovitis were common in the animals as in patients. Heating the milk to 60 degrees for twenty minutes was sufficient to render it innocuous.

Virulent bacteria may be present in the udder of cows with no demonstrable sign of disease. It is practically impossible to handle milk without risk of contamination from human and other sources even though the rigid technic of an operating room be employed. Since milk is such an excellent culture medium, inspection of dairies, certification and grading of milk according to sediment tests and bacterial counts as now practiced, while valuable, cannot permanently safeguard the public health. Efficient pasteurization should be universally adopted.

SEPTIC SORE THROAT

EPIDEMIOLOGIC STUDY OF A MILK-BORNE EPIDEMIC AT GALESVILLE, WIS., DUE TO THE USE OF INFECTED MILK

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An explosive outbreak of 325 cases of septic sore throat in a community of 941 people directly traceable to an infected milk supply occurred in Galesville, Wis., from Feb. 26 to March 19, 1917. The interesting factors in this epidemic were:

1. The virulence of the infection.
2. The tracing of the source of infection to six cows.
3. The possibility of the cows becoming infected from the milker.
4. The large number of families infected.
5. The small number of contact cases.
6. The short period of incubation.
7. The abrupt checking of the epidemic.

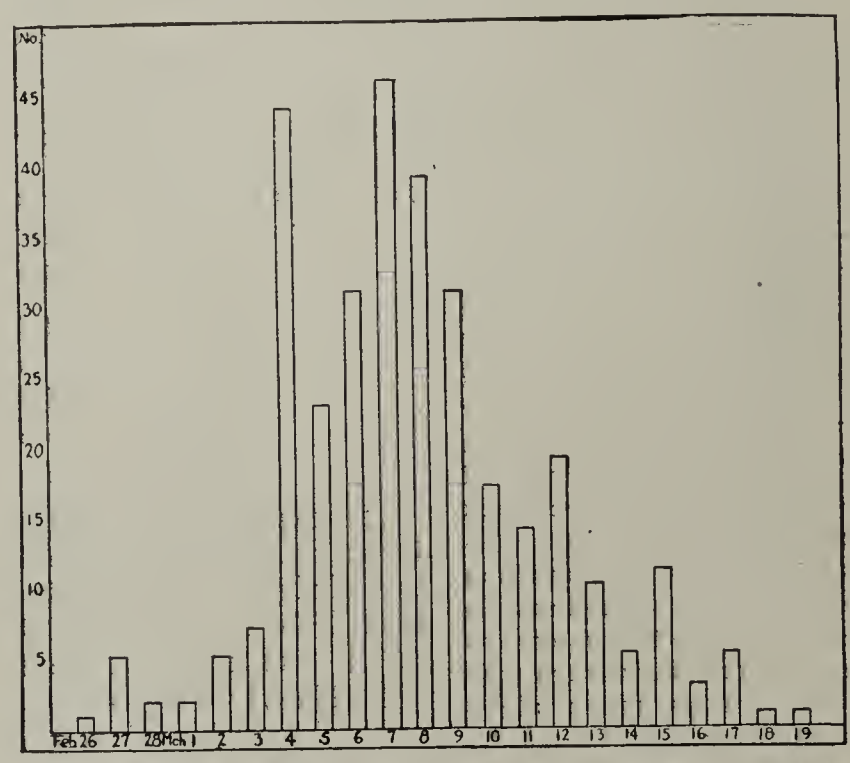
The first case appeared, February 26, and was followed by five cases on the 27th; two on the 28th; two, March 1; five on the 2d, and seven on the 3d. Sunday, the 4th, forty-four cases appeared. Additional cases appeared daily until, March 14, in response to a request of the local authorities, this investigation was undertaken. The explosive nature of the epidemic and the large number of persons infected pointed to a single source of infection, either the milk or the water supply of the village.

To check any further spread of the disease while we were endeavoring to locate the source of the infection, a bulletin was issued and placed in every home, requesting the people to boil all milk and water and giving full directions for disinfecting all discharges from the patient and such other precautions as were necessary to prevent contact infections. As a result of this preventive measure, the epidemic was immediately checked, only two new cases appearing after the period of incubation had elapsed.

The village of Galesville obtains its milk supply from two large herds of over twenty cows, and many smaller ones containing from two to ten cows. During our investigation, the milk from 159 cows was examined. Investigation showed that most of the infected persons obtained milk from a dairy operated and owned by the S. Brothers, who, in addition to running a dairy, also manufactured ice cream. The dairy itself was of a better type than most dairies usually found in like rural communities. The barn was well constructed, with cement floor and steel stanchions, and was fairly well lighted and ventilated. Running water was supplied in a tank in the center of the barn. The herd consisted of forty grade Jerseys, twenty-six of which were being milked at this time. There were four men handling the milk, two of whom were the owners of the plant. These men showed no evidence of any skin disease. In three of them, throat cultures of streptococci were obtained; but they gave no history and showed no evidence of illness, aside from a slight redness of the throat.

One of the S. brothers, about Jan. 28, 1917, had an attack of severe sore throat, the nature of which we were unable to determine. It was accompanied by a marked enlargement of the glands of the neck. It is possible that this may have been a streptococcus infection.

A sample of the bulk milk was taken from the S. dairy and centrifuged. The sediment from this milk examined microscopically showed streptococci, leukocytes and pus cells in large numbers. These streptococci were identical in appearance with the organisms recovered from the throats of many of the patients.



Daily course of the Galesville epidemic, Feb. 26 to March 19, 1917; 325 cases with nine deaths.

The herd of twenty-six cows producing milk was then examined, and three cows were found which gave evidence of having mastitis in one quarter. The milk from these three cows did not show signs of garget as the term is generally understood. It was not thick or clotted, and did not contain blood. The milk of two of these cows had a watery appearance, while the milk from the other cow appeared normal. Samples of milk were taken in a sterile container from each teat of every cow producing milk, placed on ice and taken to LaCrosse, where in the laboratory of the city health department, with the assistance of Dr. J. M. Furstman, we completed our examinations. Streptococci were found in enormous numbers in the milk from six cows. Three of these cows proved to be the same cows that showed evidence of mastitis on the physical examination. One of the six infected cows had a subnormal temperature. The temperature of the other five was normal. Two of these cows were in very poor condition, and one cow showed evidence of stiffness in the joints. Three of the infected cows were young heifers, while the other three were older cows.

The symptoms of this disease as described in previous epidemics were present here with the possible difference of a much shorter period of incubation and a more profound toxemia.

The first symptom to appear was generally a marked chill, followed by a rapid rise in temperature and occasionally by a severe sweating. The entire mucous membrane of the throat was red and covered with a glistening mucus. Nothing resembling a membrane was present except in three cases, and this was readily removable without bleeding.

The superficial blood vessels of the throat were greatly congested, and appeared as scarlet threads on the reddened membrane. The uvula was generally edematous. The tongue was seldom heavily coated. The temperature was usually high, frequently reaching 106. The pulse was generally weak and rapid. The prostration was extreme in all cases. Nausea and vomiting frequently marked the onset of the disease, and in some cases was a serious complication. Seventy-five per cent. of those afflicted showed enlargement of the cervical glands.

The muscles of the neck were stiff, and movement of the head caused pain. Most of the patients complained of difficulty in swallowing.

The infection showed an affinity for serous membranes; endocarditis and pericarditis occurred, and various bursae of the joints were frequently involved. Peritonitis was not infrequent. There were a few cases of erysipelas and several of otitis media. One case of orchitis was recorded. As a result of this epidemic, there had occurred in the village of Galesville, up to March 23, 1917, nine deaths.

It was possible to establish the period of incubation accurately in many cases, as many persons who were not using milk from the S. dairy in their home ate ice cream or drank milk at parties, and almost without exception they were taken suddenly ill within forty-eight hours. Without exception, whenever the period of incubation was three or four days, the result was a mild case.

More females were found to have been infected than males, as the survey showed 184 females and 141 males. Forty-five cases were contracted from having eaten ice cream or from the use of cream in coffee at restaurants supplied with milk from the S. dairy. Most of these patients were men. Several victims ate whipped cream at parties at which only adults were present.

Few children were affected. Therefore, only two age divisions were made. There were 103 patients under the age of 20, and 222 over 20, a total of 325. The total number of families in the village was 242; the total number of families afflicted was 121; 50 per cent. of all families, therefore contained one or more cases.

Only two cases were found that could be classed as contact cases. One occurred in one of the three physicians practicing in Galesville. The other contact case was in an infant whose father contracted the disease in a restaurant the week preceding the illness of the child. Another physican using the milk from the S. dairy contracted the disease. This was not counted as a contact case. Of the 323 cases not occurring by contact, 255 were in families using milk from the S. dairy, and sixty-eight in families not using it.

Of the sixty-eight patients who were not regular patrons of the S. dairy, forty-one contracted the infection at restaurants using S. milk; nine ate S. whipped cream at parties; twelve used S. cream once; four ate S. ice cream (not included above), and two ate S. cream at school.

Forty-eight persons using S. milk escaped the infection. The percentage of population infected was 34.53. The percentage of families infected was 50.

COMMENT

It was our unusual privilege to be called at the height of the Galesville epidemic, to recognize the organism causing the disease, trace the source of infection to a single dairy, isolate the infected cows from the herd, and have the satisfaction of seeing the epidemic checked.

NUMBER OF CASES IN FAMILIES

Number of Families	Number of Cases in Family	Total Cases
39	1	39
34	2	68
20	3	60
16	4	64
6	5	30
3	6	18
1	7	7
1	8	8
1	9	9
*	22	22
121	..	325

* Gale College.

We believe that the issuing of the bulletin, requesting the citizens to boil all milk and water and giving full directions for disinfecting all discharges from the patients and such other precautions as were necessary to prevent contact infections, checked the epidemic, and was a large factor in preventing contact cases. This is a measure that could well be adopted in all milk-borne and water-borne epidemics.

This epidemic furnishes additional proof that pasteurization of bottled milk under official supervision is the only method of securing a safe milk supply.

Segregation of Tuberculosis Carriers.—The Committee on Prevention of Tuberculosis of the Charity Organization Society, New York, has made a study of lodging house cases. This type constitutes a large percentage of cases treated each year which is more careless in habit, more ubiquitous in wandering, and less easily supervised than any other. Statistics for 1911 show that persons living in furnished rooms, in lodging houses or reported as homeless, constituted more than 27 per cent., of all admissions to tuberculosis hospitals in that year. The committee suggested that the health department set aside beds in hospitals to be used for detention cases and that, in cooperation with the police department, facilities be provided for examining lodgers at the municipal lodging house, and that tuberculosis patients when discovered be removed at once to a detention hospital. This suggestion has been accepted by the health department, and Riverside Hospital is used for a detention hospital.

CALCIUM IN THE BLOOD IN TUBERCULOSIS *

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Numerous attempts have been made to show a relationship between the onset and the course of tuberculosis and the metabolism of the mineral elements.[1] The administration of lime as a therapeutic measure has been recommended by different authors through a period of many years and up to the most recent time.[2] High lime administration is employed consciously or otherwise wherever forced feeding which includes much milk (the highest in calcium of the ordinary foods) is practiced. Thus a pint of milk contains about 0.5 gm. of calcium, which is sufficient to maintain calcium equilibrium in an average man, and from five to ten times this amount of milk is frequently used in forced feeding.

It is, of course, difficult to tell with certainty whether or not the calcium salt ingested is responsible in part for the clinical improvement which has been reported in certain cases following its administration. Metabolic balances have been prepared for the mineral elements in tuberculosis, some showing losses of calcium from the body in incipient and others in advanced tuberculosis. Sufficient work has not been done, and the findings have not been constant enough to support definitely the view of a preliminary decalcification predisposing to tuberculosis or that the losses in more severe cases are essential manifestations of the disease. It has also been assumed that the administration of these salts might stimulate the processes of calcification, in particular those of the tubercles, and thus aid in the localization of the disease. For this there is again no real physiologic evidence. The unsatisfactory status of our knowledge of calcium metabolism in tuberculosis is to a considerable extent a reflection of a similar condition with regard to normal calcium metabolism. For instance, very little is known with regard to the conditions of transportation of calcium and the factor or factors which determine its deposition in particular tissues. Our knowledge of the calcium content of the blood under various conditions has been almost negligible. No determinations of this element in the blood of patients with pulmonary tuberculosis have been made, so far as we are aware, in spite of the obvious bearing of such information on the views which have been presented.

We have, therefore, determined the amounts of calcium present in the blood in a number of patients suffering with pulmonary tuberculosis whose conditions are becoming progressively less favorable, as well as in certain patients convalescing from the disease. The method employed for the determination was the one elaborated by two of us.[3] The determinations were made on the serum, which we have found in the pathologic conditions so far studied not to deviate significantly from the plasma in calcium content.

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* From the Laboratory of Physiological Chemistry of Jefferson Medical College.

1. A review of the literature is given by Kahn: Med. Rec., New York, 1914, **85**, 924.
2. Fisac: Siglo méd., 1916, **63**, 717.
3. Halverson, I. O., and Bergeim, Olaf: Jour. Biol. Chem., 1916, **24**, 22.

The convalescing patients were sanatorium patients showing great improvement in symptoms and physical signs of the disease. The blood was taken before breakfast, no milk or other food high in calcium being given in the evening meal just preceding. The advanced cases were chiefly from the Department for Diseases of the Chest of the Jefferson Hospital, and with a few exceptions the blood samples were taken before breakfast.

The calcium content of the blood serum of normal human adults appears to range between 9 and 11 mg. per hundred c.c., usually, however, below 10.5 mg. It will be noted that the maximum variations observed in tuberculosis are from 8.4 to 11 mg. of calcium per hundred c.c. No striking deviations from the normal were noted in this condition. In the advanced cases the variations were the most marked. Rather high values were obtained when the blood was drawn after the noon meal (Cases 8, 9 and 24), which might possibly indicate that the ingestion of the food had some slight temporary effect on the calcium level. Considerable amounts of fat were found in these specimens of blood, suggesting that fat was being absorbed and transported. Thus it appeared to be desirable to take specimens for blood calcium determinations before breakfast, which was done in nearly all the cases herein studied. It will be noted that the average value obtained in the far advanced cases in which the patient died within two months of this examination was 9.1 mg., while the average of the far advanced cases showing slight improvement was 10.1 mg., an appreciably higher figure. A similar relation holds for the moderately advanced cases. The differences, however, are not sufficiently large or sufficiently constant to permit the drawing of a definite conclusion in the present state of our knowledge.

In the convalescing cases the calcium content lies well within normal limits, and varies but little. The average figure obtained was 9.7 mg. per hundred c.c. of blood serum. The diets in these cases were similar, nearly all being high in milk and hence in calcium. The lowest value was obtained in a patient no longer on a high milk diet. There is no evidence, however, that the long continued high calcium diet had any tendency to increase the calcium content above average normal values.

The calcium content of the blood appears to be regulated with great nicety, and we have found it to be within normal range in a considerable variety of pathologic conditions. Marriott and Howland[4] have shown that marked decreases occur in uremia with acidosis, these being apparently brought about by the phosphate retention which takes place. Here the lowered calcium appears to be secondary to marked changes in the chemical composition of the blood as the result of exceptional disturbance in the excretory function. In such cases we have observed increases toward the normal range in blood calcium after calcium lactate administration. Whether or not this is due to withdrawal of blood phosphate through the intestine by the ingested calcium, the findings would not seem to have any direct applicability to pulmonary tuberculosis, in which disturbances of elimination, in any way comparable to this, do not occur.

The constancy of blood calcium has been shown by Meigs and Blatherwick.[5] They found calcium remarkably constant in the blood of cows during pregnancy and lactation, although the mobilization of calcium for milk production is very great compared to the amount present in the blood, and this calcium must come, to a considerable extent, from the bones of the animal. In fact, this deficiency of calcium in the metabolism of

CALCIUM CONTENT OF THE BLOOD OF TUBERCULOUS PATIENTS

Case	Name	Diet	Stage of Disease	Condition	Calcium in 100 Cc. Blood Serum, Mg.	Averages, Mg.
1.	J. P.	10 glasses of milk, 4 raw eggs, and one meal	Incipient	Improved	9.9	
2.	A. L.	House	Incipient	Improved	9.4	
3.	E. F.	12 glasses of milk, 6 raw eggs and one meal	Incipient	Improved	10.1	
4.	P. D.	12 glasses of milk, 6 raw eggs and one meal	Incipient	Improved	9.6	
5.	E. E.	12 glasses of milk, 6 raw eggs and one meal	Incipient	Improved	9.9	
6.	J. Ha.	12 glasses of milk, 6 raw eggs and one meal	Incipient	Improved	9.9	
7.	J. Ho.	3 meals	Incipient	Improved	9.3	9.7
8.	B. S.*	House; includes milk	Moderately advanced	Improved	10.9	
9.	A. B.*	House; includes milk	Moderately advanced	Improved	10.4	
10.	C. M.	House; includes milk	Moderately advanced	Improved	10.4	
11.	W. S.	House; includes milk	Moderately advanced	Improved	10.5	
12.	L. P.	House; includes milk	Moderately advanced	Improved	9.6	
13.	J. M.	House; includes milk	Moderately advanced	Improved	10.7	10.4
14.	B. M.	House; includes milk	Moderately advanced	Unimproved	10.2	
15.	D. C.	House; includes milk	Moderately advanced	Unimproved	8.4	
16.	J. P.	House; includes milk	Moderately advanced	Unimproved†	10.9	9.8
17.	M. S.	House; includes milk	Far advanced	Unimproved†	9.4	
18.	G. H.	House; includes milk	Far advanced	Unimproved†	8.6	
19.	G. T.	House; includes milk	Far advanced	Unimproved†	9.1	
20.	H. P.	House; includes milk	Far advanced	Unimproved†	9.1	
21.	B. S.	House; includes milk	Far advanced	Unimproved†	9.7	
22.	G. D.	House; includes milk	Far advanced	Unimproved†	8.7	
23.	M. H.	House; includes milk	Far advanced	Unimproved†	9.1	9.1
24.	J. Hu.*	House; includes milk	Far advanced	Slight improvement	10.6	
25.	S. L.	House; includes milk	Far advanced	Slight improvement	10.2	
26.	T. M.	House; includes milk	Far advanced	Slight improvement	11.0	
27.	N. M.	House; includes milk	Far advanced	Slight improvement	8.7	
28.	J. M.	House; includes milk	Far advanced	Slight improvement	9.1	
29.	J. W.	House; includes milk	Far advanced	Slight improvement	10.6	
30.	A. S.	House; includes milk	Far advanced	Slight improvement	10.5	10.1

* Blood sample was taken after the midday meal; the other samples were obtained before breakfast.
† Died within a period of two months following blood examination.

4. Marriott, W. M., and Howland, John: Phosphate Retention as a Factor in the Production of Acidosis in Nephritis, Arch. Int. Med., November, 1916, p. 708.
5. Meigs and Blatherwick: Proc. Am. Soc. Biol. Chem., December, 1916.

lactating cows has been demonstrated by Forbes and associates.[6]

The total blood of a 60 kg. man contains about 0.3 gm. of calcium. The bones contain approximately 4,000 times as much. With this great reserve supply of calcium, a portion of which is available, as is indicated by the great constancy of blood calcium under varying diets and conditions, a physiologic basis for the administration of calcium salts in tuberculosis has yet to be demonstrated.

SUMMARY AND CONCLUSIONS

Determination of the calcium content of the blood of patients with advancing and convalescing tuberculosis revealed that in the incipient cases in which the patients, who were on a high milk diet, showed marked improvement, the values for calcium in the serum were normal and fairly constant. In no case was the calcium value increased above normal figures by this high calcium diet. In advanced cases the variations obtained were greater (some rather high and some rather low values being obtained), and improving patients showed on the average slightly higher values than the unimproved. No marked deviations from the normal, however, were observed in the calcium content of the serum of patients in the various stages of pulmonary tuberculosis.

The failure of the body to deposit lime around the tuberculous areas is to be ascribed, not to a deficiency in blood calcium, but rather to an inability of the cells of the tuberculous area properly to utilize available calcium.

ICTERUS GRAVIS SYPHILITICUS

ITS RELATION TO ACUTE YELLOW ATROPHY

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Jaundice, occurring as a rare complication in the onset or early secondary period of syphilis, was first recognized by Paracelsus in 1585. It is also mentioned by Portal, Massa, Monti, Batallus, Fallopio and other writers of the latter part of the sixteenth century, in accordance with an early belief that the liver was the site of election for venereal disease. At a later date Ricord[1] recorded icterus in two cases of early syphilis and ventured the statement that syphilis was the cause of the jaundice. In 1853 Gubler[2] substantiated the work of Ricord with a report of seven cases, three of which he collected from the literature, and by clinical observation proved the jaundice to be syphilitic. Subsequently Lancereaux[3] collected reports of twenty cases of syphilitic icterus.

Jaundice in early syphilis is now recognized as occurring in two forms, mild jaundice and severe jaundice, or icterus gravis. The mild form, which is by far the more common, differs very little in symptomatology from ordinary catarrhal jaundice. From an analysis of 15,799 cases of early syphilis in Engel-Reimers' clinic, Werner[4] found that fifty-seven, or 0.37 per cent., were jaundiced. Engel-Reimers[5] reports eleven cases of icterus occurring among 759 cases of early syphilis in women, or 1.4 per cent. The difference in these figures represents fairly accurately the more common occurrence of the condition in women. In Engel-Reimers' series, 80 per cent. of the patients developed the jaundice within three months after infection. In Michael's[6] analysis of twenty-five cases, in three the icterus appeared before the chancre, in one case with the chancre. While most common at the time of the exanthem, a small percentage of the cases occur late in the secondary period, and not coincident with the eruption. In general, the onset is more sudden than in catarrhal jaundice, and there is often an absence of gastro-intestinal symptoms, though too much stress must not be laid on this point, as gastro-intestinal symptoms often accompany the florid stage of syphilis. The appetite is generally good, though there may be a distaste for fats. In some cases the stools are clay colored; in others they are normal. Swelling of the liver is a fairly uniform finding. The spleen is often enlarged, but this may be attributed to the generalized spirochetosis of the secondary period.

The icterus extends over a few weeks and disappears, particularly under treatment, though cases are reported in which it has become chronic. In twenty-five cases collected in seven years from Buschke's[7] clinic, the duration was never shorter under treatment than two weeks, with an average of four weeks. In many instances it has developed into the grave form. That it is not due to the administration of mercury is proved by the fact that it often appears when mercury has not been administered, and readily disappears on intense mercurialization.

The three cardinal points brought out by Gubler, the absence of other cause for the jaundice, its usual appearance with the general eruption, and the rapid disappearance on specific treatment, are the features which still serve clinically to differentiate the syphilitic condition from simple catarrhal jaundice. Salomon[8] regards early syphilitic jaundice as an indication of feeble resistance, and therefore of prognostic importance. Four of Richter's[9] forty-one collected cases were malignant syphilis.

The explanations of the cause of the mild form of syphilitic jaundice are many and varied. Gubler believed it to be due to a roseola or exanthem of the intestine and bile duct. French writers in general regard it as the result of swelling of the portal lymph vessels. Engel-Reimers[5] was able to show at necropsy in three cases that it was an obstructive jaundice caused by syphilitic adenitis of the portal lymph glands. Lubinoff[10] has reported the necropsy of a case of syphilitic icterus associated with precocious late manifestations in which the ductus choledochus was occluded by pressure of an enlarged lymph gland. Senator[11] holds that the jaundice is due to an inflammatory reaction. Neumann[12] says that all of the fore-

6. Forbes and Beegle: Bull. 295, Ohio Exp. Sta., 1916.
1. Ricord: Clinique iconographique de l'Hôpital des venériennes, 1851.
2. Gubler: Compt. rend. Soc. de biol., 1853, **5**, 255; Gaz. méd. de Paris, 1854, No. 13, p. 186; ibid., No. 15, p. 214, etc.
3. Lancereaux: Traité historique et pratique de la syphilis, Ed. 2, 1866, p. 146; Traité de la syphilis, Ed. 2, Paris, 1873.
4. Werner: München. med. Wchnschr., 1897, **44**, 736.
5. Engel-Reimers, Julius: Monatsh. f. prakt. Dermat., 1892, **15**, 475.
6. Michael: Arch. f. Dermat. u. Syph., 1914, **120**, 694.
7. Buschke: Berl. klin. Wchnschr., 1910, **47**, 238.
8. Salomon, cited in Loomis, A. L., and Thompson, W. G.: System of Practical Medicine, by American Authors, New York, Lea Brothers & Co., 1898, **3**.
9. Richter: Charité-Ann., 1898, **23**, 365.
10. Lubinoff: Méd. mod., 1894, No. 1, p. 13.
11. Senator: Charité-Ann., 1893, **18**, 322; ibid., 1898, **23**.
12. Neumann: Spezielle Pathologie und Therapie, Vienna, 1899, **23**, 449.

going factors may be coincident. In view of the swelling of the liver, Mauriac[13] believes that the jaundice is due to an active hepatitis with hyperemia and stopping up of the biliary ducts. Finger[14] says that it is due to syphilotoxin. This is essentially the explanation offered by Fournier.[15] Still others ascribe the cause to a fear of the disease which manifests itself on the appearance of the secondary lesions. Talamon[16] has described an interesting case in a girl aged 17 in whom such a fear brought about an "emotional jaundice" within eighteen hours, followed in three weeks by death from acute yellow atrophy. He states that the emotional jaundice probably renders the liver more susceptible to the effects of the syphilotoxin.

Of far greater importance than mild icterus is the grave form, which often supervenes on the former, though it may arise insidiously with a stormy onset and rapid course. The tendency if untreated is for the condition to go on to acute yellow atrophy. In 1854 Lebert,[17] out of a collection of seventy-two cases of acute yellow atrophy, reported seven as associated with early syphilis. Tierfelder[18] found that eight out of eighty-one cases of acute yellow atrophy occurred in old or recent syphilitics. In Osler's Modern Medicine,[19] it is stated that 10 per cent. of all cases of acute yellow atrophy occur during secondary syphilis. Richter,[9] in 1898, collected reports of thirty-nine cases of syphilitic icterus gravis from the literature, and added two of his own. Umber[20] collected reports of fifty cases. In Michael's[6] analysis of forty cases of jaundice in early syphilis, four, or 10 per cent., went on to acute yellow atrophy. The condition seems to be much more common in women, the ratio being about 5:1. In 1894, Lasch[21] named the condition "icterus syphiliticus praecox," and many cases were subsequently reported under that title. In fifty cases reviewed by him, mercury had been administered in only three previous to the appearance of the icterus. Of thirty cases, the icterus occurred in twenty-five within three months after infection. In most of the cases reported in the literature, the icterus has occurred coincident with the exanthem. It may appear earlier. Practically all cases begin sometime during the first year of infection. Bendig[22] has recently observed a case similar to the one herein reported, in which the icterus occurred subsequent to the complete disappearance of the secondary syphilitic lesions under mercury rubs. He argues that it is not sufficient to cure the manifest lesions of the syphilis, for when these have disappeared, there is within the body, still present, the syphilotoxin.

The cause of grave icterus was carefully studied by Buschke and Zernik,[23] in 1911, who concluded that it was due to a syphilotoxic parenchymatous hepatitis and not an obstructive jaundice. This view was earlier put forth by Buraczinski,[24] and Vespremi and Kanitz,[25] and at present is generally accepted as correct. Other factors may sometimes play a rôle. Engel-Reimers[5] and others report cases in which pregnancy complicated the condition. Erichson's[18] case followed abortion. In Richter's[9] forty-one cases, a few were complicated with gonorrhea, others with sepsis. None had previous liver disease. Mercury does not play a part in the causation. Jaundice has been noted as occurring in the course of salvarsan injections, and a salvarsan icterus, often leading to death, is reported by Milian,[26] Rille,[27] Pinkus,[27] Klausner,[28] Arno Hoffmann,[29] Levy, Bing and Duroeux,[27] Dujardin[30] and Lube.[31] Milian,[26] who has studied these cases at length and reported several of them, has come to the conclusion that they are in no way due to the salvarsan itself, but that they are in the nature of hepaticorecidives, analogous to those occurring in the nervous system. In each case there results a lighting up of a syphilitic process in the liver and a resulting hepatitis which calls for more salvarsan, just as in the case with recurrences in the nervous system. The case of grave icterus which is described herein followed salvarsanization, but could not in any way have been due to the salvarsan, as it appeared abruptly four months after the last salvarsan injection had been given.

The symptomatology of icterus gravis is that of acute yellow atrophy, differing chiefly in the fact that it yields to specific treatment when recognized early. The onset is variable, generally insidious. A mild icterus usually appears as the first objective sign, occasionally accompanied by malaise, vomiting and constipation, but usually without gastro-intestinal symptoms. There may be a slight rise in temperature, though subnormal temperatures are often reported. The pulse is slightly accelerated. Severe abdominal pain may be complained of. Lumbago and muscular pain are common. There is often a debility similar to that of typhoid fever. This may go on to collapse. Cases are reported with ascites. While not a uniform finding, hemorrhagic symptoms are mentioned by many authors. These are manifested by gingivitis, bloody vomitus, melena, purpuric spots in the skin, and more rarely hemoptysis, hematuria and metrorrhagia. There is often a hemorrhagic nephritis. Pregnant women may abort, but this is not always the case.

The second stage is very definite in onset and is marked by a pronounced change for the worse in the general condition, by rapid decrease in size of the liver, the occurrence of leucin and tyrosin in the urine, and especially by the appearance of nervous symptoms. Headache appears which, if present before, becomes very intense. There may be pupillary disturbances and amblyopia. Mentality is affected. The patient may become depressed, or restlessness may supervene during which there are insomnia, pain, convulsions and delirium. The patient often screams and becomes very violent. Apart from the jaundice, the clinical symptoms may closely resemble meningitis. Partial paralysis, such as squint, has been noted. In Fournier's[15] case there was hemiplegia. Dyspnea may resemble the air hunger of Kussmaul. Constipation extends throughout the condition, and the dejecta are offensive. The patient finally dies in coma with complete relaxation of the sphincters.

13. Mauriac: Gaz. hebd. de méd., 1888, **25**, 564.
14. Finger: Die Syphilis und die venerischen Krankheiten, 1892.
15. Fournier: Traité de la syphilis, Paris, J. Rueff, 1906; Leçons sur la syphilis chez la femme, Paris, 1883, p. 926.
16. Talamon: Méd. mod., Feb. 13, 1897, p. 97.
17. Lebert: Virchows Arch. f. path. Anat., 1854, **7**, 385.
18. Cited by Richter (Footnote 9).
19. Osler and McCrae: Modern Medicine, Philadelphia, Lea & Febiger, **3**.
20. Umber: München. med. Wchnschr., 1911, **58**, 2499.
21. Lasch, O.: Berl. klin. Wchnschr., 1894, **31**, 906.
22. Bendig: Berl. klin. Wchnschr., 1908, **45**, 1229; München. med. Wchnschr., 1915, **62**, 1144.
23. Buschke and Zernik: Arch. f. Dermat. u. Syph., 1911, **106**, 121.
24. Buraczinski: Wien. klin. Rundschau, 1907, **21**, 651, 699.
25. Vespremi and Kanitz: Arch. f. Dermat. u. Syph., 1907, **88**, 35.
26. Milian, M. G.: Bull. de la Soc. franç. de dermat. et de syph., No. 7, July, 1914, to December, 1915; Ann. d. mal. vén., October, 1911.
27. Cited by Milian (Footnote 26).
28. Klausner: München. med. Wchnschr., 1911, **58**, 570.
29. Hoffmann, Arno: München. med. Wchnschr., 1911, **58**, 570.
30. Dujardin: Jour. méd. de Bruxelles, April 12, 1914, p. 182.
31. Lube: Deutsch. med. Wchnschr., 1914, **40**, 946.

The liver is probably enlarged in the onset of all cases, though this is not always easily made out. The enlargement is smooth, the right lobe being most affected. In one third of the cases the liver is tender. After a variable period, reduction in size comes on suddenly with the severe symptoms, and heralds a rapid fatal outcome.

At necropsy the liver presents the typical picture of acute yellow atrophy, often being reduced to one-third its normal size. The more slowly progressing cases show areas of acute yellow atrophy interspersed among areas of red atrophy, the latter representing earlier destruction. In some cases the entire liver is not affected, while in others not a single normal cell remains. Buraczinski,[24] Vespremi and Kanitz,[25] Fischer[32] and Bendig[22] failed to demonstrate spirochetes in the liver of cases at necropsy. Buschke and Zernik[23] injected the liver tissue into monkeys with negative results. The spleen is often enlarged.

The urine is diminished in amount and highly colored with bile pigment. There is no glycosuria. Small amounts of albumin often occur together with casts. Albumosuria is reported, and is supposed by some to come from direct destruction of the liver cells. Crystals of leucin and tyrosin are invariably present in greater or less amounts, often in so great an abundance that they spontaneously precipitate, but Rolleston[33] does not regard these as pathognomonic. On the other hand, Senator[11] Buschke and Zernik,[23] and others look on their appearance as evidence of beginning liver atrophy.

In some cases the stools contain bile pigment; in others they are clay colored.

There is no characteristic blood picture.

Unrecognized cases are invariably fatal. According to Richter,[9] the course is somewhat longer than that of acute yellow atrophy from other cause, the average duration being eighty-four days. Many cases are on record, however, as having ended fatally in less than two weeks. Precipitous cases are not uncommon. In one of Bendig's[22] reports a rather mild icterus with indefinite prodromal symptoms extended over three days, followed by a stormy exacerbation and death within twenty-four hours. With early specific treatment, the course may be arrested or retarded.

The older writers regarded the condition as always fatal. The prognosis, however, seems fairly good for recovery if the condition is recognized early and intensive specific treatment is begun. Isolated cures of advanced cases by salvarsan are recorded (Duhot,[34] Umber[20]).[35] Several cases of recovery have been reported (Senator,[11] Buschke and Zernik,[23] Lasch[21] and others) even after appreciable decrease in the size of the liver and the appearance of leucin and tyrosin in the urine. The condition should be diagnosed in the stage of enlargement. Purgation with calomel and intense mercurialization, either by injections or rubs, is indicated by most authorities.

During the past year a case of icterus gravis, occurring early during the course of syphilis and resulting in recovery, was under observation in the department of dermatology and syphilology at the university hospital.

The patient, a man, aged 38, married, salesman, entered the hospital for the first time, Dec. 11, 1915. At that time he had a typical chancre of the penis and a maculopapular rash over the entire body. He had been married fourteen years and was the father of four healthy living children. His wife had had no miscarriages. The patient had an attack of gonorrhea at the age of 17. Otherwise the past history was negative.

A sore had appeared on the penis in October, 1915, following a clandestine exposure about six weeks previously. The sore was painless and attended by slight discharge. It had been treated locally by the family physician. The patient had not noticed any glandular swelling. The eruption over the body had appeared one week previous to his entrance to the hospital. He had had slight headache for a few days, distinctly worse at night, and complained that he was not feeling as well as usual, although not definitely ill. He had received up to this time no antisyphilitic treatment.

The patient was found to be well nourished with no apparent loss of weight. There were numerous syphilitic papules on the scalp. On the forehead, over the body and on the upper portion of the extremities there was a diffuse maculopapular rash typically roseolous in character. On the right side of the penis at the corona was a typical chancre about the size of a dime with lamellar induration. On the right side of the tip of the tongue there was an involuting mucous patch. The superficial lymph glands were all enlarged. The superficial reflexes were very active and not markedly exaggerated. The spleen was not palpable. The blood Wassermann test was + + + +.

Ophthalmologic examination revealed marked edema and hyperemia of the retina—a low grade neuroretinitis, specific in type.

The neurologic examination revealed slight tendency to stagger with the eyes closed, and pupils which were somewhat sluggish. The lumbar puncture, however, revealed an entirely negative finding: 4 cells, albumin negative, Nonne-Apelt negative, spinal fluid Wassermann test negative. The department of otology reported syphilitic involvement of the eighth nerve.

December 14, the patient received an intravenous injection of 0.3 gm. of arsenobenzol, after which he suffered a marked Herxheimer reaction, the temperature rising to 102.8. This, however, was rapidly reduced on the following day. By December 17, the eruption over the body had disappeared and the primary sore was rapidly involuting.

A second and third injection of arsenobenzol, consisting of 0.4 and 0.6 gm., were given, December 20 and 27, respectively, from which the patient showed no reaction.

The patient said he felt excellent, December 28; the rash had entirely disappeared, and he was discharged from the hospital with instructions to continue his treatment in the form of mercurial inunctions.

April 22, 1916, the patient stated in a letter that he was not feeling well; that he tired easily; that his appetite was failing. He had lost considerable weight and had noticed that his eyes and complexion were becoming rapidly yellow. He was advised to return to the hospital for further observation, and appeared, May 2.

At this time the patient looked very ill. He was intensely jaundiced. The liver was markedly enlarged, extending about 4 finger breadths below the costal margin. The enlargement was smooth and fairly firm, the free border of the liver being rounded. The liver was tender to palpation.

32. Fischer: Berl. klin. Wchnschr., 1908, **45**, 905.
33. Rolleston: Diseases of the Liver, Gall Bladder and Bile Ducts, Philadelphia, W. B. Saunders Company, 1905.
34. Duhot: München. med. Wchnschr., 1911, **58**, 2113.
35. In addition to the references already given, the following will be found of interest:
Arnheim: Monatsh. f. prakt. Dermat., 1898, **26**, 436.
Brallet: Gaz. d. hôp., 1914, **87**, 1063.
Braunschweig: Med. Klin., 1911, No. 4, p. 137.
Brodfeld, E.: Med. Klin., 1912, No. 43, p. 1742.
Castaigne: Bull. de l'Acad. de méd., 1913, Series 3, **70**, 527.
Chauffard: Presse méd., Aug. 11, 1897, p. 69.
Fagge: Tr. Path. Soc., **18**, 136.
Goldstein: Wien. med. Wchnschr., 1904, **54**, 1862, 1918.
Hutchinson: Med. Times, 1876, p. 136.
Joseph: Arch. f. Dermat. u. Syph., 1894, **29**, 383.
Liebermeister: Deutsch. med. Wchnschr., 1893, **19**, 365.
Marchand: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1895, **17**, 206.
Meder: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1895, **17**, 173.
Melchior: München. med. Wchnschr., 1907, **54**, 2135.
Moxter, cited by Richter (Footnote 9).
Rosenberg: Deutsch. med. Wchnschr., 1912, **38**, 756.
Samberger: Arch. f. Dermat, u. Syph., 1903, **67**, 89.
Sevinoff: Thése de Paris, 1913, Jouvre & Cie.
Stroebe: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1897, **21**, 378.
Thurmwald: Wien. med. Wchnschr., 1901, **51**, 1379.

The spleen was markedly enlarged and firm, extending about 3 finger breadths below the costal margin. It was not tender. The stools were clay colored, the urine markedly tinged with bile pigment. There was a moderate degree of albumin and there were large numbers of granular casts. The temperature was 98.6, the pulse 100.

The patient was at once referred to the department of internal medicine, and during the course of his stay in the hospital was repeatedly seen in consultation with Professor Hewlett, the head of that department. The abrupt onset without gastro-intestinal symptoms, the enlargement of the spleen, the absence of fever, the intensity of the jaundice and the rapid increase in the size of the liver all pointed to icterus gravis occurring in the early months of syphilitic infection, rather than to a simple catarrhal jaundice. Added weight to this diagnosis was given by the associated nephritis.

The patient was placed under observation for six days, during which time no treatment was given. During this period he became progressively worse, was losing weight at the rate of a pound and a half a day, and a marked decrease in the size of the liver was noted from day to day. Calomel injections, 1½ grains intramuscularly, were now instituted with daily saline catharsis. The patient seemed somewhat improved after the first injection, the most marked effect of the mercury being a diminution in the amount of albumin and the number of casts in the urine. By May 15, the albumin had entirely disappeared from the urine, the stools had become bile pigmented and the jaundice was rapidly clearing up. From this time on, inunctions of 6 gm. of mercury daily were instituted to replace the calomel injections. May 18, the patient was given potassium iodid in increasing doses, beginning with 35 grains three times a day. The liver was still somewhat enlarged over the normal, but was no longer tender.

By May 26, the patient was discharged. At this time he was but slightly jaundiced; the icterus was clearing up rapidly; the liver was no longer palpable over the costal margin. The spleen had also receded to normal in size. He felt well. The urinary findings had entirely cleared up.

The patient reentered the hospital, Dec. 4, 1916, with a gumma involving the skin of the face and the submaxillary gland. The liver at this time was normal to percussion and palpation; there was no trace of jaundice. The examination of the urine was negative and the spleen was no longer palpable. Since his discharge from the hospital, and up to two weeks ago, when the gumma appeared on his face, the patient had enjoyed good health.

CHRONIC NEPHRITIS SIMULATING THE SYMPTOMS OF CEREBRAL NEOPLASM

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The symptoms of cerebral neoplasm may be so closely paralleled by other diseases as to make the differentiation very difficult until opportunity has been had for protracted observation and study. Chronic nephritis, for example, may cause all the symptoms of brain tumor. I have seen two such cases recently, and one of them presented so much difficulty of diagnosis that it seems to me desirable to record it.

The patient was an Irishman, aged 57, married, employed as a watchman. The symptoms for which he sought relief had existed about a year. The initial symptom was headache; the pain was principally in the left temporofrontal region. He attributed the pain to an injury which he experienced three years before when he had been knocked down by a bicycle, and had received a wound over the left eye which required nine stitches. Since that time there had always been sensitiveness over the left eye. When the headache began, it would last a few days, and then a considerable period of respite would follow. It gradually grew more severe, and more continuous, and now he is rarely free from it.

The second symptom to develop was vomiting. It began soon after the headache became severe. The vomiting attacks averaged perhaps once a week at first, and more when the headache became very severe. The third symptom to develop was disorder of vision. For years he had experienced occasional diplopia, to which he gave no attention. It is not apparent on what it was dependent. Six months ago when the vision began to fail he consulted a physician who made the diagnosis of beginning optic neuritis. Meanwhile he began to complain of some general weakness, and during the last two months there has been complete loss of copulative capacity. For the past ten years he has had slowness of urination. He rises once or twice at night to void urine.

Latterly, when the headache is very severe, he has felt giddy. There was no history of convulsion or of paralysis.

His symptoms, in brief, were headache, giddiness, occasional unsteadiness in standing and walking, nausea, vomiting, failing vision and general weakness.

The patient was plump, pale and anemic looking, and the facies was suggestive of nephritis cachexia. The pulse rate was 100, the systolic blood pressure 210, the diastolic 165. The arteries were not particularly thickened or rigid on palpation. The heart was enlarged, and its sounds characteristic of chronic vascular hypertonus, but there were no murmurs. The patient had many bad teeth, all bathed in pus, and roentgenoscopy revealed areas of apparent softening around many of them. The third molar on the left side extended into the antrum.

Examination revealed the motor system normal, except that the right lower extremity seemed somewhat weaker than the left, and there was distinct tremor of the extended fingers. The right knee jerk was slightly livelier than the left; the ankle jerks could not be obtained. The plantar jerks were flexor in type and there was no Babinski phenomenon. The abdominal reflexes were present and equal. The epigastrics were sluggish. The arm jerks were quite normal, and there was no digital reflex.

Examination of the eyes revealed slight irregularity of the pupils, the right being 4.5 mm. in diameter, the left 4 mm. They were circular, the reaction to light slightly sluggish, that to convergence good. There existed a considerable degree of ptosis, the result of old trachoma, but otherwise the mobility was normal. Examination of the fundi showed pronounced papilledema. It could not be accurately measured. The right disk was elevated to at least 5 diopters, the left about 3. Vision in the right eye with a plus 3 D. was brought up to $^{10}/_{200}$ and in the left eye to $^{20}/_{70}$. There was slight opacity of the right cornea, the result of old trachoma. The fields were complete.

Hearing in the left ear was not as keen as in the right. Examination of the left ear showed a mild chronic sclerotic thickening of the middle ear. The internal auditory apparatus was quite normal. The functions of each of the other cranial nerves were unimpaired. There was no disturbance of speech, and the various forms of superficial and deep sensibility were quite normal.

Examination of the blood serum and of the cerebrospinal fluid gave a negative Wassermann reaction, and there were no cells in the latter, but there was an excess of globulin. The fluid escaped through the needle under considerable pressure. Examination of the blood revealed a typical picture of a secondary anemia: the red blood corpusles 4,936,000, hemoglobin 88 per cent., white blood corpuscles 6,200, polymorphonuclears 75 per cent, transitionals 4 per cent., large lymphocytes 18 per cent., small lymphocytes 2 per cent., and eosinophils 1 per cent.

Sugar tolerance was quite normal. The estimation of nonprotein nitrogen when the patient came into the hospital was 61,100 c.c.; two weeks later it was 52,100 c.c. The urine contained albumin and a few hyaline and granular casts.

During his stay in the hospital the most conspicuous symptom, in addition to the headache, vomiting and choked disks, was vascular hypertonus. The blood pressure fluctuated between 200 and 270, the systolic averaging about 230. A few days after entering the hospital he had an elevation of

temperature to 102 F. and symptoms of a cold. He developed profound dyspnea, but all the symptoms yielded very promptly to active purgation by calomel and salines.

The Roentgen examination of the skull showed a normal sella turcica, but the frontal and ethmoid sinuses and both antrums showed cloudiness.

The evidences of chronic nephritis were vascular hypertonus, polyuria, the findings of the urinalysis, the secondary anemia, the cachexia, dyspnea, headache, vomiting and the choked disks. The last named was the unusual symptom.

The patient was put on a lactovegetarian diet, made to drink 60 ounces of water slightly alkalinated by the addition of sodium bicarbonate, given 1/60 grain of calomel three times a day, and in addition to this he had hot blanket packs and carbonic acid baths on alternating days, and general massage. While he was taking this treatment the symptoms mitigated: the headache diminished in frequency and severity, the vomiting ceased, and his general strength and vitality showed decided improvement. He remained in the hospital three weeks and was then discharged. At the present time, four months after the treatment, his improvement still continues in every respect. The elevation of the disks has subsided but has not completely disappeared, and the ophthalmoscope shows now a fairly typical picture of retinitis albuminurica.

The symptoms of which the patient complained were the classical symptoms of brain tumor, or at least of increased intracranial pressure, and they developed in what may be called the typical way. Taking into conjunction the fact that they had their beginning somewhat more than two years after he received an injury to the skull, a thing not unusual in the history of brain tumor and considered important both as an exciting and a determining factor, it was almost imperative to give that diagnosis full consideration. Naturally it is quite within the grounds of possibility to have a neoplasm developing in a person who has chronic nephritis. In this case it is not necessary to assume such duality of disease, as the vasculorenal disease is quite adequate to account for all the symptoms, including the papilledema.

We accustom ourselves unconsciously to feel that choked disk means increased intracranial pressure incident to brain tumor, abscess, sinus thrombosis and fracture of the skull, and so it does in the majority of instances; but it should never be forgotten that it occurs in a score of other diseases: myelitis and disseminated sclerosis; infectious diseases, such as whooping cough and erysipelas; hemic disease, such as chlorosis, leukemia and scurvy; in disease the result of disordered internal secretion, and in states of intoxication such as from lead and quinin.

Although it seems to be a matter of common knowledge that choked disks occur at times in persons suffering from chronic nephritis, there is very little reference made to it in the literature, for instance, in the work entitled "Die Neurologie des Auges," by Wilbrand and Saenger. No reference is made to it in the volume entitled "Die Erkrankungen der Papilla Nervi Optici." Gowers, whose work on medical ophthalmoscopy, written a third of a century ago, is still a remarkably safe guide, does not mention it. Dr. James B. Herrick, writing on chronic nephritis in Osler's "System of Medicine," makes only casual reference to it, in the following sentence: "The severe headache (of chronic interstitial nephritis) accompanied as it often is with nausea, vomiting, dizziness and perhaps some mental disturbances, may resemble the symptom complex of tumor of the brain, especially when an inflamed and swollen optic disk is discovered." On the other hand, the occurrence of choked disk in chlorosis is referred to in the literature frequently. I have readily found references to it as far back as 1840, when Prael[1] published an interesting account of it. It may quite well be that the papilledema in cases of chronic nephritis may be incident to the secondary anemia of that disease. It is worthy of note that it has frequently been remarked that the cerebrospinal fluid comes out under pressure in cases of anemia attended by optic neuritis. In the case herewith described the fluid was under very considerable pressure.

If papilledema is the result of increased pressure of fluid in the vaginal sheath of the optic nerve, the pressure may in this case be the manifestation of edema, such as occurs in other parts of the body constantly in chronic nephritis. If we assume that this is the true explanation of the pathogenesis of the condition, the papilledema should subside under the use of measures which facilitate the disappearance of edema in other parts of the body. If, on the other hand, the neuritis is the result of the activity of toxic matter acting on the termination of the optic nerve, it is not likely that it will subside, for unfortunately we are not in a position to do the work of the kidneys artificially or vigorously.

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DUODENAL ULCER AND TETANY*

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History.—A man, aged 28, complained of "stomach trouble," present periodically since boyhood, and progressively worse during the last few years. At first a hot drink gave relief. For the past year he had had sharp epigastric pain, irregular in onset, with no special relation to meals. If he retired early, however, the pain occasionally wakened him at midnight, that is, six hours after supper. If he was up late and ate on retiring, he usually slept until 3 or 4 a. m. Eating seemed to ward off the pain. He had had no nausea, vomiting, pain in the back, hematemesis or bloody stools. When in high school his weight was 182; it was now 158, of which he had lost from 10 to 15 pounds within the past year. Fifteen months before, the patient had been under the care of a physician who suspected ulcer, but on negative stools and roentgenograms, ruled it out.

The patient's hours of work in a small candy store were irregular: one week from noon to 11 p. m., and on alternate weeks from 8 a. m. to 6 p. m. This made his meals irregular. He ate considerable candy during idle moments.

Examination.—The patient was well developed and well nourished. He had small atrophic tonsils with a few cheesy crypts, no pyorrhea, many fillings, and no other areas of possible focal infection. There was no lymphadenitis. The abdomen was dull in both flanks, and the colon filled with palpable fecal masses. There was no tenderness or muscular rigidity. The urine was negative, except for a positive urobilin test.

Gastric contents removed forty minutes after a test meal and six hours after a breakfast containing prunes yielded 350 c.c., with free hydrochloric acid, 44; combined hydrochloric acid, 25; total acidity, 72; no gross or occult blood, and no remains of breakfast. It was otherwise negative. A second test gave 200 c.c., with free hydrochloric acid, 70; combined hydrochloric acid, 16; total acidity, 87, and otherwise negative.

Diagnosis.—Duodenal ulcer was suggested by the periodicity, hunger pain and hyperchlorhydria, though the absence

1. Prael: Monatschr. f. med. Augenh. u. Chir., 1849, **3**, 187-190.

* Read before the General Meeting of the San Francisco County Medical Society, Nov. 14, 1916.

of hemorrhage prevented an absolute statement. The absence of visible distention or peristalsis, as well as of food stagnation, as determined by test meals, seemed to exclude organic pyloric obstruction. The pain, itself, was thought to be due to pylorospasm with some retention after a full evening meal.

Treatment and Course.—The patient refused to go to bed, quit work, or have a Roentgen examination at this time, so that a Sippy treatment was impracticable. A diet of cream, cereal, vegetable purées, soft eggs, etc., was taken at short intervals, with powders containing calcined magnesia, soda and bismuth, midway between feedings. Regulation of hours and meals was insisted on.

Two months later the patient reported improvement, but complained of sharp pains in the chest at about 4 a. m. relieved by induced vomiting. The bowels were constipated. In addition to the former powders he was given capsules of belladonna, rhubarb, soda and cascara. Three weeks later he felt much improved except for some gastric distress at the same hour in the morning, still relieved by vomiting. His blood at this time showed: hemoglobin, 86 per cent.; differential: polymorphonuclears, 64 per cent.; mononuclears, 3 per cent., lymphocytes, 25 per cent.; eosinophils, 5 per cent., and basophils, 2 per cent. The stool was free from occult blood.

The patient still refused to enter a hospital or have a Roentgen examination, but finally a roentgenographic report was discovered of an examination eighteen months previous. At that time the roentgenographic diagnosis was: "No roentgenologic signs of gastric ulcer. Question as to duodenal ulcer. Difficult to give opinion on duodenum as the bulbus does not stay filled. Observations are, however, consistent with the clinical diagnosis of duodenal ulcer."

One month later and three and a half months after his first consultation, word was received that the patient was ill in bed. Vomiting had come on suddenly and was persistent. He was taken immediately to a hospital. Examination the same evening revealed that he was much thinner than when last seen. The abdomen was flat and somewhat retracted. There was a definite slight prominence in the epigastrium due to a distended stomach. No peristalsis could be seen. The Lenhartz treatment was instituted. On the following day he was perfectly comfortable, but that evening had an attack characterized by intermittent, bilateral, painful muscular contractions of the upper extremities, during which his hands assumed the typical tetany position. His stomach was washed, and 1,700 c.c. of greenish fluid removed, with relief of symptoms.

A test meal revealed: free hydrochloric acid, 10; total acidity, 30; no lactic acid; benzidin positive, guaiac negative. The urine contained albumin, indican, hyaline, granular and blood casts and red blood cells. With the patient standing, the stomach filled with water extended 2 inches below the umbilicus, with the upper border midway between the ensiform cartilage and the navel. The same position obtained on reclining. The stomach area was rather distended; no peristalsis was seen, though there was a question as to tetanic contractions of the stomach wall, first on the right, and then on the left of the median line. Trousseau's sign was present on the left side. Chvostek's sign, which was present in the preceding attack, was not now obtained.

The treatment consisted of a milk diet and calcium lactate in large doses.

Fluoroscopy, six and a half hours after bismuth ingestion, revealed a very small residue of bismuth in the greater curvature, which was considerably below the level of the pelvic brim. The examination was interrupted several times by attacks of tetany, the patient becoming rigid, the hands and arms assuming and remaining in the typical tetany position, and the abdomen retracted. This lasted for ten minutes without loss of consciousness, but with inability to speak. The stomach filled normally, the cardiac half delaying a few seconds. Very marked peristalsis was seen. The stomach at first assumed an hour-glass form, the division occurring one third of the way from the pyloric end. Examination was interrupted two or three times, but each time strong peristalsis was noted, and though the duodenal cap was readily seen, no bismuth passed into the intestine. The patient was then given atropin and again examined by the fluoroscope. No peristalsis was then observed and the stomach had flattened out, the bismuth being evident only in the greater curvature. When crackers were given, slight, barely visible waves of peristalsis were noted in the greater curvature, but none so definite as before the atropin administration. No defects could be determined in the substance or the outline of the stomach.

On the following day the patient vomited but once and had no tetany. The pupils were dilated. Trousseau's sign was easily obtained; Chvostek's sign was present. Schlesinger's leg phenomenon was not elicited. The tendon reflexes were normal. There was slight difficulty in starting the urine. There were no myotonic symptoms or so-called intention spasms. No peristalsis was seen in the abdomen. Stomach tympany apparently was somewhat higher. The blood pressure was normal. Blood examination revealed: hemoglobin, 120 per cent.; red blood cells, 5,940,000; white blood cells, 13,400; polymorphonuclears, 77 per cent.; lymphocytes, 10 per cent.; large mononuclears, 10 per cent.; degenerated, 3 per cent.

In another day the patient was much better, and no symptoms of tetany could be detected. In view of the apparent benefit following its administration, atropin was pushed to physiologic effect.

The patient was somewhat restless and mumbled in his sleep that night. He retained the nourishment and had no pain. Examination revealed moderate dilatation of pupils, and no peristalsis, distention or signs of tetany. Slight dermographia was present. Late in the afternoon the atropin effects had disappeared. The patient showed a tendency to doze, and when awakened made no effort to converse. Two days of decided improvement followed and he gained 1 pound in weight.

The patient progressed well until the morning of May 22, 1916, when he complained of a little nausea. Examination then revealed the stomach considerably dilated and peristalsis visible in large waves. The patient was nauseated, and lavage brought away a large quantity of food and fluid. In addition to lavage the treatment now consisted of a Lenhartz diet and increasing doses of the tincture of belladonna.

Two days later the patient vomited twice. Examination of the urine revealed: albumin, 0.5 per cent.; bile reaction, faint; hyaline, granular (fine and coarse) casts; also question as to blood casts; red and white cells. The treatment now was felt to be ineffective, and surgical intervention seemed indicated. The next day the patient had painless contraction of the hands and arms, and vomited in the afternoon. Myotonic phenomena, Trousseau's sign and Chvostek's sign were all present. The pupils were moderately dilated. The stools showed no blood. Examination of the urine revealed a faint cloud of albumin, no indican, no acetone, no diacetic, no urobilin and many hyaline casts.

On the following day the patient was delirious, cyanosed and mentally clouded.

Operation.—This was performed under novocain, gas and oxygen. Signs of chronic peritonitis were found. The stomach was in spasm, the finger barely passing the pylorus. No ulcer was found. Gastro-enterostomy was done. When the bowel was handled or exposed, an interesting condition was noticed. With an entire loop of small intestine completely collapsed, the adjoining portions would be normally distended with a clear line of demarcation between the two. After a few moments the dilated portion would collapse and the collapsed loop would expand.

The patient died on the day following operation. A partial necropsy showed the appendix free, containing a few small concretions, not ulcerated or inflamed. The liver, spleen and pancreas were normal. The gallbladder was normal, with no stones. The gastro-enterostomy wound was clean.

Pathologic Report (by Dr. J. V. Cooke).—"Thyroid gland is of normal size and appearance. On section it is reddish brown and there is no increase in colloid. The fibrous tissue is not increased in amount. The stomach has been opened and a portion cut away. The mucosa is negative. Just above the pylorus along the lesser curvature there is a pouchlike

dilatation 1 cm. in depth and 3 cm. in diameter. This is lined by mucosa and the wall slightly thinned. The pyloric ring is stenotic and just admits the tip of the little finger. On section there is fibrous tissue in the wall at this point and the consistency is firm and tough. No scarring is noted at this point. Immediately below the narrowing ring, there is a clean-cut, slightly elongated ulcer in the first portion of the duodenum. This measured 1 by 2 cm., and the base is of a greenish color. There is no perforation at this point, but the base of the ulcer is very thin:

"Microscopic Examination: Duodenum: Sections through the ulcer show a clean-cut peptic ulcer in the duodenal mucosa, extending through Brunner's glands. The base of the ulcer is composed of granulation tissue, which forms a rather thick layer at this point. A portion of the head of the pancreas, seen in the section, shows granulation tissue around it, and this granulation tissue can be traced to that at the base of the ulcer.

"Thyroid Gland: Sections show flat epithelial lining regular acini, which are filled with colloid. The interstitial tissue is not increased.

"Parathyroids: Sections show normal appearing cells of Type 1, the so-called principal cells. No eosinophilic cells (Type 2) are seen in the sections studied. There are no interstitial hemorrhages, nor is there any increase in interstitial connective tissue."

COMMENT

Here was a young man with a history suggestive of duodenal ulcer, with gastric hyperacidity as a sole objective finding. As he did not permit full investigation, medical treatment seemed justified until such time as better methods could be employed. No operative interference could be urged, especially in the absence of more definite findings. Many ulcers are cured by medical measures. Even very chronic ones may be benefited, if not cured, without surgery. The patient was next seen after one month with marked pylorospasm, gastric dilatation, vomiting and tetany. Immediate surgical intervention was considered. In a paper[1] on the treatment of gastric and duodenal ulcer written two years before, I said: "In cases of gastric tetany, operation should be performed as soon as the diagnosis is made, unless the stenosis causing it be due to spasm. Medical treatment is usually of no avail; surgery frequently relieves it immediately, or in a short while." On the other hand, we had known patients with supposed gastric tetany to get along without operation. One, a woman with a typical pyloric ulcer with periodic attacks of hunger pain, hematemesis, etc., had definite attacks of tetany with pylorospasm first in 1912 and again two years later. On both occasions she refused operation and recovered, at least so far as the tetany was concerned. Another woman with gastric dilatation and tetany lived for a number of years, only to die from chronic spinal disease. Rodman[2] reported a case in which tetany supervened eleven days after a perfectly satisfactory drainage operation had been performed.

Consultants and family in the case under discussion all favored medical measures. We could not promise a surgical cure, nor could we convince ourselves that the pylorospasm might not be part of the tetany.

According to Falta,[3] in a great number of cases of tetany, slight or severe disturbances in the function of the gastro-intestinal tract have been demonstrated. In one category of cases, tetany develops in persons who have long complained of the most diverse forms of gastric or intestinal affections, especially those in whom there is an associated high-grade stagnation of the gastro-intestinal contents. With the onset of the tetany, the gastro-intestinal symptoms may increase markedly. Abnormally rapid emptying of the stomach is occasionally seen with the Roentgen-ray screen. In some cases there is a marked pyloric spasm in the acute stage that leads to acute dilatation of the stomach.

It is probable that the tetany increases the pyloric spasm, or in many cases directly brings it about. Hourglass contractions have been observed during attacks of tetany in patients whose stomachs were apparently normal at other times and who never presented symptoms suggestive of ulcer. These belong to a second category, that is, those whose gastro-intestinal disturbances occur at or after the outbreak of the tetany, these disturbances being, as it were, but one symptom of the tetany.

In many cases the tetany promptly disappears when the stagnation is combated by thorough washing out of the stomach, if this can be borne. Many writers favor this line of treatment. Calcium, too, is often recommended. Munroe[4] writes: "It may at least be suggested that no patient should be operated on for dilatation until proper remedies have been used for balancing vagotonic and sympatheticotonic conditions." In this case both of the foregoing were tried. The result was apparently good—for a time. Atropin controlled the pylorospasm and allowed the stomach to empty better; it was therefore used, apparently with benefit—for a time. And then, after almost two weeks of observation, when we were most hopeful, there was a turn for the worse. As a last resort, consent was obtained to operate. "The operation was successful, but the patient died."

So, no doubt, it often has been in cases of gastric tetany.

In 1907 we saw a man, aged 26, enter the hospital with a history of recurrent attacks of pain and vomiting over a period of years, with a long record of gastric lavage and a recent onset of tetany. He was to have been "explored" the next day, but had an attack of tetany that night, fell on his head, and died. At necropsy no skull injuries were found, only a healed pyloric ulcer with stenosis and gastric dilatation.

CONCLUSIONS

1. Tetany may occur in cases of gastric dilatation associated with pyloric spasm or stenosis.
2. It may occur most unexpectedly, and in spite of fairly close observation.
3. The prognosis in any case of gastric tetany is bad.
4. The mortality is greater in cases treated medically than in those treated surgically.
5. It would seem wise to operate at once in the presence of symptoms of tetany of presumably gastric origin. The surgical procedure would depend on the lesions found.
6. Medical measures should be instituted after the operation.

350 Post Street.

1. Bine and Schmoll: The Treatment of Gastric and Duodenal Ulcer, California State Jour. Med., September, 1914.
2. Rodman, W. L.: Gastric Tetany, THE JOURNAL A. M. A., Feb. 21, 1914, p. 590.
3. Falta, Wilhelm: The Ductless Glandular Diseases, Philadelphia, P. Blakiston's Son & Co., 1915.
4. Munroe, J. P.: Chronic Tetany, THE JOURNAL A. M. A., Aug. 14, 1915, p. 599.

Improvement in Retarded Children.—That a child grades below the average by formal tests is not an infallible sign that he will never develop beyond the mental attainments of a child. An analogy is found in the retarded physical development of certain children.—Treadway, *Pub. Health Rep.*, Nov.

ABSCESS OF THE SPINAL CORD

WITH REPORT OF A CASE *

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DETROIT

Abscess of the spinal cord is so rare a condition, presents so irregular a clinical picture, and involves such interesting and difficult problems in diagnosis that this case has seemed to be deserving of full report:

A. J., man, teamster, was admitted to Harper Hospital, Sept. 28, 1916, complaining of a motor impairment of the left leg of twelve days' duration. The personal and family history were negative. Though five children had died at birth, only one living two hours, venereal disease was denied and the patient's Wassermann test was negative.

He had been a pretty steady user of alcohol, ordinarily drinking four or five bottles of beer daily, and on the Saturday night, twelve days prior to his admission, he had drunk more heavily than usual. About 10 p. m. of this day, he experienced a numbness in his left leg, and he could walk only with difficulty. The next day, he felt better but he limped for several days and then complained of pain in the left abdominal region. From then on, the motor impairment of the left leg had been progressively worse, necessitating a sidewise dragging of the left foot in his attempts to walk. The abdominal pain on admission was present only when he sat up or moved, and did not seem to be acute. Bladder control had been difficult for three days, and there was slight dribbling of the urine. Examination disclosed some pyorrhea alveolaris and also suppurating lesions of the hands which, he said, had followed the bite of a horse. There were no enlarged glands, and the epitrochlears were not palpable. The chest and the abdomen were practically negative, as also were tests of special sense. Sensory examination disclosed no changes in the arms, but over the abdomen were indefinite areas in which pain sense seemed diminished, and over the legs also pain sense was less acute than normal. Tactile sense was unimpaired. There was almost complete loss of motor power of the left leg, the right leg was unimpaired, and no other motor symptoms were noticed.

The arm reflexes seemed increased in activity, the knee jerks and the Achilles jerks were hyperactive, and clonus was easily elicited on both sides. There was no Kernig sign, there was a suggestion of a Babinski, and there was no ataxia.

The blood count revealed: white blood cells, 12,400; red blood cells, 5,120,000; hemoglobin, 90 per cent. The lesions of the hands yielded a culture of a staphylococcus.

September 30, numbness of the right leg complained of, and reflexes on both sides were elicited only with difficulty, response being very slight.

October 1, there was quite complete paralysis of the right leg as well as the left, and reflex response was hardly perceptible.

October 3, the reflexes were still less, there being a questionable clonic response at the left ankle, complete paraplegia, and there was analgesia from the level of the twelfth dorsal vertebra down. Tactile sense of the lower extremities was good, showing well marked dissociation of sensation. Abdominal, cremasteric, knee and ankle reflexes were absent. The pupils were equal and stiffly responsive. Roentgenologic examinations, October 3 and 7, were negative. The temperature curve was such as to point to the existence of some infectious process.

The analgesia remained for several days at the level of the twelfth dorsal vertebra, but later slowly ascended. The bladder was involved in the motor paralysis, and frequent catheterization was necessary. The blood count and the clinical course of the disease pointed to the existence of an infection involving the cord, and it was hoped that surgical interference might possibly reach and drain the infected focus.

October 7, laminectomy was done by Dr. A. D. McAlpine, the fifth, sixth, and seventh dorsal laminae being removed, the dura was incised, and the region carefully explored above and below but with negative results. The cord itself was not incised or explored.

October 9, there was anesthesia to the level of the nipples, and the arm reflexes seemed less active than normal. From this time on, there was little clinical change aside from gradual failure. Spinal puncture had yielded a turbid fluid, and from this a staphylococcus had been grown in culture.

There was progressive failure, a terminal bronchopneumonia, and cystitis. The patient died, 3:45 p. m., October 25. Lumbar puncture was at once repeated, and cultures from the spinal fluid yielded *Staphylococcus albus.*

Necropsy was done at 5 p. m. by Dr. Plinn F. Morse, pathologist. The body was slightly emaciated, but generally well nourished, still warm, showing a large gangrenous slough in the gluteal region, and the right heel threateningly black from trophic disturbance. The spinous processes and laminae of all the vertebrae were removed and the cord detached from below upward to the foramen magnum.

The cord, sectioned from above downward, showed macroscopically nothing of especial interest in the cervical region, but in the upper dorsal region, the anterior horns appeared increasingly injected as section proceeded downward. The lower seven inches of the cord showed the central portion filled with thick, creamy pus, this accumulation being broader in area as we proceeded downward—the tissue of the cord being much encroached on toward its terminus.

The results of further examination are given in the pathologist's report (by Dr. Morse):

"Sections of the cord taken from the dorsal region show complete degeneration of the posterior columns. Extreme edema at the entrance root zone, with a necrosis of the axial portion of the posterior nerve root. The blood vessels of the gray matter show marked round-cell infiltration. The rest of the cord at this level is fairly normal, except for edema. Sections taken at the level of greatest softening show complete disintegration of all the columns of white matter; complete disappearance of the anterior horn cells of the gray matter and, in general, complete necrosis of the cord as a whole. The posterior root ganglia in some areas show focal necrosis of the centers, and in regions contiguous to this, we find marked round-cell infiltration of the pia mater."

COMMENT

Difficulties of diagnosis were not few in this case. The rapid onset of the motor and sensory paralysis immediately following alcoholic excess at first suggested the possibility of a toxic cause, but later the clinical aspects of the case were such as conclusively to prove that the process was an infectious one. The dissociation syndrome, which persisted for several days, pointed to the probable involvement of the central portion of the cord, but this symptom had disappeared with further encroachment on the other tissues of the cord. The laminectomy still left us in the dark, the operating surgeon not deeming it wise to attempt even careful exploration of the cord itself. Several diagnoses were hazarded, but the clinical history seemed to point to an infection of the cord, which had at first encroached on the posterior columns and then involved a transverse myelitis at the seventh dorsal segment.

As to the possibility of reaching and draining such an abscess, Elsberg under recent date writes me:

Too bad that the cord was not aspirated, for the abscess could surely have been found and drained. I feel positive that the time will come when this will literally be done in these rare cases. Of course, there is no reason why an abscess of the cord could not be satisfactorily drained just as well as an abscess of the brain.

* Read before the Detroit Society of Neurology and Psychiatry, Feb. 1, 1917.

* On account of lack of space, this article has been abbreviated in THE JOURNAL by omission of a review of the literature. This will be included in the reprints, a copy of which may be obtained on application to the author.

Abscess of the cord is thus shown to be of rare occurrence and of irregular clinical picture, this depending largely on the level and extent of the myelitic process caused by the infection and the amount of destruction of cord tissue involved.

The case reported seems clearly one of metastasis from the suppurative lesions on the hands, a staphylococcic infection following the bite of a horse.

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UNTOWARD RESULTS OF PROPHYLACTIC TYPHOID IMMUNIZATION

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In view of the great frequency with which typhoid vaccination is nowadays performed, and the comparative ease and safety of the procedure, I believe it is wise to bear in mind that untoward results may follow typhoid inoculation, as in the case herewith reported, with the idea, not of paralyzing activities in this direction, but that it is necessary to take proper precautions with patients who are inoculated with typhoid vaccine. I believe that patients who receive the vaccine should be instructed to go home and not to their vocations, where the sudden appearance of certain mental and nervous symptoms would jeopardize their lives.

History.—W. S., man, aged 24, was one of thirty-three senior students who presented themselves on the morning of Oct. 28, 1916, for the routine typhoid vaccination. He received the same as the other students, 500 million bacilli of the U. S. army strain, nonsensitized, and prepared in the usual manner. The same vaccine from the same bottle and the same technic were employed with this student as in the other thirty-two. The thirty-two students presented the usual signs and symptoms of reactions after typhoid vaccination. The patient, on the other hand, presented the following rather unusual symptoms:

Twenty minutes after the subcutaneous injection of the vaccine he felt weak all over the body, especially in the lower extremities. A sensation of chilliness and a dull headache set in. These symptoms were progressively becoming more severe, until one hour after the injection the patient began to shake violently over the whole body, and he had an unbearable throbbing headache. Then the rather unusual symptom of continuous vomiting set in. The vomitus was at first slimy mucus, and then mucus and blood, which was bright red. The soreness all over the body became extreme and the joints exceedingly painful. The temperature was 103, pulse 100 (normal 60). The vomiting, the painful joints and soreness all over the body persisted for forty-eight hours. He remained apathetic for forty-eight hours, during which time anorexia and polydipsia were marked. The stools were yellow and watery. The urine was red and contained blood. At the height of the illness the patient was in extreme collapse The temperature continued high for seventy-two hours with slight morning remissions; it was about 101 in the afternoon. The pulse ranged from 90 to 96. There was no nose bleed. On the second day the spleen became palpable, and on deep inspiration was felt one finger's breadth below the free costal margin. The liver edge was palpable below the costal margin. The glands in the neck, axilla and groin were decidedly enlarged; those in the axilla were very tender. The convalesence lasted one week, the patient complaining of dull headache and severe pain in the bones of the legs.

The local reaction was very slight and consisted of redness and slight tenderness. The liver, spleen and lymphatic glands remained enlarged for one week and then gradually subsided. If the patient had suffered from a regular course of typhoid he could not have fallen away more or looked worse. He was exceedingly feeble.

Laboratory Findings.—In the urine there were large quantities of blood. The diazoreaction was negative; four tests were made; the first one on the fourth day after the vaccination. There were no other pathologic findings.

Blood examination before the vaccination revealed: total red cells, 4,900,000; total white cells, 7,800; differential count: polymorphonuclears, 74 per cent.; small lymphocytes, 20 per cent.; large lymphocytes, 3 per cent.; transitionals, 2 per cent.; eosinophils, 1 per cent. After vaccination (four days following injection): total red cells, 4,700,000; total white cells, 7,600; differential count: polymorphonuclears, 65 per cent.; small lymphocytes, 32 per cent.; large lymphocytes, 3 per cent.

The Gruber-Widal test on the fourth day after vaccination revealed loss of motility but no clumping.

In view of the severity of the reaction, the presence of blood in the vomitus and urine, and the general collapse which followed, it is hardly necessary for me to say that I did not give the patient the second and third injections.

The previous history of the patient was absolutely negative. He never had typhoid or any other disease. He is not subject to hives or any other rashes. He does not suffer from asthma or hay-fever. He does not present symptoms of anaphylaxis when around horses, cats or dogs. He is not sickened by eating shellfish or any other food with the exception of ice cream, which even in minute amounts sickens him, and the mere smell of it nauseates him. He has never before received typhoid vaccine. From the foregoing it is therefore difficult to determine what has sensitized him against the protein of the typhoid bacillus. I do not doubt for a moment that sensitization or anaphylaxis was responsible for the symptoms.

ENDEMIC INDEX OF MALARIA IN THE NORTHERN SACRAMENTO VALLEY, CALIFORNIA

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Although for many years malaria has been known to be prevalent in the great central valleys of California and the foothills adjacent to them, no systematic attempt has been made to study the types and endemicity of the disease prior to 1915. However, W. B. Herms,[1] associate professor of parasitology in the University of California and consulting parasitologist of the California State Board of Health, has done a large amount of educational and mosquito control work. Early in 1915, Dr. K. F. Meyer[2] and Dr. E. L. Walker, associate professors of tropical medicine in the George Williams Hooper Foundation for Medical Research, began an investigation in order to determine the endemicity of malaria and the types of mosquitoes involved. After several weeks this investigation was discontinued.

In September, 1915, after conferring with Professor Herms, we submitted to Dr. W. A. Sawyer, secretary

1. Herms, W. B.: Malaria, Cause and Control, New York, the Macmillan Company, 1913; Successful Methods of Attack on Malaria in California, California State Jour. Med., May, 1915.
2. Meyer, K. F.: Sources of Malaria in California, Tr. Commonwealth Club of California, San Francisco, 1916, **11**, 22.

of the California State Board of Health, a plan for the investigation of malarial conditions in the state. This plan, based largely on the malarial investigations made by the United States Public Health Service, included the taking of blood specimens from persons in several towns in both the Sacramento and San Joaquin valleys in order to determine the endemic index of malaria. We decided to take specimens from schoolchildren only, so that it would be possible to take a second set from persons of the same age and environment after control measures were instituted.

On account of other and more urgent investigations, this plan has not yet been completely carried out; but we wish here to report the findings at Orland, Glenn County, and Redding, Shasta County, both in the Northern Sacramento Valley. The population of Orland was 836 and Redding 3,572 according to the 1910 census. The accompanying tables give a comparison of the results found in the two towns.

The malarial index of 4.7 per cent. is low in comparison with von Ezdorf's[3] findings in some of the southern states: Alabama 11.4 per cent., Arkansas

TABLE 1.—FINDINGS AT ORLAND AND REDDING

Town	Number Examined		Total Examined	Infected Number		Total Infected	Types of Infection			Percentage Infected
	Male	Female		Male	Female		Tertian	Quartan	Estivo-Autumnal	
Orland.....	181	192	373	1	3	4	3	0	1	1+
Redding.....	228	207	435	21	14	35	17	1	17	8+
Totals.....	409	399	808	22	17	39	20	1	18	4.7

TABLE 2.—DISTRIBUTION BY AGES

Age	Orland			Redding		
	Examined	Infected		Examined	Infected	
		No.	Per Cent.		No.	Per Cent.
Under 10 years.....	171	2	1+	103	5	5—
From 11 to 15 years..	139	1	0.7	158	21	13+
Over 15 years.....	63	1	1+	174	9	5+

10.1 per cent., North Carolina 7.8 per cent., South Carolina 11.9 per cent., Mississippi 31.2 per cent., and Virginia 9.3 per cent. However, several dissimilarities in the methods of determining the index must be taken into consideration. Specimens were taken by us from schoolchildren only and thin smears were used exclusively, while von Ezdorf took specimens from the general population and used thick as well as thin smears. Taylor[4] found only one-fourth as many positive specimens using thin as he did using thick smears, so it is possible that by using the latter method our positive findings might have been increased, though at least half an hour was spent in the examination of each smear before reporting it negative.

The relatively high percentage of estivo-autumnal infections is of interest, particularly in Redding, where the number of cases of this type was the same as the tertian. This is higher than the percentage reported by von Ezdorf, who found two tertian for every estivo-autumnal infection.

3. Von Ezdorf, R. H.: Endemic Index of Malaria in the United States, Pub. Health Rep., 1916, p. 819.

4. Taylor, H. A.: A Comparative Study of Thick and Thin Blood Smears for Diagnosis of Malarial Fevers, THE JOURNAL A. M. A., March 10, 1917, p. 771.

The finding of one quartan out of thirty-nine infections and 808 examinations may have been merely accidental, as von Ezdorf found only three out of 2,391 infections and 16,114 examinations. We[5] have already reported the finding of a district near Redding in which the quartan type of malaria was prevalent, and although the child, found to be harboring *Plasmodium malariae* by the present investigation, did not come from this district, it is very possible that she may have visited it at some time, as it is located only a short distance from the town.

In this investigation we found the percentage of carriers to be highest between the ages of 11 and 15, the percentage for this period being double that below 11 or over 15.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1258*)

UREMIA

The symptoms of uremia are the same, whether it is caused by acute or chronic nephritis. Ordinarily, when uremia is imminent, premonitory symptoms occur, such as severe headache, fulness of the head, dizziness and eye blurs, or "turning black before the eyes," as the patient describes it; there may be muscle twitchings, muscle cramps, restlessness, sleeplessness or drowsiness; there is often nausea, vomiting, and diarrhea—Nature's method of improving the condition. The blood pressure increases, and may be very high. The urine shows a decreased output of solids, especially of nitrogen, and the blood shows retained nonprotein nitrogen. The Babinski sign, as first pointed out by Curschmann,[109] is a prognostic sign of impending uremia, and probably occurs from the irritation of toxins on the cerebral centers. It is probable that in all cases of uremia, disturbances of the liver function play some active part. The liver forms urea out of ammonium salts. Exclusion of the liver in animals prevents the formation of urea, and death soon occurs, generally preceded by convulsions. When the liver function is disturbed by any disease, the poisons resulting from metabolism are not well detoxicated. Urea may be diminished in amount, and it has been suggested that ammonium carbonate remains in the blood, and that ammonium salts are irritant to the central nervous system. If the organic sulphates and indican are increased in the urine there may be an abnormal amount of substances circulating in the blood which are irritant to the central nervous system and which sooner or later cause disease.

It may also be well here to caution against the use of the urea test of kidney function in conditions in which uremia is feared. Twenty gm. of urea, which is the dose for a urea test, should normally be eliminated in one and one half days. In nephritis the excretion may be greatly delayed or the whole amount may be retained. Hewlett, Gilbert and Wickett[110] have recently shown that in normal persons the administration of considerable amounts of urea by the mouth may greatly increase the urea content of the blood and

5. Geiger, J. C., and Kelly, F. L.: Plasmodium Malariae (Quartan)—A Type New to California, California State Jour. Med., 1916, **14**, 198.

109. Curschmann, H.: München. med. Wchnschr., Sept. 26, 1911; abstr., THE JOURNAL A. M. A., Nov. 4, 1911, p. 1576.

110. Hewlett, A. W.; Gilbert, Q. O., and Wickett, A. D.: The Toxic Effects of Urea on Normal Individuals, Arch. Int. Med., November, 1916, p. 636.

cause such symptoms as "headache, dizziness, apathy, drowsiness, weakness and fatigue," the very symptoms which are premonitory of uremia. This shows how little extra nitrogen waste will cause imbalance of nitrogen metabolism in nephritis, and is the reason that chilling, extra muscular exercise, a high protein meal, or nervous and mental excitation, such as may occur during an after-dinner speech, a lecture, or after a controversy, may precipitate a uremic attack. This fact is daily verified by newspaper reports concerning prominent public men. An attack may be precipitated apparently out of a clear sky, without forewarning edema or other symptoms of kidney insufficiency. Such precipitate uremia usually occurs with the so-called interstitial variety of nephritis, and is often fatal.

Uremia may occur in chronic nephritis when the pathologic condition is largely interstitial, without the presence of albumin and casts in the urine. Mild uremic attacks may not be fatal in chronic nephritis; all the symptoms of uremia may cease, and the patient may long be free from them, although ordinarily they will again recur until the fatal issue. In acute nephritis, even a severe attack of uremia with convulsions and coma may not be fatal, and the patient may completely and entirely recover. The prognosis, however, is always serious and generally dire; but one should never give up hope of saving the patient. However, when chronic nephritis has long been present and the patient has had repeated slight attacks of uremic symptoms, when true uremia finally develops the outcome is usually fatal.

A recent investigation by Chace and Myers[111] shows that increase of the uric acid in the blood is suggestive of incipient nephritis; that changes in the amount of urea in the blood in nephritis is a dependable indication of the condition of the patient, and that a large increase in the creatinin of the blood is of serious import, more than 5 mg. of creatinin in 100 c.c. of blood indicating an early fatal outcome, the creatinin content of the blood increasing rapidly just before death. Morse[112] has shown that the creatin is normally greatly increased in the urine after childbirth.

The symptoms indicative of uremia are: hypertension (a diastolic pressure of 120 is usually indicative of a serious kidney condition); headache (generally occipital or frontal); restlessness, or, sometimes apathy and somnolence; ringing of the ears; eye blurs; muscle twitching; cramps; coated tongue; nausea; vomiting; dry skin; odor of urine from perspiration and skin; dyspnea; finally, convulsions and coma.

The intensity of the foregoing symptoms varies, of course, with the degree of uremic poisoning, and the condition may frequently be aborted by proper treatment in its incipiency. When several of these symptoms develop in nephritis, active treatment must immediately be instituted. A diminished output of urine usually accompanies these symptoms, although this may not always be true in contracted kidney. The pulse may be slow, becoming rapid, as the severity of the symptoms increases, unless considerable cerebral pressure causes its retardation for a time. If the condition becomes serious, the pulse may become rapid and weak, and the blood pressure lower.

111. Chace, A. F., and Myers, V. C.: The Value of Recent Laboratory Tests in the Diagnosis and Treatment of Nephritis, THE JOURNAL A. M. A., Sept. 23, 1916, p. 929.
112. Morse, Arthur: Creatin and Creatinin Excretion During the Puerperium and Their Relation to the Involution of the Uterus, THE JOURNAL A. M. A., Nov. 6, 1915, p. 1613.

Examination of the blood usually reveals an increase of nonprotein nitrogen in nephritis as uremia develops, but it should be noted that this increase has also been found in cholera and typhus fever. Foster[113] found that uremia and death may occur when the nonprotein nitrogen of the blood is not increased.

The exudates in nephritis have been shown to contain the same amounts of nonprotein nitrogen as the blood; hence, when in uremic patients an increased amount of water is lost by the bowels, by the kidneys or by perspiration, these fluid exudates are apt to be absorbed, and serious uremic symptoms may again appear as a result of the increased nonprotein nitrogen and other toxins in the blood. When uremia and finally coma occur without convulsions the amount of retained nitrogen in the blood has probably not been greatly increased since the more retained toxins there are in the blood, the more probable is the occurrence of convulsions.

Foster found that ammonia-nitrogen may or may not be increased in uremia, but that it is usually increased in convulsive cases and in those cases with a high total nonprotein nitrogen. Normally there is less than 0.5 mg. of ammonia-nitrogen in 100 c.c. of blood. The greatest increase of ammonia-nitrogen in the blood is found in diabetics and in diabetic coma.

Folin[114] found that the uric acid of the blood is increased in renal disease, while Foster found that the purin nitrogen is increased in nephritis, most markedly in those who have contracted kidney; in uremia it is twice the normal amount.

Corroborative of the findings of Foster that occasionally uremia may occur without an increase in nonprotein nitrogen in the blood, Strauss[115] terms a condition "pseudo-uremia" in which the nitrogen retention is not great and the blood tension may not be high. These patients have a tendency toward convulsions and coma; the condition is closely allied to puerperal eclampsia. Convulsions, occurring when the kidneys are not apparently seriously insufficient and the nonprotein nitrogen of the blood is not increased, point toward acidosis, and future investigations may show that the ammonia-nitrogen of the blood is increased.

(*To be continued*)

113. Foster, N. B.: Uremia, Arch. Int. Med., March, 1915, p. 356.
114. Folin: Jour. Biol. Chem., 1914, **17**, 489.
115. Strauss: Berl. klin. Wchnschr., April 12, 1915.

Occupation Therapy.—Susan E. Tracy, R.N., of Jamaica Plain, Mass., is given credit for having emphasized the value of occupation for convalescents in aiding recovery, in adding to the sum of happiness of the shut-ins and perhaps in placing many in the way of earning a livelihood. In 1798 Dr. Benjamin Rush recommended occupation for the mental defectives in the Pennsylvania hospitals. Its value as applied to the convalescents in general hospitals has not been recognized. Only within recent years has any effort been made in the direction of providing such occupation. Miss Tracy has developed her ideas during a period of the last ten or fifteen years since her graduation as a nurse, delivering her first lectures to the senior class of nurses in the Massachusetts General Hospital in 1911. The Maryland *Psychiatric Quarterly*, January, 1917, is devoted to a sketch of Miss Tracy and her work, with an article by her detailing her experience in establishing occupational teaching among the convalescents and the nurses of the Michael Reese Hospital, Chicago, in which institution it has now become a definite part of the hospital routine and of the nurses' training course. As has been said by Miss Tracy, this is peculiarly nurses' work. Even beyond the remedial and alleviating values of this branch of nursing, there are almost limitless possibilities for education and for human salvage.

Special Article

THE MEDICAL OFFICER OF THE ARMY

III

ARMY REGULATIONS AND EQUIPMENT

The government of the army is outlined by revised statutes. These are laws passed from time to time by the Congress of the United States to suit the changes and progress in military affairs. Under these laws and as an interpretation of these laws, we have the army regulations. These regulations are fairly numerous and are printed in book form for distribution to the army at certain regular intervals. Naturally, changes are frequently occurring, and once every month is published a pamphlet containing the paragraphs which have been revised during the month printed in their revised condition.

Absolute slavish following of army regulations is not intended. In certain instances in which expenditures of money are provided for, the details are to be followed; but as a rule the spirit behind the regulation governs, and the wording is of only a general character. Laws governing the personal life of officers and men are embodied in the articles of war which represent the criminal code of the military service. These articles have recently been revised, and from a legal standpoint are considered effective and up to date. Court martial procedure is outlined in this law, and crimes and misdemeanors with their penalties are shown. The Supreme Court of the United States has decided that if the military authorities take cognizance of a criminal case first and take steps to prosecute the offender, this procedure takes precedence over the civil courts, and the case will be tried in the military courts and punishment effected as a court martial shall direct.

The regulations are carried out and laws are promulgated by means of orders. These are of two classes: one known as "special orders," which concern the individual officer or man, and the other known as "general orders," in which instruction of a general character necessary for the entire command is issued. Information of general interest to the army as a whole is issued in the form of a bulletin. The latter class includes the text of laws passed or the decisions of the judge-advocate-general and the auditor of the war department.

CUSTOMS OF THE SERVICE

In addition to the printed regulations as outlined, we have the customs of the service; these are of considerable importance. They are the unwritten law of the army, though not pertaining as a rule to very important subjects, still the life of the army is to a certain extent governed by these customs. They are numerous and cannot be outlined at this time, but an example can be given: When a visitor is present in the house of an officer or an enlisted man in an army garrison, the surgeon of the post treats that visitor when sick without charge under the same conditions which authorize him to treat the families of officers and men, though there are no written regulations covering the subject.

MILITARY DISCIPLINE

Military discipline is a subject which is poorly understood in civil life and may be defined as the state of mind which causes a soldier to respond immediately to the orders of his superior even in the face of great danger without once hesitating to think about the order. The lack of this state of mind is illustrated when untrained troops are placed in the line of battle, and though they may be individually brave they cannot stand before the onslaught of the enemy because they are not taught to obey implicitly the orders of their officers, and hesitate, weighing in their own minds the question as to whether they should stand or retreat. To obtain this state of mind, long training is necessary, and this training is carried out under what are considered by the average civilian as rather peculiar methods. In the first place, what would seem exaggerated respect to their superior officers is inculcated in all officers and men. The little forms of address which are usually classed as military in nature are constantly used, and respect is given promptly and without reserve, not so much to the wearer of the rank insignia but to that rank itself. Furthermore, drill in close order is indulged in for hours at a time, and from the knowledge learned during the present European war, every man knows that this drill would not be used on the battlefield. Why, therefore, should so many hours a day be given to something which is useless from that standpoint? It is carried out simply to accustom the men to obey quickly and implicitly the orders given them by their superiors without once stopping to question their advisability. All work of a military character must be directed by the leaders of a command, and the junior officers and enlisted men should obey at once orders given them, for the responsibility rests not on their shoulders but on the shoulders of those in higher command.

MILITARY HONORS

Military honors are important, not only from the standpoint of an exercise in courtesy and in respect due to the position held by the individual, but also to show respect to the flag and the country which it represents. At retreat when the flag is lowered and the "Star Spangled Banner" played, every officer and man within sight of the flag or in hearing of the music stands at attention, facing toward the flag, salutes at the first note of the anthem, and retains the position of salute until the last note of the anthem.

The hand salute is not only required from the enlisted men when they pass or address an officer, but is also required from officers when passing or addressing their superiors, and any salute given, whether by an enlisted man or an officer, must be returned promptly by the person saluted. The technic of the salute may be thus described: The right hand is raised smartly to the brim of the hat, thumb and fingers extended and joined forearm extended at an angle of 45 degrees, hand and wrist straight. The hand is held a moment in this position and then returned smartly to the side.

Salutes by cannon are also required in the military service, and in the regulations there is a list of all officers, civil and military, who are entitled to this salute. The largest number of guns given as a personal salute is twenty-one for the President of the United States. This salute is fired when the person entitled to it arrives at the camp or station. There are also certain official courtesies required of all officers. The one which a reserve officer will be most frequently called on to observe is the official visit to the commanding officer of the post, regiment or other organization to which this officer is temporarily or permanently connected. He reports his arrival to the adju-

tant and then proceeds immediately to the office of the commanding officer and makes his official call. This call is also required whenever a visit is made to a post, whether it is for official or for personal reasons. A call is also required to be paid at the house of the commanding officer.

CEREMONIES

The principal ceremonies which are held in a military command are parades and reviews. These are held not from the desire to make a show but from a strictly military reason. In holding such formations, the officers and men are encouraged to keep their clothing, arms and accouterments in perfect condition. This work is also assisted by inspections of the command, whether a company, battery or other military organization. These inspections, following army regulations, are held regularly every Saturday morning, and should be very thorough in character. The equipment of the men is carefully gone over and its condition verified in the minutest degree. By this means the commander is assured that his troops are well equipped for service at all times and that their equipment is kept in perfect condition. On the last day of each month, muster is held. This ceremony, which consists in the parading of the entire force and a calling of the roll in the presence of the organization commander, is an old one, and dates back from the beginning of our service. No man may be paid unless his name appears on the muster roll.

RANK AND INSIGNIA

Military rank is necessary in every military organization. To obtain the respect of the enlisted men in any army, the officers, whether line or staff, should have appropriate rank. This is not only necessary for the officer who commands the men in the line but also for any person above the grade of enlisted man who comes in intimate contact with the soldier. The dental surgeon or veterinarian has no men to command, but he comes in intimate contact with the men and, being given military rank, requires and receives the respect of the men.

The grades of officers in the service, whether in the staff or in the line are: second lieutenant, first lieutenant, captain, major, lieutenant-colonel, colonel, brigadier-general and major-general. The insignia of these ranks is as follows: the second lieutenant has no insignia on the shoulder of his service uniform, but all officers have around the cuff of the blouse a band of braid ½ inch wide. On the collar the officer also has the U. S. on both sides, followed by the insignia of the staff corps or branch of the line to which he belongs. The enlisted man, on the contrary, has on one side of the collar a round badge with the U. S. in raised letters on it, and on the other side the same badge with the corps insignia on it. The first lieutenant in addition to the insignia shown above has on each shoulder one silver bar; the captain, two silver bars, the major, a gold leaf; lieutenant-colonel, a silver leaf; colonel, a silver spread eagle; the brigadier-general, a silver star, and the major-general two silver stars. When the blouse is not worn, the insignia is placed on the shirt collar thus: on the right side the letters U. S. and the insignia of rank; on the left side the insignia of the corps or arm of the service.

The rank next to private with the enlisted men is corporal; next there is the sergeant and first sergeant of a company; the battalion sergeant-major is the ranking noncommissioned officer of the battalion. The regimental sergeant-major is the ranking noncommissioned officer of the regiment. In addition to this there are the chief musician, two color sergeants, a supply sergeant, and the hospital sergeant. The grades of noncommissioned officers in the staff corps are similar up to the rank of first sergeant. This rank in the staff is designated as a sergeant first-class. The higher grades of the staff corps are fairly numerous, and the highest grade is similar to that of the master hospital-sergeant of the Medical Department. The insignia to designate the noncommissioned officer is worn on the sleeve of his blouse or shirt, and consists of what are called chevrons. These chevrons are sewed on the blouse with the point upward, and with the staff corps the corps insignia is placed below the chevron; but with the line there is no designation of their branch of the service. The corporal has two chevrons; the sergeant three; the first-class sergeant three with a bar connecting the ends of the chevrons; this bar is an arc of a circle and does not go straight from one end to the other. The hospital-sergeant has two bars across below the chevron; the master hospital-sergeant has no chevron but a wreath surmounted by the corps insignia and a star.

The uniform required for all officers is: a woolen olive drab blouse and breeches (in summer, cotton olive drab is used, and several pairs of breeches of this cloth should be obtained so that they can be washed frequently); two olive drab flannel shirts; serviceable shoes, preferably the army pattern; leather puttees; campaign hat and cord; proper rank insignia, and a black necktie for the shirt.

FIELD EQUIPMENT

The field equipment of officers of the medical corps is as follows: the bedding roll, which is a piece of canvas of suitable size in which the bedding can be rolled for ease in transportation and protection from the weather. This roll is usually held together by a pair of straps. Two blankets: these blankets may be obtained from the quartermaster's department. A clothing roll can be obtained from the quartermaster's department. This is used to carry the clothing of the officer and any small articles which he may desire to have with him. It is of canvas provided with pockets and straps, and can be rolled up in a compact bundle and carried by a handle which is attached. If serving with troops, it is necessary to have a shelter tent, which is obtained from the quartermaster's department. Under these circumstances the first-aid packet and pouch, meat can, fork, knife and spoon, and water bottle are needed, and can be obtained from the ordnance department with the exception of the first named, which is furnished by the Medical Department. On joining a command each officer is provided with an identification tag attached to a tape, and it is required that this identification tag be worn all the time. Each officer should provide himself also with notebook and pencils and a serviceable watch.

A mounted officer below the grade of major is furnished with horse equipment by the government free of charge, and if necessary a horse is also provided for his use. If he should desire to buy a horse he is entitled to $150 additional pay per year. If he owns two horses he receives $200 additional pay per year. An officer of the grade of major or higher is required to furnish his own horse and horse equipment.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 5, 1917

THE TIME HAS ARRIVED FOR ACTION. PHYSICIANS, ESPECIALLY THE YOUNGER MEN, WHO HAVE BEEN DELIBERATING AS TO WHETHER OR NOT THEY SHOULD OFFER THEIR SERVICES TO THE GOVERNMENT SHOULD DECIDE NOW. STOP DELIBERATING AND ACT. NOT THAT THERE IS AN IMMEDIATE NEED FOR YOUR SERVICES, BUT THERE IS AN IMMEDIATE NEED THAT THE GOVERNMENT SHOULD KNOW ON WHOM IT CAN DEPEND SO FAR AS ITS MEDICAL OFFICERS ARE CONCERNED.

ACHIEVEMENTS OF THE MEDICAL CORPS OF THE UNITED STATES ARMY

In the May number of the *Scientific Monthly* Colonel C. C. McCulloch, librarian of the Surgeon General's Office, publishes an interesting and detailed record of the scientific and administrative work of the Army Medical Corps, which is all the more timely and opportune in that our military establishment is now in need of capable young physicians and surgeons, who, whether in the regular Medical Corps or the Reserve Corps, are ready to serve their country at the present hour. To the young man who is minded to take this step, such a record ought to be a stimulus to patriotism and an incentive to ambition, for in few branches of activity have more opportunities for achievement been offered and utilized than in the work of the Army Medical Corps. Here, the right man in the right place can always "do things."

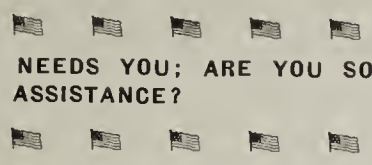
From the times of the Iliad and the Anabasis, the army surgeon has always been a foremost figure in military affairs, not always recognized, it is true, but usually "winning out" in the end. Machaon and Podalirius, Paré and Wiseman, Larrey and Letterman are in every way as familiar names in medical literature as Achilles or Hector, Condé or Cromwell, Napoleon or Grant in epic or history. Pringle, whose name is associated with the establishment of the Red Cross idea at the battle of Dettingen, was not only the founder of modern military medicine, but also one of the most discerning physicians of his time. He was a pioneer of hospital ventilation, camp sanitation and antisepsis, showed the identity of jail (typhus) fever and hospital fever, brought the dysenteries into one category, and named influenza. John Hunter was surgeon general of the English army. Guthrie and Sir Charles Bell operated at Waterloo. Larrey and Letterman standardized rapid transportation of the wounded from the field. MacCormac and Victor Horsley were pioneers in vesical and neurologic surgery. The army surgeons of the Indian Medical Service shouldered a large part of the actual administration of Hindustan in the early days. They introduced and operated the telegraph lines, officered and ran the mint, acted as postmasters of the Indian stations, took the first census, improved the water supply, botanized and geologized over the whole peninsula, as portly volumes show, described the animals, poisonous snakes, minerals, costly woods and art products, wrote poems, translated Oriental texts, and added enormously to the science of tropical medicine. The names of Fayrer, Murchison, Russell, Waring, Ronald Ross, Leonard Rogers, Leishman, Donovan, and Vandyke Carter stand high in these annals.[1] Freyer improved the surgery of the prostate. Smith and Elliot have done much for the surgery of the eye. In the German army, the Langenbecks, von Graefe, Sr., Dieffenbach, Stromeyer, Helmholtz, Cohnheim, Loeffler, von Behring and Unna all had honorable records. In France, Laveran has written large treatises on military hygiene, and Tuffier at present manages the general surgery of the whole French line. Pirogoff, the great war surgeon of the Crimea, is the most eminent name in Russian medicine.

Colonel McCulloch's record goes back to colonial days, gives a full account of the work of the surgeons general, from Morgan to Gorgas, and enumerates the scientific work of the different medical officers in detail. The early names of Morgan, Rush, Shippen, Thacher and John Jones are well known. Morgan and Shippen were the principal founders of the medical department of the University of Pennsylvania (1765). William Brown, physician general of the Middle Department (1775-80), got up the first American pharmacopeia (1778). Of the early surgeons general, Tilton, Lovell (the patron of Beaumont) and Lawson were capable administrators. Hammond made his mark as physiologist and neurologist, founded the Army Medical Museum (at the instance of John H. Brinton), and during the Civil War created the special hospitals for cardiac, pulmonary and neural diseases, at which Da Costa first described irritable heart in soldiers, and Mitchell, Morehouse and Keen those gunshot disorders of nerves which Marie and his co-workers in Paris are now studying with such keen interest. Under Barnes, Crane, Murray and Moore, the medical and surgical history of the war was begun and completed by Otis, Woodward, Smart and Huntington. Under Barnes, John S. Billings made his famous reports on barracks and military hygiene, and began his remarkable career as hospital constructor, library adminis-

1. Crawford, D. G.: A History of the Indian Medical Service, 1600-1913, London, 1914.

trator, statistician, sanitary engineer and medical bibliographer. The "Index Catalogue" and "Index Medicus," founded by Billings and Fletcher, are known everywhere. Surgeon General Sternberg was the earliest of the corps to take up bacteriology; he first isolated the bacillus of pneumonia, cleared the ground for the work of Walter Reed and his associates on the transmission of yellow fever, and founded the Army Medical School. O'Reilly created the Medical Reserve Corps. Torney, who managed the work of medical relief and sanitation at the San Francisco earthquake and fire, reorganized the dental and nurse corps of the army and instituted compulsory vaccination against typhoid fever. The work of Gorgas in eradicating yellow fever from the Isthmus and rendering Panama habitable is the outstanding achievement in public sanitation of our time.

Among the individual medical officers, William Beaumont made an epoch by his work on gastric digestion, Letterman, by his work on ambulance evacuation of the wounded and general reorganization of the medical service in the field, Walter Reed by his demonstration of the transmission of yellow fever by the mosquito. Reed, Vaughan and Shakespeare showed how typhoid fever is transmitted in camps, and Major Russell eradicated the disease from the army by wholesale vaccination. Smallpox and leprosy were driven from Porto Rico by Colonel Hoff, and hookworm infection by Major Ashford. Captain Vedder diminished beriberi in the Philippines, and first showed that emetin is a specific in amebic dysentery. Major Craig demonstrated malaria carriers, also intracorpuscular conjugation as the cause of latent and relapsing malaria, and discovered *Paramoeba hominis*. Majors Ashburn and Craig discovered *Microfilaria philippinensis* and showed that the filterable virus of dengue is transmitted by the mosquito *Culex fatigans*. Captains Gentry and Ferenbaugh showed the transmission of Malta fever by goats in Texas. That wound infection may be conveyed by gunpowder or projectiles, in spite of the heat of the act of firing, was demonstrated by Colonel L. A. La Garde, whose treatise on gunshot wounds is now of especial importance. The Medical Corps of the Army has turned out a large number of admirable textbooks, such as those of Tripler, Woodhull and Straub on military medicine, Munson and Havard on military hygiene, Christie on Roentgen-ray diagnosis, and Munson on sanitary tactics. Colonel Munson, the present editor of the *Military Surgeon,* is the inventor of the Munson last, which has made the soldier's shoe absolutely comfortable for marching purposes. Outside the medical sciences, Coues, Merrill, Shufeldt and Mearns have distinguished themselves in ornithology, and Matthews and Woodruff in ethnology, and to the line of the army, the corps has contributed Generals Wood and Ainsworth. Altogether, a brilliant record, which, if surpassed by the work of the Indian Medical Service in versatility, is, as McCulloch says, unequaled anywhere in preventive medicine.



YOUR COUNTRY NEEDS YOU; ARE YOU SO SITUATED THAT YOU CAN RENDER ASSISTANCE?

PREPARATIONS OF THE PITUITARY GLAND

The importance of the standardization of preparations of the posterior, or infundibular, lobe of the pituitary gland (the liquor hypophysis of the new United States Pharmacopeia, pituitary solution, pituitary extract, etc.) is exemplified by a recent publication of Roth.[1] As is well known, the active constituent or constituents of this gland have not been isolated, and there is no chemical method of determining the activity and therapeutic value of various preparations. There are, however, certain physiologic methods by which the activity of such preparations may be determined with a considerable degree of exactness. The last revision of the Pharmacopeia, recognizing that the best attested field of usefulness for such preparations is in obstetrics, adopted as a test their activity on the uterus of the guinea-pig; the details of the method adopted by the Pharmacopeia are those described by Roth.[2] Roth now reports on the activity of seven samples of commercial infundibular extracts, the products of five American manufacturing pharmacists. Four of these samples were found to be of Pharmacopeia strength; the other three were much weaker. Of the latter, one had but one tenth, another but one fifth and the third but one fourth of the required activity. Those preparations which had been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies corresponded to the Pharmacopeia requirements. Roth also compared the activity of these seven preparations on the blood pressure, another method by which it has been proposed to standardize infundibular extracts. The four preparations which were equally active on the uterus were found to be equally active on the blood pressure; the other three were much weaker. Roth points out, however, that the results of the two methods are not necessarily parallel; in one instance, for example, two samples caused equal rises of blood pressure, but one was twice as active as the other on the uterus. Hence it is evident that the blood pressure test is not a satisfactory method for determining the activity of a preparation on the uterus, and vice versa.

The subject of pituitary standardization, or perhaps it may be said the application of the present method is, however, in need of further study. Thus the state-

1. Roth, G. B.: Pituitary Standardization, Bull 109, Hyg. Lab., U. S. P. H. S., 1917.
2. Roth, G. B.: Bull. 100, Hyg. Lab., U. S. P. H. S.

ment has recently been made[3] that commercial preparations are on the market which have from three to five times the activity of the Pharmacopeia standard; this was not the case, however, with the preparations examined by Roth. It is probable that some have used for comparison a weaker standard than that proposed by the Pharmacopeia; this, of course, would lead to the conclusion that the commercial preparations were stronger than the Pharmacopeia standard. Roth suggests that the employment of standards of unequal activity by the various supply houses could easily be eliminated by having a central laboratory distribute material for use as a standard. It will be recalled that before the United States Public Health Service established and began the distribution of standards for diphtheria and tetanus antitoxins, the commercial preparations of these varied even more in activity than do those of the pituitary extracts at present.

It is unnecessary to emphasize the importance of this subject; this is sufficiently evident to those who have followed the recent clinical literature on the use of pituitary extracts in obstetrics. These preparations are used in times of emergency; a weak preparation is valueless, whereas overdosage, either from too strong a preparation or from too free use of a preparation of the official strength, is often followed by disaster to the mother or child or both. Roth cites a number of cases of ruptured uterus and other injuries resulting from their use.



ARE YOU PHYSICALLY AND MENTALLY QUALIFIED TO ACT AS A MEDICAL OFFICER IN THE ARMY?



NEPHRITIS, BLOOD PHOSPHATES AND ACIDOSIS

There is no longer much doubt that in the more severe types of chronic renal disease mild grades of acidosis frequently occur. This manifests itself in a lowered alveolar carbon dioxid tension, decreased affinity of hemoglobin for oxygen, reduced alkalinity of the blood, increased intensity of urinary acidity, and retention of alkali by the body in cases in which the kidney is capable of the rapid elimination of excess of alkali.[4] It is well known that the acidosis itself can be overcome by the administration of alkalies. This does not, however, aim at the underlying causes of the excess of acid in the body. Even in normal metabolism there is a continual production of acid substances. These combine with base in the blood and are transported to the lungs and kidneys for excretion. Carbon dioxid is eliminated by the lungs. It devolves mainly on the kidneys to excrete sulphuric acid, phosphoric acid, and those products of deranged metabolism, aceto-acetic acid, beta-oxybutyric acid, etc., which are most commonly thought of as sources of the acidosis of disease.

There are many reasons for believing, however, that acidosis is by no means always identical with what has been termed ketosis or ketogenesis. Marriott and Howland[5] have recently demonstrated that an accumulation of acid phosphates may occur in the blood when the kidney functions are upset. The significance of this will be appreciated when it is recalled that the regulation of the acid-base equilibrium of the body is largely brought about by the ability of the kidney to excrete acid phosphate. This regulation of reaction is one of the most important of the kidney's functions. If this function is interfered with, the normal acid-base equilibrium must be disturbed, and eventually acidosis is inevitable.

According to Marriott and Howland, the retention of acid phosphate (for approximately 90 per cent. of the phosphate in an average urine is acid phosphate) would seem to be sufficient to account for the degree of acidosis observed. It does not follow that this is the sole factor in the acidosis of nephritis, particularly in the terminal stages. The retention of acid phosphate in nephritis is not part of a general salt retention; it seems due to a certain specificity of retention, for it has been found that the inorganic phosphates were much increased when there was no increase of sodium chlorid. It is also not necessarily proportional to the total nitrogen and urea retention. The phosphate retention is not a result of acidosis per se, for Marriott and Howland have failed to find an accumulation of phosphates in the serum in severe cases of acidosis in diabetes and other forms of acetone body acidosis. That the high phosphate content is due to interference with a specific function of the kidney and not to increased phosphate production in the body or increased absorption from the intestinal tract is shown by the fact that the urinary output of phosphate is not increased and, indeed, may be diminished. It is possible to determine a constant for phosphate excretion analogous to Ambard's constant for urea.

Administration of alkali generally fails to bring about any noteworthy reduction of the accumulated phosphate in the blood plasma. Herein lies a warning against the indiscriminate administration of bicarbonates in kidney disease. The warning to use alkalies rationally is timely in these days when nephritis and alkali therapy are blindly linked together without restriction by many clinicians. The accumulated phosphates of the serum, even though neutralized, are capable of doing serious harm to the organism. The amount is sufficient to have a definite influence on the osmotic pressure. This suggests a possible connection with the phenomena of edema and hydremia.

3. Pittenger, P. S., and Vanderkleed, C. E.: Jour. Am. Pharm. Assn., 1917, **6**, 131.

4. Palmer, W. W., and Henderson, L. J.: A Study of the Several Factors of Acid Excretion in Nephritis, Arch. Int. Med., July, 1915, p. 109.

5. Marriott, W. McK., and Howland, J.: Phosphate Retention as a Factor in the Production of Acidosis in Nephritis, Arch. Int. Med., November, 1916, p. 708.

In calling attention to the fact, known to physiologists, that administration of calcium, which is eliminated by the bowel chiefly, leads to an associated output of phosphate through the intestine, Marriott and Howland have offered a suggestion for possible therapeutic procedure. A new point of view in respect to the untoward features of acidosis, retention and other related phenomena has been presented.

ARE YOUR PRACTICE AND SOCIAL RELATIONS SUCH THAT YOU CAN SUSPEND THEM FOR A FEW MONTHS OR FOR A YEAR, IF NEEDED?

THE ESTIMATION OF ACIDOSIS UNDER CLINICAL CONDITIONS

Despite the somewhat indefinite significance attached in the past to the term "acidosis," what this word actually represents is rapidly being determined, thanks to the unusual attention given to problems in relation to it. A recent writer[1] has described acidosis as including conditions in which there is a general impoverishment of the body in bases or substances which readily give rise to bases. This may be due to faulty absorption of bases, to an unusual loss of bases from the body, or to their neutralization by abnormal amounts of acids. Increase in the amounts of acids in the body may be due to the production of abnormal acids, an overproduction of the usual body acids, or, as Howland and Marriott have recently suggested, to an accumulation of normal acids because of failure in excretion.

The attempts to obtain evidence of one or more of these forms of acidosis have been varied. Owing to the fact that the carbon dioxid of the blood decreases in amount as acids other than carbonic acid increase therein, indications of acidosis have been sought by determining the carbon dioxid content of the circulating medium. The estimation of the carbon dioxid in alveolar air furnishes such statistics. Studies of the output of acid in the urine have been made for the same purpose. The body as a whole has been titrated, so to speak, by ascertaining the amount of alkali necessary, when administered by mouth or otherwise, to render the urine alkaline. Ordinarily in this way it takes from 5 to 15 grams of sodium bicarbonate to change the reaction of the urine of a healthy person from acid to alkaline. When acid production is overabundant, much more alkali may be required. It may happen, however, that part of the neutralization of excessive amounts of acid in the organism is taken care of by the ammonia mechanism; hence an increased output of ammonia is also looked on as indicative of excessive production of acid. The ketone substances are also not without significance.

Some of these various signs of acidosis may be obtained in numerous diseases. In each case, however, as Frothingham has pointed out, not all tests may be positive.[2] For example, acetone may be found in diabetes and in diseases in children, while in chronic nephritis it is not present; yet all of these conditions may show the alveolar carbon dioxid lowered or the sodium bicarbonate tolerance increased. It would seem, therefore, that so-called acidosis is not due in each case to the same abnormal factors. Frothingham, accordingly, has studied several of these tests for acidosis in the same case at the same time, to find out how the patients in whom an acidosis is supposed to exist react to the different tests. So far as possible, patients were selected who presented an uncomplicated picture of a single disease. In each case the carbon dioxid tension in the alveolar air was determined, the soda tolerance test was carried out, and the twenty-four hour specimen of urine was examined for the presence of acetone, for its hydrogen ion concentration, for the total nitrogen and for the ammonia nitrogen.

In reviewing the outcome of his experiments, Frothingham feels convinced that the hydrogen ion concentration in the urine is not reliable as an index of acidosis. Evidence of acidosis appeared at times in certain diseases, while in others no evidence of it was found. Those diseases, he states, which showed an acidosis at times by some of these tests are diabetes, chronic nephritis, pneumonia, acute articular rheumatism and several acute febrile conditions in a miscellaneous group. Cases of exophthalmic goiter, epilepsy, syphilis, chronic cardiac disease, subacute nephritis, lung abscess, and many in the miscellaneous group distinctly did not show any evidence of acidosis by these tests. The results in the cases of primary anemia, gastric cancer, Addison's disease and cirrhosis of the liver were not so clearly defined, and in some of the tests suggested a slight acidosis. Furthermore, he believes that the acidosis found in diabetes is due to different causes, in part at least, from those which produce it in other conditions. It also seems likely that the acidosis encountered in different diseases is due to various causes, since the comparative response to these tests varies somewhat in the different conditions.

Studies like these enable the clinician to gain a critical insight into the relative values of some of the methods now in use for ascertaining the existence of acidosis. Of these tests, says Frothingham, either the estimation of the carbon dioxid tension in the alveolar air or the soda tolerance test showed variation from the normal in all the cases of acidosis. They also seem to be of value in detecting the degree of acidosis.

1. Sellards, A. W.: Bull. Johns Hopkins Hosp., 1914, **25**, 101.

2. Frothingham, Channing, Jr.: Acidosis in Acute and Chronic Disease, Arch. Int. Med., December, 1916, p. 717.

Terminal Illnesses.—The terminal illness is not usually the one which has been the deciding factor in determining the individual's length of life. It is frequently but the last inimical process to attack a weakened human organism, an organism exhausted and with diminished resistance as a result of previous diseases and morbid processes.—J. W. Trask, *Public Health Reports,* Dec. 22, 1916.

Current Comment

THE SCIENTIFIC PROGRAM AT NEW YORK

We publish in this issue the program of the fifteen scientific sections which form the Scientific Assembly. A glance through these programs will show that they present to the various sections a remarkable number and variety of scientific topics covering the whole field of modern medicine and reflecting the progress being made in medicine. The symposium on poliomyelitis ought to be of very practical and timely interest. Another subject that is also timely and important and should attract a large audience is the discussion in the Section on Preventive Medicine and Public Health of the service required of the medical officers of the army and navy. As will be noticed, papers on military medicine and surgery also appear in other sections. Incidentally, it is to be regretted that all of this material could not have been presented at one time and place. The local committee on arrangements has provided for the demonstration of a field hospital unit in which the practical equipment of such a unit will be available for inspection and study. The details of the arrangements of the opening meeting and for the social entertainment are not available for publication in this issue, but will appear shortly. However, we can assure those Fellows who are planning to attend the New York session that they will not be disappointed. Not only will they be furnished a scientific program that will satisfy their professional taste, but they may also depend on having a good time socially.



HAVE YOU MADE APPLICATION FOR APPOINTMENT TO THE MEDICAL CORPS OR MEDICAL OFFICERS RESERVE CORPS OF THE ARMY?



"PREPAREDNESS" AND THE EXAMINATION OF RECRUITS

During the early months of their active service, the most important work for medical officers, both as to the amount and the responsibility assumed, will be the examination of recruits. The first call will be for 500,000 men, in addition to the number necessary to bring the regular army up to the quota provided in the law of June 3, 1916. This still requires approximately 160,000. The examination of 660,000 men is a pretty large undertaking, especially if the examination is made as thoroughly and as carefully as it should be made. The aftermath of the Spanish-American War, with its disabilities already requiring pensions far beyond reason, should be a sufficient warning to our government not to follow the lax methods regarding the enlistment of men which prevailed in 1898. France and England have had a sorry experience, and both have learned at tremendous cost the folly of regarding quantity as of more importance than quality. However, no matter whether the examination shall be rigid and inclusive—to include, for instance, the Wassermann test—or more or less superficial, the fact is that the medical officers, especially the Reserve Corps, have a tremendous and responsible task before them. Undoubtedly many who will be assigned to the examination of recruits have become rusty in diagnostic methods and will need to review some lessons in physical diagnosis. The physical examination of recruits is practically the same as that for life insurance, except that it is on a larger scale, and in some respects is, or should be, more exacting. All who have now offered themselves, or who are proposing to offer themselves, for the Medical Officers Reserve Corps should adopt the principle of "preparedness" and be ready when called. The War Department has a manual entitled "Rules for the Examination of Recruits" (General Orders No. 66), which contains valuable information. This is supplemented by U. S. Army Recruiting Circular No. 1. These pamphlets can be obtained by addressing the Army Medical Department—or THE JOURNAL will gladly send a copy on receipt of a stamped, directed envelope.



YOU WILL FIND APPLICATION BLANKS IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION OF TWO WEEKS AGO, APRIL 21.



EFFECT OF GASTRIC JUICE ON THE JEJUNAL MUCOSA

The consideration of ulcers of the upper digestive tract as manifestations, in part at least, of the elective invasion of the tissues by certain types of streptococci has directed attention away from some of the older assertions in respect to the etiology of this condition. Mechanical factors, for the time being at least, have lost much of their interest in connection with the origin of gastric and duodenal ulcers. The possibility of a corrosive action of the gastric juice on a necrotic or otherwise damaged mucosa cannot be overlooked, however, particularly in view of the fact that somewhat effective therapy seems to have been found in the constant administration of alkalies, which are supposed to effect their cure by neutralizing the acid gastric juice.[1] Whether the chronicity of certain types of ulcer is due entirely to bacterial infection, as is lately contended, or to the combined effects of streptococci and the corrosive action of the gastric juice may still be debatable. Hardt[2] has maintained that there is no "hyperacidity" in the gastric juice following the experimental production of gastric ulcers; and when gastric or duodenal ulcers exist there may or may not be a continuous hypersecretion. At the Mayo Clinic, Mann[3] has implanted functionally resected portions of the jejunum with intact blood supply into the posterior wall of the stomach in the region of the antrum of the pylorus. The continuity of the intestine was maintained by anastomosis. It was thought possible, by concentrating the effect in the stomach, to determine the part, if any, played by the gastric juice in the production of gastrojejunal ulcers. In such an experiment the portion of the jejunum, which is usually next to the stoma in a

1. Compare Sippy, B. W.: Gastric and Duodenal Ulcer, THE JOURNAL A. M. A., May 15, 1915, p. 1625.
2. Hardt, L. L. J.: Contributions to the Physiology of the Stomach, XXXIII, The Secretion of Gastric Juice in Cases of Gastric and Duodenal Ulcers, Am. Jour. Physiol., 1916, **40**, 314.
3. Mann, F. C.: The Effect on the Jejunal Mucosa of Exposure to the Gastric Juice, Jour. Med. Research, 1917, **35**, 289.

gastrojejunostomy, was placed in the part of the stomach which is almost always bathed with free acid. Furthermore, the condition of the transposed jejunal mucosa differed from that of the mucosa near the stoma of a gastrojejunostomy in that the former was not protected by the other intestinal secretions. Because of this, Mann points out, the effect of the acid on the transposed jejunum should be decidedly augmented. Although, in some cases, there was a slight thickening of the transplanted mucosa and muscularis and an increase in the number and size of the mucus-producing cells, this effect was not uniformly observed. Sometimes no change was noticed, the jejunal mucosa remaining anatomically normal. Its physiologic functional power was also unimpaired. Fat was apparently absorbed with readiness by the transplant in the stomach, in harmony with what occurs through the same membrane in its usual location in the intestine and in contrast with the failure to take up fats which Mendel and Baumann[4] have described for the true gastric mucosa.



OTHERS ARE MAKING THE NECESSARY SACRIFICES. WHY NOT YOU?



THE NEW YORK SESSION OF THE AMERICAN MEDICAL ASSOCIATION

In May, 1846, in response to a call issued by the Medical Society of the State of New York, there was held in New York City a conference for the purpose of discussing questions relating to the standardization of medical education in the United States. This conference adjourned to meet a year later in Philadelphia, where it resolved itself into a permanent organization —the American Medical Association. On three different occasions since then New York has been the place of meeting: in 1853, 1864, and 1880. Now again an annual session—the sixty-eighth—is to be held in the city which may be considered the birthplace of the Association.



DO NOT DELAY. ACT NOW. TIME IS PRECIOUS. YOUR COUNTRY NEEDS YOU.



THE SHORTAGE OF SALVARSAN

Simultaneously there come to THE JOURNAL two communications: The first is a telegram from Idaho, "Can you send me ampule neosalvarsan, salvarsan or arsenobenzol? Cannot get it in the West. Answer, collect." The second, a letter from a Chicago address: "I have 90 vials of neosalvarsan which I brought from Europe. It is in powder form in three different sizes of vials. There are 38 vials of 0.6 gram, 26 vials of 0.75 gram, 26 vials of 0.9 gram. I want eleven hundred dollars for them. Mrs. —." These communications tell their own story. Until Congress shall abrogate the patent on these drugs, physicians will be handicapped in fighting one of the most serious diseases, and the public and the army will suffer. And all for the commercial advantage of one concern.[5]

4. Mendel, L. B., and Baumann, E. J.: The Question of Fat Absorption from the Mammalian Stomach, Jour. Biol. Chem., 1915, **22**, 165.

5. It is reported that a bill to suspend the patent on salvarsan was introduced into Congress by Hon. H. W. Watson of Pennsylvania, and that hearings will be held on the bill this week.

Medical Mobilization and the War

No Change in Medical Teaching

We announced last week (p. 1267) that the deans of forty-six medical schools of the United States had been asked to hold a meeting in Washington to consider the recommendations of the Committee on Medical Schools of the Advisory Commission of the Council of National Defense. As a result of this conference it was decided that it would be inexpedient to alter established courses of instruction with a view to expediting graduation. The maintenance of existing standards of medical education was looked on as being better calculated to insure a regular and adequate supply of competent physicians, no matter how long the war may last, than would any modification of prevailing methods. It was agreed to reorganize the teaching forces so far as may be practicable in order to release from the faculties of the medical schools as many men as can be spared for military duty.

Conference of State Health Officers with the United States Public Health Service

At the annual conference of state and territorial health officers with the United States Public Health Service held in Washington, D. C., May 1, the possible war activities of state and territorial health authorities were given special consideration. It was pointed out that these agencies might assist the federal authorities in the sanitation of military and naval camp sites, and in the hygienic control of camps. The police power of the various jurisdictions might be brought to bear directly on the environments of camps, thus establishing a subsidiary control to that of the military authorities. Furthermore, the various state laboratories can be made available for the diagnosis and sanitary surveillance of infectious diseases among troops. Special precautions will be taken to prevent the introduction of such infectious diseases as tuberculosis and the venereal diseases in connection with which the civilian population bears such a close relationship to the military establishments. By promptly reporting to the United States Public Health Service epidemics of the various infectious diseases developing in any state or territory, the civilian health authorities will make such information available to the army and navy. This information will enable the military medical officers to take the precautions which the exigencies of military service permit, toward safeguarding the health of the troops. Such notification of infectious diseases was particularly urged with respect to poliomyelitis, epidemic cerebrospinal meningitis, smallpox, typhus, typhoid fever, paratyphoid fever and bacillary dysentery.

It was suggested that the general sanitary supervision of soldiers suffering from pulmonary tuberculosis and of persons found by recruiting officers to be unfit for army or naval service because of suffering from this disease might be taken over by the state health authorities. Local hospitals for patients suffering from communicable diseases might also be made available for the care of cases occurring among troops or in any branch of the naval service.

Among other duties which health officers may be called on to perform are the sanitary supervision and control of interstate transportation facilities likely to be used for military purposes and of the sources of water, milk and food supplies of the combatant forces. Another duty would be the sanitary control of refugees and interned aliens held in special camps.

The conference also requested the surgeon-general of the Public Health Service to advise the executive health officials of the various states as to the lines of activity in which the federal service will be able, in case of necessity, to aid state and federal health services during the war.

State Health Facilities to Be Offered to the Federal Government

At an unofficial conference of state and federal health officers held independently of the annual official conference of these officers with the Public Health Service, it was resolved that in view of the conditions incident to a state of war the public health personnel, resources and organizations of the various states and territories should be placed at the disposal of the federal government; that under these conditions, the correlation, supervision and direction of the various state and territorial and local health agencies should be turned over to the United States Public Health Service; and that aside from

hygienic and medical care of the actual military and naval forces, all sanitary and hygienic activities that required a national policy should be correlated, supervised and directed by the United States Public Health Service.

A resolution was adopted describing the present personnel and organization of the United States Public Health Service as entirely inadequate and recommending the establishment of a national reserve corps to supplement it. The proposed sanitary reserve corps would be made up of sanitarians and past assistant sanitarians each commissioned by the president for a period of five years.

Additional Examining Boards for M. O. R. C.

In addition to the boards mentioned in The Journal, last week, page 1267, boards for the appointment of officers in the Medical Officers Reserve Corps have recently been appointed at the following places:

Ft. Huachuca, Ariz., Major Charles E. Marrow, Med. Corps.
Ft. McPherson, Ga., Lieut. Col. Thos. S. Bratton.
Ft. Screven, Ga., Lieut. Harry Rubin, M. R. C.
New Haven, Conn., Lieut. John W. Churchman, M. R. C.
Los Angeles, Major William L. Kneedler, U. S. A., Ret.
San Juan, P. R., Col. Basil H. Dutcher, Med. Corps.
Birmingham, Ala., Dr. John M. Lowrey, 727 1st Nat'l Bank Bldg.
Lincoln, Neb., Lieut. L. B. Sturdevant, M. R. C., 757 Holdredge St.
Springfield, Mo., Dr. Joseph W. Love.
Naco, Ariz., The Surgeon, U. S. Troops.
Mobile, Ala., Capt. John O. Rush, M. R. C., 412 Van Antwerp Bldg.
Baton Rouge, La., Capt. Charles McVea, M. R. C.
Memphis, Tenn., Major Frank D. Smythe, M. R. C., 554 East St.
Bowling Green, Ky., Major Arthur T. McCormick, M. R. C.
Nashville, Tenn., Major Lucius E. Burch, Eve Bldg.
Ft. Caswell, N. C., Lieut. Walter A. Newman, M. R. C.
Aberdeen, S. D., Lieut. William E. Clark, 519 7th Ave., S. E.
Columbia, S. C., Lieut. Francis A. Coward, M. R. C., State Bd. of Health Lab.
Kansas City, Mo., Dr. John F. Binnie, Rialto Building.
Ft. Riley, Kan., The Surgeon.
Austin, Texas, Capt. Albert F. Beverly, M. R. C., 311 W. 13th St.
Springfield, Ill., Lieut. George N. Kreider, M. R. C., 522 Capitol Avenue.
Sheboygan, Wis., Major Edward J. Barrett, M. O. R. C.
Mt. Vernon, Ill., Capt. W. H. Gilmore, M. O. R. C.

These examining boards are now authorized to conduct examinations for the Medical Officers Reserve Corps without reference to the surgeon-general's office, until the papers are completed.

Age Limit for Medical Corps Officers

There seems to be a misunderstanding in regard to the age limit for admission to the regular Medical Corps of the Army. Until Jan. 1, 1918, any one who meets the requirements—hospital service, etc.—can receive his commission in the Medical Corps prior to reaching his thirty-fourth birthday. After that date the law fixes the maximum age at 32 years. Those taking the examination now may enter the Army Medical School in July and complete the course in October, at which time they will be commissioned.

Medical Reserve Officers to Serve on the Western Front.—The Military Relief Department of the American National Red Cross is preparing to send 112 physicians from the Medical Officers' Reserve Corps of the United States Army for service with the British troops on the western front.

Reserve Corps Organized at Detroit.—At a meeting held in Detroit, April 4, the Detroit section of the Medical Reserve Corps, United States Army, was organized. Dr. James W. Inches, formerly of St. Clair, now health officer of Detroit, was elected president, Dr. Louis J. Hirschman, vice president, and Dr. Alpheus F. Jennings, secretary.

New Marine Hospital.—Dr. James A. Nydegger, Baltimore, of the United States Public Health Service has announced that the hospital on Remington Avenue, Baltimore, would be equipped immediately and put in readiness for the reception of sick and wounded soldiers and sailors. Provision will be made for the reception of 200. When the Quarantine Station is taken over, the government will have three marine hospitals in Baltimore.

Auxiliary Medical Corps Organized.—The Richmond Borough, New York, Unit of the Auxiliary Medical Corps, has elected Dr. Alfred H. Thomas, New Brighton, captain, and Drs. Charles L. Allers, New York, George E. Pearson, St. George, and John D. Lucey, Stapleton, lieutenants.——Dr. Daniel S. MacArthur, LaCrosse, Wis., has organized an auxiliary medical corps to be known as the LaCrosse Medical Reserve Corps.

Orthopedic Surgeons Aid in England.—Twenty orthopedic surgeons are being secured for service in England under Col. Robert Jones. This expedition will be under the direction of the Military Relief Department of the American National Red Cross. Col. Robert Jones is perhaps the best known orthopedic surgeon in England. Among other positions which he holds, he is lecturer on orthopedic surgery at Liverpool University, president and treasurer of the Liverpool Medical Institute, member of the Council of the Royal Society of Medicine and twice president of the Section of Orthopedics in the International Medical Congresses. The American orthopedic surgeons will go from the United States under the leadership of Dr. Joel E. Goldthwait of Boston.

Medical Men to Mobilize.—The first organized effort to mobilize the medical men of Maryland was made at the opening session of the annual meeting of the Medical and Chirurgical Faculty. Maryland has been asked to furnish 400 physicians for the Officers Reserve Corps. So far it has furnished but seventy-nine. Dr. Charles W. Mitchell, Baltimore, the principal speaker of the opening session, spoke on "The Physician's Duty in the Present Crisis." Osler Hall was turned into a recruiting station where information and application blanks could be obtained. Examinations for appointment as officers in the army or navy medical reserve will be held during the coming week, and will be conducted by a board composed of Maryland members of the reserve corps. Dr. John Staige Davis is chairman.

Columbia Unit War Hospital.—Within the brief space of a few weeks since the announcement that Columbia University was planning for an emergency mobile unit war hospital, funds have been subscribed, plans drawn, contracts let, and every preparation made for starting construction. Dr. J. Bentley Squier initiated the idea of this project, and its working out has been actively participated in by Dr. Adrian V. S. Lambert, Professor of Surgery of Columbia University. Dr. Alexander Lambert has received subscriptions amounting to $175,000, sufficient for the erection of the initial mobile unit. About $45,000 has been contributed by Mrs. E. H. Harriman for its equipment, some of which has already been purchased. It is planned to have a second identical unit organized immediately so that the hospital may be in continuous operation, and work continued without interruption.

New Members of the General Medical Board.—Since the publication of the composition of the General Medical Board, The Journal, April 14, page 1128, the following additional members have been appointed: Dr. John M. T. Finney, Professor of Clinical Surgery, Johns Hopkins University, Baltimore; Dr. Edward P. Davis, Professor of Obstetrics, Jefferson Medical College, Philadelphia; Dr. W. C. Woodward, Health Officer of the District of Columbia, Washington, D. C.; Dr. Simon Flexner, Director, Rockefeller Institute, New York; Dr. Theodore Janeway, Professor of Medicine, Johns Hopkins University, Baltimore; Dr. Hermann M. Biggs, State Commissioner of Health, New York; Dr. George Brewer, Professor of Surgery, University of New York, New York; Dr. George Walker, Johns Hopkins University, Baltimore; Dr. W. H. G. Logan, President-Elect, National Dental Association, Chicago; Dr. Sterling Ruffin, Washington, D. C.

Base Hospitals Ordered Into Active Duty.—Six of the base hospitals organized by the American National Red Cross for service with the Medical Department of the United States Army have been ordered abroad for active duty, probably in France. On arrival abroad they will be assigned to active duty, taking charge of hospitals in operation, as described in The Journal, March 31. The medical staff contains one medical director, two administrative officers, one quartermaster, one adjutant, nine surgeons and seven medical men.

The hospitals ordered into active duty are: base hospital No. 2, the Presbyterian Hospital, New York, Dr. George E. Brewer, director; base hospital No. 4, the Lakeside Hospital, Cleveland, Dr. George W. Crile, director; base hospital No. 5, Harvard University, the Peter Bent Brigham Hospital, Dr. Harvey Cushing, director; base hospital No. 10, the Pennsylvania Hospital, Philadelphia, Dr. Richard H. Harte, director; base hospital No. 12, Northwestern University Medical School, Dr. Frederick A. Beasley, director; base hospital No. 21, Washington University Medical School, St. Louis, Dr. Frederick T. Murphy, director. The administrative personnel of the base hospitals will be supplemented by two medical officers of the regular army corps, one sent as commanding officer and the other as adjutant. In addition, one line officer of the regular army will serve as quartermaster. The base hospitals are ordered into active duty to assemble at Fort Porter, Buffalo, for organization and train-

ing. It is reported that they will leave for France in from three to four weeks.

Lord Northcliffe on the Medical Corps of the Army.—Lord Northcliffe is widely known as an astute journalist with a view of science, of law, of every field of human endeavor as broad as that of many specialists in those fields. In a recent consideration of the lessons which the United States may learn from French and British mistakes, Lord Northcliffe comments on the work of the medical department of the army. In considering the question of sending a contingent of American troops to France he says:

> First and above all, there is the health of the contingent. How many lives did we lose at the outset by inclusion in our units of men medically unfit?
>
> Before the war the German physical examination of each would-be soldier occupied the time of two or three skilled medical advisers for from forty-five to sixty minutes. Our own medical examinations at the outset were too often a farce. Medical examination of men for the work of warfare is beset by so many pitfalls that without special training it cannot be undertaken by ordinary civilian doctors. Luckily for you, you have as one head of your army that great soldier, General Leonard Wood, who himself understands medical matters.

It is Lord Northcliffe's belief that too much emphasis cannot be laid on the work of the medical department. The English medical department, he believes, was sufficiently qualified for its work.

> The war has taught us that just as important as airwork, artillery work, the work of rifle and bomb, is the equipment of the medical services. In that matter you cannot do better than to follow our example. . . . By a fortunate miracle, our Royal Army Medical Corps had, before the war, a staff of men of ability and vision, men who actually saw the size of the operations in the next war. I do not believe it would be possible to better our equipment. There are quite a number of American medical observers who can tell you all about it. Americans who have been both on the German and on the English side have reported that there was no comparison between the two, even so late as the battle of the Somme, when the war was more than two years old. The German medical force broke down entirely and was unable to meet the terrific rush of casualties. I have had that statement directly, not only on the authority of American eyewitnesses but also from other neutral observers.

Military Surgeons' Practice to Be Protected.—At the April meeting of the Marion County Medical Society a resolution was adopted providing that

> Every physician who is called to the colors will receive from his colleagues who do his practice at home one-third of all the gross collections, to be paid the physician or his family monthly, as long as he holds a commission under that of major, and no longer. When he returns, irrespective of his rank, his practice shall be returned to him intact.
>
> Any patient consulting a physician who is not one of that doctor's regular patients, is to be asked to state if one of the physicians in the service of the government is his regular physician, making it clear to the patient why he is asked this question.
>
> Every physician entering the government medical service is expected, or should make an effort to procure from his patients signed statements to the effect that they are his patients. These signed statements to be filed with the secretary of the society, and the secretary shall furnish copies of these names to his local colleagues.

The New York City Committee of American Physicians, at its meeting in New York, April 13, decided to form an auxiliary in each of the five boroughs of New York, to cooperate with the adjutant-general of the state, in ascertaining the medical and surgical resources, and to sanction any financial and personal agreements entered into by physicians to protect the practice of those who enter the Army service. The excutive council of the committee elected consists of Dr. Karl A. Connell, Col. William S. Terriberry, M. C. N. G., N. Y., and Drs. George D. Stewart and Charles H. Peck.——At a meeting of the Richmond County Medical Society, April 13, resolutions were adopted providing that the practice of physicians who enter the military service will be cared for by those who remain at home, that faithful records will be kept, and that no charges will be made for such services.——Plans have been made whereby the practice of physicians of Spokane who enter the military service will be conserved under the auspices of the Spokane County Medical Society. It is proposed that physicians in the military service receive compensation equal to their former earnings.——The Racine Physicians Association, at its meeting, April 17, adopted a resolution providing that physicians who remain at home in the present war crisis shall share the burden of those who are in the military service and that one third of the receipts of practice among patients of such military surgeons shall be paid to the secretary of the county society and held in trust by him for the physicians or turned over, on his order, to the physician's family.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

New State Hospital.—The Arkansas legislature recently passed a bill providing for the sale of certain lands, by which a sum estimated at $150,000 will be provided to erect a new state hospital in Little Rock. This is to be the teaching hospital of the University of Arkansas Medical Department and under the control of the board of trustees of the university.

District Society Election.—At the semiannual meeting of the Tenth Councilor District Medical Society held in Fort Smith, March 20, Dr. Samuel D. Kirkland, Van Buren, was elected president; Dr. John M. Taylor, Fort Smith, vice president, and Dr. Arthur F. Hoge, Fort Smith, secretary. Fort Smith was also selected as the place for the September meeting.

ILLINOIS

Chicago

Personal.—Dr. W. A. Newman Dorland has been elected deputy governor of the Illinois Society of the Order of Founders and Patriots.——A protest has been made by Miss Mary Bartelme, assistant to Judge Arnold of the Juvenile Court, against the action of the city physician in disposing of Dr. Clara P. Seippel, who has been on duty in that court, and assigning her work to a male physician.

Cook County Hospital.—At a meeting of the attending staff of the Cook County Hospital, April 12, a resolution was adopted thanking Mr. Clayton F. Smith, who resigned recently to accept the position of city treasurer, for his efficient cooperation in the provision of adequate medical and surgical care for the patients.——Mr. Michael Zimmer, formerly warden of the State Penitentiary, Joliet, was appointed superintendent of Cook County Hospital, April 19, to succed Mr. Smith.

Hospital Items.—The cornerstone of the Swedish Mission Covenant Hospital at Foster and California avenues was laid, April 22. The hospital, which will cost $175,000, will accommodate 120 patients.——The Memorial Hospital has acquired the Douglas Hospital property at Rhodes Avenue and Thirty-Second Street.—The new buildings of the Chicago Lying-In Hospital, at Fifty-First Street and Vincennes Avenue, are almost completed. The buildings and equipment will cost $350,000, and it is expected that the institution will be ready for occupancy early in June. It will accommodate 120 patients, one third of whom will be free, one third, part-pay, and one third, full-pay patients.

Chicago Men Address Societies.—From May 6 to 13, Dr. Otto T. Freer will give a course of lectures illustrative of operations and demonstrations at Portland, Ore., by invitation of the Portland Ophthalmological, Otological and Laryngological Society.——Dr. Clarence L. Wheaton delivered a public lecture on "The Prevention of Tuberculosis," and Dr. Charles H. Parkes made an address on "Some Reasons Why a Tuberculosis Sanatorium Should Be Established," in the Grand Theater, Keokuk, Iowa, March 23.——Dr. Lewis L. McArthur read a paper on "The New Method of Utilizing the Gallbladder in Gastric Surgery," and Dr. Harry S. Gradle read a paper on "Eye Symptoms in Tabes Dorsalis," before the Lynn County Medical Society, at Cedar Rapids, Iowa, March 20.

INDIANA

Health Officers School.—The annual conference and school for health officers will be held in Indianapolis, May 22 and 23.

Personal.—Dr. Lorin W. Smith, Wabash, who suffered the amputation of both legs as the result of burns received in an automobile accident recently, is reported to be doing well at the Park Hospital, Wabash.——Dr. Paul E. Bowers, medical superintendent of the Indiana Hospital for Insane Criminals, and the Indiana State Prison Hospital, Michigan City, delivered a series of lectures on "Criminals" and "Treatment of Criminals," to the police departments of Hammond, East Chicago and Gary, recently.

Oral Inspection of Schoolchildren.—The Indianapolis Dental Society and the city board of health have announced plans for a system of oral hygiene inspection of city schoolchildren. The teeth of all schoolchildren will be examined without cost. Following the examination, a card will be sent to the parents indicating that dental work should be done. If the parents feel unable to pay for the necessary work, it will be done free. It is planned to make this survey one of the most complete that ever has been conducted in any city of the United States.

KENTUCKY

Nurses Home Needed.—The Norton Memorial Infirmary, Louisville, has applied for permit to erect a three-story nurses' home at a cost of $40,000. The building will be of brick, 29 by 145 feet, and will contain rooms for forty-eight nurses, besides the necessary offices, recreation rooms and lecture room.

Postgraduate School for Nurses.—The Kentucky State Board of Tuberculosis Commissioners has decided to establish a postgraduate school to train nurses for public health. The school will be known as the Kentucky State Board of Tuberculosis Commissioners Postgraduate School for Public Health Nursing. Headquarters will be maintained at Louisville with branches at Lexington, Versailles and other points throughout the country. Tuition to Kentucky nurses will be free. The course will include three to five weeks' instruction and demonstration of public health nursing of the sick; two weeks' instruction in the proper management of sick babies; a three weeks' course or longer in the special training and management of tuberculosis patients in the home and in the clinic, and in addition a special course of lectures will be given by Dr. John B. Floyd, medical director and superintendent of the Waverly Hills Sanatorium, on "Medical Aspects of Tuberculosis."

LOUISIANA

Health Survey of New Orleans.—A health survey of New Orleans will be started next month by the Metropolitan Life Insurance Company, which will bring 168 men to aid in making a thorough survey of the health conditions.

MAINE

Personal.—Dr. Carl M. Robinson, Portland, has returned from France where he was on duty with the Harvard Unit on the western front.

Osteopathic Bill Fails of Passage.—The senate osteopathic bill, which provides for a separate board of examiners, was killed during the last week of the legislature.

MARYLAND

Osler Testimonial Fund.—The Medical and Chirurgical Faculty of Maryland has created a fund of $10,000, to be known as the Osler Testimonial Fund, the income of which is to be used for the purchase of books for the faculty, library, and for the upkeep of the hall which bears Sir William Osler's name.

New Faculty Officers.—At the one hundred nineteenth meeting of the Medical and Chirurgical Faculty of Maryland, the following officers were elected: Dr. William S. Halsted, Baltimore, president; Drs. James E. Deets, Clarkesburg, James McF. Dick, Salisbury, and Julius Friedenwald, Baltimore, vice presidents; Dr. John Staige Davis, Baltimore, secretary, and Dr. William S. Gardner, Baltimore, treasurer. The medical examiners appointed were: Drs. Charles C. W. Judd, Baltimore, and Albert L. Wilkinson, Raspburg.

NEW YORK

Personal.—Dr. Francis C. Clark, Staten Island, deputy health officer of the port of New York, has been granted a leave of absence in order to accept active duty as assistant surgeon in the United States Navy, and has been ordered to duty at the Recruiting Station, Paterson, N. J.

Dental Standard of New Columbia School.—The dental school which is being organized as a part of Columbia University will not be a part of the medical school but will be closely allied with it. Dental students will be required to complete two years in the college, spend two years in the medical school, gaining a foundation in medicine, and then complete their course by two years' special training in dentistry.

Training for Hospital Work.—The West Side Y. M. C. A. is cooperating with the Home Defense League in providing a course of training in regular first aid work. Dr. Theron W. Kilmer, for eight years surgeon of the New York militia, and a corps of physicians and nurses will begin the training, April 30. The course will be in cooperation with the Red Cross Society, and the latter will grant diplomas to all who pass the examination. It is said that many large business firms will send groups of employees.

Alienists to Test Prisoners Condemned to Death.—Owing to the many attempts to delay the execution of condemned prisoners on the ground of insanity, Governor Whitman announces his intention of having commissions of alienists examine every condemned prisoner at a considerable period before the date set for electrocution. The commission appointed to examine all those now waiting execution in Sing Sing Prison consists of Drs. Charles W. Pilgrim, Poughkeepsie, Russell F. Kieb, and George A. Smith.

To Improve Hotel and Restaurant Kitchens.—The investigation of hotel and restaurant kitchens conducted last year by the department of health repeatedly showed that expensive structural alterations, insisted on by the department as necessary to promote sanitary conditions, could have been avoided by proper architectural planning. In order to obviate these difficulties, the department has addressed a letter to all architects of the city, enclosing a copy of the rules and regulations relating to hotels and restaurants, and a copy of the score card used by the department's inspectors.

Infantile Paralysis.—The finding of two cases of infantile paralysis, which was announced last week by the health department, occurred at College Point, Queens, and the other at Woodhaven, Queens. Both children were removed to Willard Parker Hospital. The health department is doing all it can to prevent the recurrence of an epidemic such as was experienced last summer. It urges the people that they must do their share by special attention to personal cleanliness and cleanliness in their surroundings.

Society Wins Suit.—William E. Godfrey, superintendent of an establishment in Brooklyn, which advertised a three-day liquor cure, was arrested in March, 1914, on the charge of practicing medicine without a license, waived examination and, when the case came to trial, the charges were dismissed. Godfrey then sued the Medical Society of the County of New York for $25,000 damages and was given a verdict of $2,500 by the General Sessions, Manhattan. The Appellate Division, on April 20, reversed the decision of the lower court and dismissed the complaint.

State Society Meeting.—The Medical Society of the State of New York met in Utica, April 24. The election of officers resulted as follows: president, Dr. Alexander Lambert, New York; vice presidents, Drs. Thomas H. Halsted, Syracuse; Albert W. Ferris, Saratoga, and Marcus B. Heyman, Central Islip; secretary, Dr. Floyd M. Crandall, New York; assistant secretary, Dr. Edward L. Hunt, New York; treasurer, Dr. Frank Van Fleet, New York, and assistant treasurer, Dr. Harlow Brooks, New York. The principal discussion of the meeting was on "Compulsory Health Insurance."

Industrial Disease Must Be Reported.—The State Industrial Commission announces:

> Inasmuch as cases of industrial diseases are not being reported by medical practitioners or institutions to the Department of Labor, State Industrial Commission, as required by Statutory law, it is necessary to call the attention of all practitioners of medicine and institutions of their obligation to report all such cases to the Department of Labor, State Industrial Commission.
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> Article V, Section 65 of the Labor Law, making this requirement, has been in force since 1912 and has been in no way nullified by later ordinances of local boards of health of cities or towns. Attention is also called to the fact that a penalty of a fine is attached to failure to report these cases.

Bill to Develop State Hospitals Signed.—Governor Whitman has signed the Sage Hospital Bill, which provides for the creation of a commission consisting of the chairman of the state hospital commission, state engineer, state architect, chairman of the financial committee of the state legislature, and two persons appointed by the governor to adopt a general plan for hospital development. The bill carries appropriations of $20,000 for the expenses of the commission, $100,00 for new buildings at the Middletown State Hospital, and $299,255, the unexpended balance appropriated for work at Mohansic, to be applied in beginning construction of a new state hospital at Marcy, near Utica.

Public Health Committee of the Academy of Medicine.—This committee has presented its report for February and March showing a wide range of activities. It has cooper-

ated with the Municipal Civil Service Commission in choosing men requiring special medical training for different positions. It has considered harbor pollution; the organization of health districts, the health aspects of the Gary plan of school administration, and the possibility of a uniform system of hospital record keeping. It has expressed opinions on legislative matters, such as a charter amendment providing for filling the position on the board of health that will be made vacant when the Quarantine Station of the Port of New York passes into control of the federal government, the study of legislation with reference to habit forming drugs, etc.

PENNSYLVANIA

Philadelphia

Physicians' Hospital Incorporated.—Incorporation papers have been filed for the Physicians' General Hospital, Philadelphia.

New Tuberculosis Dormitory.—At Byberry Farms, the city is erecting another dormitory which will accommodate 300 tuberculosis patients. This will round out the new institutions about the city.

More Space Provided.—In answer to the request of the government for additional space for care of men wounded in war or in any emergency service, the women of Frankford have raised $3,500 for additional equipment in the Frankford Hospital.

Flies.—Introducing Fly Week, about 800 children known as juvenile sanitary inspectors, paraded from Star Garden, Seventh and Lombard Streets. At the close of "Fly Week" will come "Clean Up Week" and this will include baby welfare work.

Public Health Day.—Public Health Day was observed in Philadelphia, May 3. The Child Federation arranged elaborate plans for its observance. At night there was a mass-meeting at the Academy of Music, when the effect of clean streets on public health was discussed. Speakers of national prominence were present, and a motion picture film prepared by the Civic Club was shown.

College of Physicians Meeting.—At the meeting of the College of Physicians of Philadelphia, May 2, Dr. John H. Girvin read a memoir of the late Dr. Edward L. Duer. A portrait of Dr. John H. Packard was presented on behalf of the donor, Dr. Francis R. Packard, by Dr. Richard H. Harte, and Drs. Emanuel Libman and Reuben Ottenberg, New York, read a joint paper on "Observations on Transfusion."

Resolution on Resignation of Hirsh.—At a business meeting of the Philadelphia County Medical Society, April 18, a minute was passed on the resignation of Dr. A. Bern Hirsh, editor of the *Weekly Roster,* in which the society placed on record its high estimate of the public spirit and service of Dr. Hirsh in organizing the plan for a county society publication, recognized his life-long devotion to the high ideals of the profession, regretted the necessity for his resignation, and tendered its thanks to Dr. Hirsh.

Industrial Accidents Costly.—S. S. Ridley of the state department of labor, and editor of the *Journal* of the Pennsylvania State Department of Labor and Industry, gave impressive figures before the Monday conference in the New Century Club, April 23. Seven hundred and fifty persons have been killed in industrial plant accidents during the first three months of this year. Last year the compensation of these accidents amounted to $4,250,000. At the rate of accidents shown so far in 1917, the compensation will amount to $7,000,000.

Personal.—Dr. Orlando H. Petty, a medical inspector in the bureau of health, has enlisted in the Navy. Dr. Wilmer Krusen, director of public health, has appointed Dr. David W. Kramer to fill the vacancy.——Dr. Washington Merscher, former resident physician at the Germantown Hospital, has been appointed lieutenant in the Medical Corps of the National Guard of Pennsylvania, and assigned to the second field artillery.——Dr. Abram B. Hirsh has resigned as editor of the *Weekly Roster* of the medical organizations of Philadelphia.——Dr. Christian B. Longenecker is the new editor of the *Weekly Roster* of the medical organizations of Philadelphia.

Campaign Against Flies.—The cooperative committee for fly extermination plans to have each of the 7,000 stables in this city inspected once a week for two months this summer. The sum of $1,100 has been received, though no solicitation had been made. The finance committee is ready to spend $15,000, if necessary, on the work of extermination. One hundred and fifty inspectors will be needed for the work, fifty-eight of whom have already volunteered. Dr. Walter S. Cornell, chief medical inspector in the public schools, reports that he is planning a series of lessons in which children will be taught the life history, the injuriousness, and the importance of exterminating the fly.

Medical Institutions.—The new maternity building named for the late Dr. Elizabeth M. Peck at the West Philadelphia Hospital for Women was dedicated, April 23. One of the chief speakers was Mrs. Rudolph Blankenburg, wife of the former mayor, whose mother was one of the first women physicians in Philadelphia. Forty patients can be accommodated in the new building, which was erected at the cost of $105,000.——The Women's Medical College has established an obstetric fellowship amounting to $1,000, to be awarded annually to any medical woman of especial ability, who, following the undergraduate course, has completed at least one year of hospital service, including work in the maternity wards, and one year of further practice. The amount is to cover twelve months of special work as fellow in obstetrics, with the condition that the holder of the fellowship shall thereafter continue the practice of this specialty.

CANADA

British Columbia Vital Statistics.—The vital statistic report of the providence of British Columbia for 1916 shows that the total population is 383,380. During 1916, there were 9,841 births, 3,887 deaths, and 3,169 marriages, a rate per thousand of population, respectively, of 25.67, 10.14 and 8.27.

Personal.—The following Canadian medical men overseas have recently been promoted to the rank of lieutenant-colonel: John A. Amyot, University of Toronto; Charles E. Doherty, New Westminster, B. C.; Thomas A. Starkey, Montreal; Robert B. Wilson, Montreal, and Richard Raikes, Midland, Ont.——Gen. John Taylor Fotheringham, C. M. G., Toronto, has returned, and will proceed to Ottawa at an early date to take up his new duties of inspector-general for invalids. It is not yet known whether he will reorganize the hospitals and staffs of the Dominion, or whether those hospitals will remain under the special Hospitals Commission.—Lieut.-Col. Arthur Winters, formerly of Toronto, but who was studying in England at the outbreak of war, is now A. D. M. S., Quebec City Military District.

Consumption Among Canadian Troops.—The secretary of the Canadian Military Hospitals Commission gave evidence recently before the special parliamentary committee dealing with the treatment and employment of returned soldiers in which he favored more diversion and entertainment for hospital patients. Of the different tuberculosis hospitals in Canada, there were 674 beds available for these patients, and 602 of these were occupied. By the middle of August there would be accommodation for 1,200, and it was likely that a large central sanatorium would be required with 500 extra accommodation. A total of 227 "camp cases" had been handed over to the commission. At one time these numbered 60 per cent. of all the tuberculosis cases. The commission had simply been swamped by the "camp cases," and the future number depends on the rigidity of the examination. The secretary also announced that $100,000 subscribed by Mr. James Carruthers, Montreal, was being used for emergency cases.

GENERAL

Pathologists and Bacteriologists to Meet.—The next meeting of the American Association of Pathologists and Bacteriologists will be held at Minneapolis, March 29 and 30, 1918.

Biologic Products.—The government has given notice that the licenses of certain German manufacturers of biologic products have been revoked because it has been impossible to inspect them within the time required by regulation, and on account of present conditions they will be inaccessible to inspection for an indefinite period. Among the concerns affected by this notice are Chemische Fabrik auf Actien, Berlin; Farbwerke, vormals Meister Lucius and Bruning, Hoechst on Main; the Behringwerk, Marburg; E. Merck, Darmstadt; Kalle & Co., Biebrich; Pharmaceutische Institut Ludwig Wilhelm Ganz, Oberursel bei Frankfort, and Chemische Fabrik Güstrow, Güstrow, i. M.

National Association for Study and Prevention of Tuberculosis.—The thirteenth annual meeting of the National Asso-

ciation for the Study and Prevention of Tuberculosis will be held at the Hotel Sinton, Cincinnati, May 9 to 11. The bulletin of the association for April contains a preliminary program, information about sessions, hotels, railroad rates, entertainments, etc. In addition to the meetings of the advisory council, there will be separate clinical, pathologic and sociologic sections. In conjunction with the annual meeting of the National Association, the twelfth spring meeting of the American Sanatorium Association will be held at the Hotel Gibson, May 9. Dr. Charles J. Hatfield, 105 East Twenty-Second Street, New York, is executive secretary of the association.

Bequests and Donations.—The following bequests and donations have recently been announced:

New York Hospital for the establishment of a urologic department, a sum estimated at between $4,000,000 and $5,000,000, by the will of James Buchanan Brady, with the specifications that Dr. Oswald S. Lowsley shall be first director of the new department of the hospital and that if, in the further development of surgery or medicine, such a department shall become unnecessary, the legacy shall be used by the Society of the New York Hospital to service as nearly kin to the above as practical.

St. Christophers Hospital, Philadelphia, $2,000, by the will of David Vetter.

University of Pennsylvania, a reversionary bequest of the estate of John G. Johnson after the death of four heirs.

Mount Sinai Hospital Society, Boston; $1,000, by the will of Gustavus A. Peavy.

New England Hospital for Women and Children, an anonymous gift of $5,000.

American Hospital for Italian Wounded, Florence, Italy, $2,200, the proceeds of a musicale held in Chicago, April 16.

Examination for Anatomist.—The United States Civil Service Commission announces an open competitive examination for anatomist for both men and women to be held May 16, in various places in the United States. A vacancy in the Army Medical Museum, office of the Surgeon General, Washington, D. C., at $1,600 and future similar vacancies will be filled from this examination. Applicants must be citizens of the United States, must possess collegiate degrees and must have a thorough knowledge of the anatomy, of diseases brought by mosquitoes, of the relation of mosquitoes to the transmission of disease, of pathology, bacteriology, and pathologic histology, and must be capable of making photomicrographs; must understand microscopes and must be able to prepare, card and keep in order museum specimens. Applicants must have resided for at least one year in the state or territory in which they are examined, and must submit photographs to the examiner on the day of examination. Application should be made to the Civil Service Commissioner, Washington, D. C., or to the secretary of the local Civil Service Commission, for form 1312, stating the title of the examination desired.

Museum of Safety.—On account of the existence of a state of war the American Museum of Safety deemed it undesirable to hold the proposed dinner in connection with the presentation of the medals of the museum planned for April 19. The awards of the medals for the year are as follows:

The E. H. Harriman Memorial Medals: Awarded annually to the American steam railroad most successful during the preceding year in protecting the lives and health of its employees and the public, with replicas, in silver and bronze, to the division of a railroad and a railroad employee contributing most to the safety record. The gold medal to the Alabama Great Southern Railway, Cincinnati; the silver replica to the Illlinois Division of the Illinois Central Railway, Chicago, and the bronze replica to Mr. James A. McCrea, General Manager of The Long Island Railroad Company, New York.

The Anthony N. Brady Memorial Medals: Awarded annually to the American electric railway accomplishing most in the preceding year for the safety and health of its employees and passengers, with silver and bronze replicas to the division and employee foremost in attaining the result. The gold medal to the Connecticut Company, New Haven, Conn.; the silver replica to Mr. Seth W. Baldwin, Assistant Attorney in charge of Claim Department, the Connecticut Company, and the bronze replica to Mr. Walter J. Flickinger, secretary to the president, the Connecticut Company.

The Scientific American Gold Medal: For the most efficient safety device invented within a certain number of years and exhibited at the Museum. To the Pullman Company, Chicago.

The Travelers Insurance Gold Medal: For the American employer who has achieved greatly in protecting the lives and limbs of workmen. The Commonwealth Steel Company, St. Louis.

The Louis Livingston Seaman Gold Medal: For progress and achievement in the promotion of hygiene and the mitigation of occupational disease. The Julius King Optical Company, New York.

Medical Museum.—The annual meeting of the American section of the International Association of Medical Museums was held, April 5, in New York, and the following officers were elected: president, Dr. Oskar Klotz, Pittsburgh; vice presidents, Drs. W. M. L. Coplin, Philadelphia, Harold E. Robertson, Minneapolis, and Daniel S. Lamb, Washington, D. C.; councilors, Drs. Aldred S. Warthin, Ann Arbor, Mich., W. M. Late Coplin, Philadelphia, Howard T. Karsner, Cleveland, Milton C. Winternitz, Baltimore, and Mr. R. A. Lambert, New York; secretary-treasurer, Dr. Maude E. Abbott, Montreal, and assistant secretaries, Drs. Joseph Kaufmann and Louis Gross, Montreal. Closer affiliation with the American section of the International Association of Medical Museums was urged, and a delegate to the annual meeting of the latter body was appointed. A committee was appointed to organize a central bureau for the permanent preservation of the results of scientific research, especially histologic material. A committee on the organization of a supply of square glass museum jars for the continent of America reported that arrangements had been made with a Pittsburgh firm to manufacture these jars in ten standard sizes, to be supplied at prices free of duty to the members of the association and scientific institutions. The scientific program was devoted to papers and discussions on "Museum and Laboratory Technic," "Presentation of the Results of Medical Research," "Microscopic Technic," "Museum Teachings," and special exhibits. The scientific exhibit of the association was kept open for three days for the benefit of the members of the Association of Pathology and Bacteriology.

FOREIGN

Hertwig Given Helmholtz Medal.—The Academy of Sciences at Berlin has presented the Helmholtz medal this year to Prof. R. v. Hertwig of the University of Munich for his microscopic research on zoologic subjects.

Large Legacy for Hospital at Marseilles.—Our Italian and French exchanges state that an Italian who had long made his home at Marseilles has bequeathed $7,000,000 to the city of Marseilles, mainly for the purpose of founding and maintaining a large hospital.

Imposing New Hospital at Madrid.—The *Siglo médico* brings illustrations of a recently completed, ornate and imposing hospital erected for charity patients by a wealthy widow, Señora Curiel. There are 200 beds ready, but only eighty are occupied, as it is said that the streets leading to the hospital are impassable at present for an ambulance. The hospital and its grounds fill an entire city block, and it is said to be a model in every respect.

Taxation of Proprietaries in France.—The syndicate of the organized manufacturers of pharmaceutic specialties in France has appealed to the authorities to refrain from crushing out by ruinous taxation the industry of pharmaceutic specialties menaced by bills now pending. They accept a tax, but insist that it should be applied to all *médicaments composés,* to which the manufacturer or the vendor affixes a special name or claims exclusive property in, or announces its superiority by means of advertisements, circulars or labels. They urge further that the tax should be collected only on such articles as are offered for sale, while the amounts donated free of charge to physicians and hospitals should be exempt from the tax. They also insist that the tax should be extended to cover all proprietary manufactured articles of the kind, perfumery, hygienic products and toilet articles, champagne, liqueurs, etc.

Deaths in the Profession Abroad.—I. A. Shabad, professor of pediatrics at the state Woman's Medical College at St. Petersburg, aged 47. He had made a special study of rachitis, its origin, nature and treatment. THE JOURNAL has summarized his communications as fast as they appeared, his success in treatment having apparently confirmed the soundness of his views. His painstaking and extensive study of individual cases over long periods has provided a basis for future investigators.——**A. Prieur,** editor of the *France médicale,* which he transformed into a historical journal, founder of the Société française d'histoire de la médecine, collaborator on the *Mercure de France,* aged 52. With him disappears probably the *France médicale.* It suspended publication at the outset of the war.——**W. Winternitz,** the pioneer of scientific hydrotherapy, professor of internal medicine at the University of Vienna since 1881, aged 82. He was docent of hydrotherapy from 1865 to 1874, and founded the monthly *Blätter für klinische Hydrotherapie* in 1890. His private institution for hydrotherapy was at Kaltenleutgeben, near Vienna.——**C. Hartwich,** professor of pharmaceutical chemistry, at the University of Zurich, aged 65.——**M. Bianchi,** assistant professor of hygiene at the University of Naples, aged 28.——**V. F. Snegireff,** professor of diseases of women and children at the University of Moscow, aged 70.

PARIS LETTER

PARIS, April 5, 1917.

The War

SCIENTIFIC DEGREES IN THE ORGANIZATION OF THE HEALTH SERVICE

Aristide Prat, deputy from the department of the Seine et Oise, proposed a measure intended to assure to physicians and pharmacists of the reserve of the territorial army in the organization of the military health service a grade corresponding to their scientific standing. In advocating his proposition, Prat said that degrees constitute an important element in the appraisement of the professional standing of physicians and pharmacists. The presidential decree of Dec. 31, 1915, permitting rapid promotion to the higher grades of the organization of members of the teaching faculties and staffs of hospitals, marked the beginning of an auspicious though incomplete reform (THE JOURNAL, Feb. 12, 1916, p. 522). The influential public will not fail to have recourse in all such delicate questions to the advice of the Academy of Sciences and the Academy of Medicine in their superior councils and the departments of hygiene. However, there is no assurance that they will not be continued in the inferior grades. The laureates of the Academy of Sciences and the Academy of Medicine, the doctors of medicine, equally with the doctors of science, were required to furnish evidence of their researches in order to obtain their titles. The professors of the schools of medicine and pharmacy, the prosectors, chief lecturers and chiefs of clinics of the Faculty of Medicine, and the senior interns of hospitals of cities possessing a faculty of medicine likewise obtained their degrees by laborious and difficult efforts; more often, far from assuring them an advantage in the military organization, their long service in the laboratories and hospitals had prejudiced their advancement. It is thus that the former interns of the hospitals, obliged to defer for four years the support of their theses, find themselves, in spite of their medical experience, lacking by four years of seniority the grade of aide-major over their comrades, less favored than they at the beginning of their internship.

Prat demanded that, during the continuance of hostilities, power be given to promote at once to the grade of physician-in-chief of the first class (corresponding to the grade of colonel), on condition of having possessed the grade of aide-major of the second class (sublieutenant), the members, national, honorary or corresponding, of the Academy of Sciences or the Academy of Medicine and the members of the Superior Council of Hygiene of France; likewise to promote at once to the grade of physician-major of the first class (Commandant) the titulary professors of the schools of medicine and pharmacy, the professors of the Faculty of Science, the laureates of the Academy of Sciences and the Academy of Medicine, and the members of the Commissions of Departmental Hygiene; finally, the power to promote at once to the grade of physician-major of the second class (captain) the assistant professors of the medical schools, the masters of conferences of the Faculty of Sciences, the prosectors, chief lecturers and chiefs of clinics of the Faculty of Medicine, the senior house surgeons of the hospitals of cities possessing a faculty of medicine, received within the last ten years in medicine, or pharmacists of the first class, and the members of the health commissions of the district.

The proposed measure has been favorably received in medical and parliamentary circles and has been referred to the Commission of the Army. It is probable that, after consideration by this commission, application will be made for a decree similar to that applying to the body of teachers by the decree of Dec. 31, 1915.

THE ORGANIZATION AND FUNCTIONS OF ADVANCED HOSPITALS

The experience in offensive operations has rendered it necessary to require that army corps install their hospitals as near as possible to the troops, in zones that escape the systematic bombardment by the artillery of the enemy; only such disposition will enable them rapidly to give the necessary aid to the wounded. The quartermaster general of the army has announced the precise regulations for the organization and functions of these advanced hospitals.

These ambulances, to which are attached one or several complementary surgical groups, constitute generally what is called *"groupements sur tentes"* (tent hospitals), on which devolve the receiving and distribution of cases, and the surgery of the greatest urgency. The wounded are taken there from the first aid stations by automobile ambulance and subjected to a first selection; the most severely wounded, those injured too sevcrely to be transported farther, are operated on there; the slightly wounded, after examination and dressing, are sent to the evacuation hospitals or to the evacuation stations; both the slightly and severely wounded, whether evacuable or not, for whom intervention is necessary, are, after dressing at those stations, directed without delay to the central hospitals or to evacuation hospitals.

The relation of the advanced hospitals to those in the rear must be regulated with care, and, when the flow of wounded to an evacuation hospital of the first line becomes too great, the currents of evacuation must be directed to the hospitals of the vicinity or of the second line. Failure to observe the rules regarding the work of selection of wounded and the surgical operations devolving on the evacuation hospitals will rapidly result in overcrowding and the paralysis of their efforts.

The evacuation of the wounded from the first aid stations on the sanitary formations where they may be hospitalized must be done with the shortest possible delay. In the case particularly of the severely wounded—those with injuries or presumed injuries of the viscera (brain, thorax or abdomen), vascular or articular wounds, or compound fractures—retention in the intermediate formations between the first aid stations and the surgical stations must be interdicted rigorously, save in case of immediate danger to life. Therefore, redressings, unless absolutely necessary, should be avoided, and incomplete operations may be done, to be completed in the evacuation hospitals. On the contrary, all antitetanic injections must be done in the advanced hospitals.

These advanced hospitals, therefore, will most often be installed under tents, this character of construction permitting of rapid installation. If, however, the installation takes on a fixed character, the tents are replaced by barracks and the tents utilized anew farther forward, as the line advances. A group of two or three hospitals under tents will be composed of ten or twelve tents—two as receiving and dressing rooms, five or six tents for hospitalization (from 150 to 200 beds), and two tents for general purposes.

FILIFORM DRAINAGE IN WAR SURGERY

Moreau, of the marine service, communicated to the Paris Surgical Society the result of many observations on filiform drainage (Chaput) applied in cases of war surgery, and commented on the value of this form of drainage as compared with tube drainage. The lumen of the tube drain is often obliterated by coming in contact with a bone or a tendon, while under the same conditions the filiform will drain perfectly. Much of the time pus does not escape through the lumen of a tube drain, but around the outside of it; the terminal orifice of the drain is frequently occluded by the dressing; the tube sometimes falls into the natural cavities or into the dressings, while the filiform drain is not exposed to the same drawbacks. While one is obliged to remove tube drains on account of becoming obstructed, it is necessary to move the filiform drain only slightly to reestablish the drainage which may have been momentarily arrested by the purulent concretions. On the posterior part of the trunk and the limbs, tubes which emerge obliquely are flattened by the weight of the body or limb, while the filiform drain drains perfectly under the same conditions. Finally, tubular drains are often painful, but the patient will not suffer if the filiform drain is employed.

SPECIALISTS FOR EXAMINATION OF SOLDIERS

Thibierge recently directed the attention of the medicolegal society to the desirability of having specialists examine the soldiers primarily, before they are dragged from hospital to hospital, for a disease which is really easily curable, and not subjecting them to examination by a physician not especially competent, and who is called to treat them, and thus delay their recovery and return to service. The medicolegal society has declared itself in favor of such special examination, notably in cases of diseases of the nervous system, of the skin, and the organs of sense, being made by specialists.

Free Milk

The prefect of the department of the Seine has brought to the notice of the creameries and the retailers of milk that by arrangement of the municipal council of Paris, orders for milk, approved by the bureau of charities, will be delivered to deserving families for the feeding of their children in the amount of 1 liter per day for each infant under the age of 3 years. These orders will be redeemed by the cashier of the bureau of charities at the price of 50 centimes per liter, fixed by the ordinance of taxation of February 13 last.

Marriages

MARTIN FRED DUFRENNE, M.D., Sun Prairie, Wis., to Miss Mary Pasich of Buhl, Minn., at Middleton, Wis., April 18.

MERRITT LACOUNT JONES, M.D., Wausau, Wis., to Miss Grace Hayward Ivers of Cambridge, Mass., March 21.

GEORGE VICTOR GENZMER, M.D., Plainfield, N. J., to Miss Ethel Sherwin Smith of Philadelphia, April 11.

MARGARET DOROTHY WERMERSKIRCHEN, M.D., to Mr. Daniel Coleman, both of Milwaukee, Wis., March 2.

HARRY LOUIS ALEXANDER, M.D., to Miss Laura McElivian Stryker, both of New York, April 18.

MARION TRUEHEART, M.D., Sterling, Kan., to Miss Myrtle Proctor of Garden City, Kan., April 18.

ADA BELLE BLAIR, M.D., Altoona, Pa., to Mr. W. Emery Mackey, at Pittsburgh, March 30.

EUGENE ELGIN, M.D., East Berlin, Pa., to Miss Celia Oneda Shriver of Hanover, Pa., April 10.

Deaths

William Henry Taylor, M.D., Richmond, Va.; Medical College of Virginia, Richmond, 1856; aged 81; a member of the Medical Society of Virginia; for many years professor of chemistry, toxicology and medical jurisprudence in his alma mater, and at the time of his death emeritus professor; for forty-five years coroner of Henrico County, Va.; state chemist of Virginia, and for many years a member of the Richmond Board of Health; a surgeon in the Confederate service during the Civil War; at one time a member of the editorial staff of the *Old Dominion Journal of Medicine and Surgery;* died at his home, April 14.

Henry Wells Dewey, M.D., Tacoma, Wash.; College of Physicians and Surgeons in the City of New York, 1881; University of Vermont, Burlington, 1882; aged 57; a Fellow of the American Medical Association; once president of the Washington State Medical Association, and twice president of the Pierce County Medical Society; who was appointed a member of the State Board of Medical Examiners in 1893; a practitioner of Tacoma for nearly thirty years; died in his office, April 12, from cerebral hemorrhage.

Joshua Ware Read, M.D., Newark, N. J.; Bellevue Hospital Medical College, 1867; aged 79; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; police surgeon of Newark from 1878 to 1882; for many years a member of the board of education, and once president of the Practitioners' Club of Newark; coroner of Essex County; died at his home, April 17.

Herbert Seymour Gay, M.D., Boston; Harvard Medical School, 1902; aged 35; a Fellow of the American Medical Association; professor of gynecology in Tuft's College Medical School, Boston; assistant surgeon to the Boston Dispensary in the department for diseases of women; gynecologist to Mount Sinai Hospital and Tremont Dispensary; died at his home, April 21, from pneumonia.

Hugh B. Caffey, M.D., Pittsburg, Kan.; Tulane University, New Orleans, 1901; aged 37; a Fellow of the American Medical Association, and American Academy of Ophthalmology and Oto-Laryngology; first lieutenant, M. R. C., U. S. Army; a specialist on diseases of the eye, ear, nose and throat; died in the Christian Hospital, Kansas City, Mo., April 16, from brain tumor, shortly after an operation.

John Jay Buckley, M.D., Missoula, Mont.; College of Physicians and Surgeons in the City of New York, 1878; aged 64; a Fellow of the American Medical Association, and formerly president of the Cass County (N. D.) Medical Society; chief surgeon of the Northern Pacific Railway, western division, from 1887 to 1903; died at his home, April 13, from arteriosclerosis.

Frank Ernest Ruggles, M.D., Bay City, Mich.; University of Michigan, Ann Arbor, 1892; aged 47; a Fellow of the American Medical Association; once president of the Bay County Medical Society, and health officer of Bay City; a specialist on diseases of children; died at his home, April 16, from pneumonia.

George Kent Varden, M.D., Atlanta, Ga.; Medical College of Ohio, Cincinnati, 1905; aged 33; a Fellow of the American Medical Association; a specialist on diseases of children; a member of the faculty of Emery University and of the medical staff of St. Joseph's Infirmary, Atlanta; died at his home, April 11.

Clyde Jason Elmer, M.D., Los Angeles; St. Louis University, 1908; aged 41; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; died in the Clara Barton Hospital, Los Angeles, February 1, from gastric ulcer complicated by diabetes.

Albert Mott, M.D., Cohoes, N. Y.; Long Island College Hospital, Brooklyn, 1873; aged 66; formerly a member of the Medical Society of the State of New York; a member of the board of health of Cohoes since 1896 and health officer of the city since 1905; died at his home, April 14.

William Dean Wilson, M.D., Mount Clemens, Mich.; Rush Medical College, 1878; aged 60; a member of the Michigan State Medical Society; for nearly forty years a practitioner of Mount Clemens and mayor of the city in 1898; died in his apartment, April 13, from heart disease.

Henry Oliver Ely, M.D., Binghamton, N. Y.; College of Physicians and Surgeons in the City of New York, 1868; aged 70; formerly a member of the Medical Society of the State of New York; a police surgeon in New York City in 1870 and 1871; died at his home, April 21.

John D. Eakins, M.D., Gallipolis, Ohio; Jefferson Medical College, 1871; aged 66; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; for two years a member of the state legislature; died at his home, April 20.

Walter Stephen Chandler, M.D., Mount Olivet, Ky.; Medical College of Ohio, Cincinnati, 1889; aged 53; formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association; died at his home, March 14, from pneumonia.

Wilmer Brown Hoge, M.D., Grand Island, Neb.; University of Michigan, Ann Arbor, 1886; aged 54; formerly a Fellow of the American Medical Association; for many years local surgeon of the Union Pacific System at Grand Island; died at his home, March 4.

Dunham E. Ash, M.D., Bradford, Pa.; Medical College of Ohio, Cincinnati, 1867; aged 65; a member of the Medical Society of the State of Pennsylvania; a member of the common council and select council of Bradford; died at his home, April 20.

Ezra S. Meals, M.D., Harrisburg, Pa.; Cincinnati College of Medicine and Surgery, 1874; aged 65; a member of the Medical Society of the State of Pennsylvania; who was serving his second term as mayor of Harrisburg; died, April 18.

Edgar Allen, M.D., Lafayette, N. J.; Jefferson Medical College, 1890; aged 55; formerly a Fellow of the American Medical Association; for the last two years postmaster of Lafayette; died at his home, April 17, from cerebral hemorrhage.

Joseph Michael O'Connor, M.D., Biddeford, Me.; Medical School of Maine, Brunswick, 1898; aged 40; a Fellow of the American Medical Association; a specialist in obstetrics; died at his home, April 20, from ptomain poisoning.

Hiram Sterling Pomeroy, M.D., Auburndale and Boston, Mass.; University of Leipzig, Germany, 1885; aged 68; a Fellow of the American Medical Association; died at his home in Auburndale, April 21, from heart disease.

George Kelsea Hildreth, M.D., New York; Harvard Medical School, 1905; aged 37; a specialist on diseases of the ear, nose and throat; a member of the staff of St. Vincent's Hospital; died at his home, April 6, from carcinoma.

William Packer Burdick, M.D., Kane, Pa.; University of Vermont, Burlington, 1885; aged 57; a Fellow of the American Medical Association; a specialist in anesthesia; died in the Kane Summit Hospital, April 16.

Samuel S. Cox, M.D., Lorain, Ohio; Western Reserve University, Cleveland, 1886; aged 56; a Fellow of the American Medical Association; died suddenly in his office, April 11, from angina pectoris.

William Cammett, M.D., Portland, Me.; College of Physicians and Surgeons in the City of New York, 1879; aged 63; formerly a member of the Maine Medical Association; died at his home, April 20.

Edward Tobey Tucker, M.D., New Bedford, Mass.; Harvard Medical Society; died at his home, April 10.

Coleman L. Poynter, Eldridge, Mo. (license, Missouri, 1884); aged 86; died at his home, January 13, from pneumonia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

WHEELER'S TISSUE PHOSPHATES

L. E. Warren, Ph.C., B.S.

"Wheeler's Tissue Phosphates," known also as "Compound Elixir of Phosphates and Calisaya," is advertised as a nerve food and a nutritive tonic. The label states that it contains calcium, iron, sodium trihydrogen phosphates, alkaloids of Peruvian bark with 12½ per cent. of alcohol. The preparation is sold by the T. B. Wheeler, M. D. Co., of Rouses Point, New York. According to the manufacturer, Wheeler's Tissue Phosphates

". . . is an *inorganic* combination of the phosphates of iron and calcium and hydrogen (phosphoric acid) together with hydrochloric acid, hydrocyanic acid, and quinine, cheerful coloring, and a delicious, cordial-like flavoring."

". . . The iron is the green, inorganic phosphate and the calcium the simple white phosphate of your early student days. . . ."

The preparation is a red liquid, having an acid reaction, a sweet-bitter taste and the odor of wild cherry. Qualitative tests indicated the presence of calcium, iron, a phosphate, a chlorid, a sulphate, quinin or cinchona alkaloids, alcohol, sodium, cochineal coloring and invert sugar. Ammonium salts, glycerol, citrates or lactates were not found. From the quantitative values obtained the preparation may be taken to represent:

Sp. gr. at 25C./25C.	1.1087
Alcohol (per cent. by volume)	11.35
	Gm. per 100 c.c.
Calcium phosphate $[Ca_3(PO_4)_2]$*	0.397
Iron phosphate $(FePO_4.4H_2O)$*	0.068
Chlorid (as hydrochloric acid)	0.407
Sodium sulphate $(Na_2SO_4.10H_2O)$	0.043
Quinin sulphate (U. S. P.)	0.041
Sodium phosphate $(Na_2HPO_4.12H_2O)$	0.065
Invert sugar	26.824
Water, cochineal and flavor to make	100 c.c.

* It should be understood that the calcium and iron salts are held in solution by the hydrochloric acid.

The dose of Wheeler's Tissue Phosphates recommended by the manufacturer is a tablespoonful or about 15 c.c. (½ oz.). The total calcium in a dose of the preparation is equivalent to about one-sixth of an average dose of the official calcium chlorid, and the total phosphate to each dose is equivalent to about one-fourth of a dose of the official diluted phosphoric acid. Each prescribed dose of the preparation contains about 0.01 gm. (⅔ grain) of iron phosphate or about one twenty-fifth of the average dose, and to obtain a Pharmacopeial dose of iron phosphate the patient would be obliged to take three-fourths of the contents of an entire bottle—or 12 ounces—of the preparation. If it be assumed that all of the chlorid present is in the form of free hydrochloric acid, each dose of the preparation contains the equivalent of about two-thirds of one Pharmacopeial dose of diluted hydrochloric acid. Each dose of the preparation contains about 0.0062 gm. (1/10 grain) of quinin sulphate, or about one-sixteenth of the average tonic dose. In other words, to obtain the amount of quinin sulphate given in the U. S. Pharmacopeia as the tonic dose, the patient would be required to swallow 7½ fluidounces of the proprietary preparation, or the contents of nearly half a bottle. The fallacy of prescribing Wheeler's Tissue Phosphates either for its quinin or its iron content is apparent.

Wheeler's Tissue Phosphates is, then, a mildly bitter, flavored syrup which contains nearly 12 per cent. of alcohol, small quantities each of calcium phosphate and hydrochloric acid and insignificant amounts of iron and quinin salts. In other words, essentially it is a sweetened solution of small quantities of calcium phosphate in very dilute hydrochloric acid together with 12 per cent. of alcohol.

Bearing in mind the analysis of the preparation, how ludicrous some of the claims appear:

"*Tissue Phosphates* is not a hypophosphite preparation; it is not a combination of glycerophosphates or other organic salts, or so called peptonates and manganates, all recently condemned by the best therapeutic opinion here and in Europe, as much slower and less active than the simpler salts. The iron is the green, inorganic phosphate and the calcium the simple white phosphate of your early student days. Nature takes these simple salts and builds them rapidly into lecithin, bone, and other tissue, without the delay incurred by splitting up the organic salts before she can recombine them."

"Tissue phosphates is in fact a *chemical food*."

"The formula, suggested by Professor Dusart, of Paris, combines in an easily assimilable and agreeable cordial; medium medicinal doses of Phosphorus, the Generator of Nerve Force; Calcium Phosphate, for Cell Development and Nutrition; Sodium Phosphate, a stimulant of Liver and Pancreas and Corrective of Acid Fermentation in the Alimentary Canal; Iron, generating in the Blood Heat and Motion; Phosphoric Acid, Tonic in Sexual Debility; Alkaloids of Calisaya, Antimalarial and Antipyretic; Extract of Wild Cherry, Tonic, yet Calming Irritation and Diminishing Nervous Excitement; Ethyl Alcohol 12-5%; and Aromatics."

Although the claim is made that the "formula" of Wheeler's Tissue Phosphates had been "suggested by Professor Dusart," such of Dusart's papers as were available in this country[1] failed to disclose any "formula" that was at all comparable to this product.

[EDITORIAL NOTE.—The investigation verifies facts that must be obvious to every physician who has given the matter thought. "Wheeler's Tissue Phosphates" is an unscientific, shotgun mixture whose most active and powerful drug is the alcohol it contains. That it was not years ago relegated to the realms of obsolete and discarded preparations is a commentary alike on the lack of scientific discrimination and the persuasive power of advertising. While in the past "Wheeler's Tissue Phosphates" has been advertised extensively in medical journals, it seems that now the chief, if not the only beneficiary of the advertising appropriation for this product, is the *New York Medical Journal* which weekly heralds the "Delicious" and "Sustaining" qualities of "The Ideal Tonic for Fastidious Convalescents."]

Correspondence

VERTIGO AND VISION

To the Editor:—Recent work on the internal ear has been summed up in an exceedingly instructive and succinct article by I. A. Jones (The Practical Uses of Recent Work on the Internal Ear, THE JOURNAL, March 17, 1917, p. 829). He notes that the attention of the eye specialist has not been called to the intimate relation between the eye and the ear, and mentions a well known ophthalmologist who, having had the elicitation of nystagmus by Politzer inflation demonstrated to him, obviously for the first time, by an otologist, expressed his astonishment that there was such a close relation between the ear and the eye. In the same article stress is laid on the vestibular apparatus, meaning the static portions of the internal ear, and the pathways from the ear through the brain-stem, cerebellum and cerebrum, as the usual if not exclusive source of vertigo. The author deprecates the use of such qualifying or "generalizing" adjectives as gastric, cardiovascular or idiopathic, as applied to vertigo. If the clinical tests prove the vestibular apparatus to be in physiologic order, the vertigo is "functional." Vertigo is definitely a disturbance of the equilibratory apparatus, and is due to an irritation, impairment or destruction of some portion or portions of the ear or its associated pathways.

1. Dusart, L.: Recherches expérimentales sur le rôle physiologique et thérapeutique du phosphate de chaux, Paris, 1870; Quel est l'acide du suc gastrique? Lille, 1874, unbound, 8 pages; Notice sur l'emploi et les proprietés du lacto-phosphate de chaux, Clichy, 1868, unbound, 8 pages. Dusart and Blache: Recherches sur l'assimilation du phosphate de chaux, Paris, 1868, unbound, 15 pages.

These conclusions make a short cut across wide unexplored fields. The vertigo of anemia, of fever states, of neurasthenia and other neuroses is ignored. Even the vertigo of seasickness, classical instance, is not to be simply explained and dismissed from analysis as an irritation of the static labyrinth, for the simple reason that the irritation is minimal, that ocular, visual factors play an important rôle, and that in much more marked instances of vestibular irritation, as in carousel riding or swinging, there may be no vertigo at all. On the other hand, every ophthalmologist knows that there are types of vertigo absolutely independent of any vestibular irritation, such as the vertigo, often heightened by nausea and vomiting, of diplopia depending on ocular motor paralysis or paresis, or on such slight confusion of vision as that produced by weak prisms, incorrectly inclined cylinders, or unsuitable spherical lenses. It is a well known fact of physiologic optics that decided vertigo and nausea can be elicited by looking at a swaying mirror, and the more easily, the less evident the sway.

All these facts and many more which might be cited indicate the importance of nonvestibular, and notably visual factors in many forms of vertigo. I have already called attention to these implications (The Non-Acoustic Functions of the Labyrinth, *Tr. Am. Otol. Soc.,* 1908, **11,** 158). We may even go to the point of asserting that vertigo is definitely not a disturbance of the equilibratory apparatus but a disturbance of consciousness which may, or may not, be due to such imbalance. It is the discrepancy between the conscious or subconscious data registered by vestibular stimuli and other data derived from vision and muscle sensations that causes the well known disorder of general sensation which we call dizziness. Disturbance of actual balance may or may not cause or accompany this symptom; it is by no means essential. Conversely, complete loss of balance may take place without a sign of vertigo (Fridenberg, Percy: A Review of Some Recent Theories of the Labyrinth, *Tr. Am. Otol. Soc.,* 1908, **11,** 290). Whirling in the dance does not cause dizziness. It is the stopping that does it, with the resulting discrepancy of stimuli analogous to the pain and discomfort which, in other anatomic regions, Meltzer has characterized as contrary innervation.

The differentiation of vertigo should also be extended to the conception of nystagmus. Spontaneous nystagmus is a lame phrase intended to signify nystagmus of ocular origin. All nystagmus which is not elicited by clinical tests is, *pro tanto,* spontaneous. Ocular, or as I have preferred to call it, visual nystagmus, is almost invariably irregular, wild oscillation, as in the cases of two children with cerebral disturbance cited in the article by Jones. The character of this irregular, seeking eye motion, is an index of its origin and a clue to its interpretation (Fridenberg, Percy: The Teleology and Interpretation of Nystagmus, *Ann. Ophth.,* October, 1908). Far from being, as is vestibular nystagmus, a reaction to turning or other changes in body position, a compensatory gaze correction by accompanying and drifting fixation toward apparent, because subjectively sensed, motion in the outer world, this visual nystagmus is a groping for vision and represents a return to a more primitive form of sense perception which I have likened to the movements of tentacles on a lower level of life. Recent advance in otology has undoubtedly systematized the tests of labyrinthine function and determined by practical, clinical observations as well as by experiment the bearing of nystagmus reactions, vertigo and overpointing. The result has been of great value, as Jones points out, in the diagnosis of obscure neurologic cases with symptoms of dizziness and oculomotor imbalance, as well as in otology, syphilology and general practice. The importance of the labyrinthine tests in excluding or including the inner ear as a disease factor in loss of conjugate ocular deviation is something to which I wish to add my testimony. It may also be applied, as was first shown by the Vienna school, in cases of coma in which otherwise no determination is possible of the functioning of the external ocular muscles.

A word of warning should be spoken as to accepting without modification the hard and fast rule as to an exact number of seconds of afterturning nystagmus to be elicited by passive rotation of the patient. Von Cyon and others noted, long ago, that this reaction, as well as the kindred phenomena of dizziness, and falling sensations, depended largely on the patient's previous habits in turning, or reversing in dancing, by his being right or left handed, etc., and that they were variously modified by these.

Finally, I wish to emphasize the fact that dizziness is a much commoner symptom than is generally supposed; that in its milder forms it is an almost invariable accompaniment of ocular muscle imbalance and a concomitant of eye-strain. While this in no wise belittles the importance of otologic tests of function, it should keep us from overlooking the frequency and significance of ocular factors in vertigo.

Percy Fridenberg, M.D., New York.

COMPULSORY HEALTH INSURANCE

To the Editor:—Discussion has been invited on the compulsory health insurance bill. Dr. Lambert, in a pamphlet sent out to New York State physicians, also invites discussion. After reading Dr. Lambert's and other articles on the bill, it appears to me that there are a few fundamental questions which stand out rather prominently.

The bill which is being promoted in New York State—the Mills bill—is fostered by the American Association for Labor Legislation, the same association which secured the passage of the compensation bill. Their interest—we might say their only interest—is the welfare of the insured class. The proposed insured class is either apparently unfamiliar with this particular expression of solicitude, or with few exceptions definitely opposed to it. The American Association for Labor Legislation is concerned with the medical man only so far as he is needed in the scheme of the bill.

The insured class includes workers with incomes of $1,200 per year, and their dependents, variously estimated to be from 50 to 80 per cent. of the population of the state of New York. It does not include the large mass of inefficient workers—those chronically out of employment, the chronic invalids of the past years who cannot work, and those who under the act will be ill for more than twenty-six consecutive weeks. This group of persons will be continued as charity patients and will be treated by the physicians as heretofore, cheerfully without compensation. For this group of persons the Mills bill does not provide medical service, and it is this group which is most in need of medical service. They do not come under the act; consequently the physicians will not get 100 per cent. for work done, as implied in an article by Dr. Lambert.

Without question the method of payment to physicians for their work is important to the medical profession. When we stop to consider that a physician must spend from six to ten years in preparation for his profession, years of expenditure without income, we must conclude that the compensation must be in proportion to this investment, and sufficient to maintain his professional standing, in order to be adequate.

The Mills bill definitely plans to commercialize the medical profession—to commmercialize it on a very low plane. To meet this attempt, the medical profession should consider the fee question simply as a business proposition. A law which will give contract medical service to from 50 to 80 per cent. of the population of the state will have without question a widespread and profound influence on the economic status of a proportionate number of the physicians of the state.

The compensation bill affects medical practice but slightly, and that little unsatisfactorily. The health insurance bill will affect medical practice considerably; consequently the method of compensation and the amount of compensation should be definitely incorporated into the law. If the question of fees is left to the local boards, the fees adopted will probably be such as the local boards are familiar with, that is, the per capita lodge fee, which varies probably from $2 to $4 per family per year.

If the Mills bill is adopted, I cannot conceive of any other just method of payment to the physician than a method which pays the physician in direct proportion to the amount of

work he is called on to perform, that is, the average normal fee per visit, payment by visitation. There is no justice in the capitation system or in the payment by points against a lump sum.

I see no reason whatsoever why the state should attempt to commandeer the highly specialized services of a group of its citizens without paying the average normal price for this service. This might make the medical expenditure of the bill high; if so, the contributions to the fund should be increased to meet this necessary expense. Physicians as a body are charitable with their time and services to the unforunate poor of their communities, but charity should not enter into a broad scheme of medical services such as is contemplated in the Mills bill. The state is making to the physicians a business proposition, and it should be considered as such.

Investigations in Germany and in England have demonstrated that the introduction of compulsory health insurance has lowered considerably the economic status of the physician. The fees in Germany and England are low—indeed, very low—and in many instances the physician in order to make a living wage must overwhelm himself with work. His work is increased, but this increase is associated with a decrease of earning power. The result is that there has been a lowering of the standard of medical practice. The practitioner has not the necessary time to devote to medical study, medical literature, medical meetings and conferences which would enable him to keep abreast with medical progress. Medical progress as exemplified in the large medical centers has no practical bearing on the state as a whole unless it can be absorbed and applied by the general practitioner. As a result of this condition of affairs, it is stated that the insured classes in Europe do not get as good service from the medical profession as they formerly did. This has been brought out especially in England. The state should consider deeply whether it should invite a similar condition of affairs here—whether or not it desires an overworked, commercialized medical profession, the members of which will be unable to give the best of themselves to their work.

Dr. Lambert estimates that under the compensation bill the physicians in the panel with their allotment of 500 families will see from twenty to thirty patients per day. That is a big day's work, if done conscientiously, and will leave the physician time for little else. What would the probable income be? Dr. Lambert does not state. Judging by the fees prevailing in Europe, an estimate of from $2,000 to $3,000 would be high. If from this amount is deducted the ordinary office and automobile expense, I fear that the average physician could qualify to come under the act, under the voluntary insurance clause.

What would be the salary of the whole time medical directors, of whom there probably will be several hundred? If the chairman of the Health Insurance Commission receives $6,500, surely the several hundred whole time medical directors could not receive a similar sum. Can the state secure the services of physicians of sufficient experience and professional standing in their communities who will give up their private practices and accept whole time employment as medical directors or referees? I think not, unless the salaries are adequate—considerably more than is the salary of the chairman of the Health Insurance Commission.

Another important phase of the question is the expense. Under the law, the state would contribute two tenths of the necessary expenditure to the fund. The New York State budget for 1917 calls for approximately $72,000,000, of which $12,000,000 is to be raised by direct taxation. It is variously estimated that the state's portion, the two tenths, would be anywhere from $25,000,000 to $40,000,000, and that the general overhead expense would be about $5,000,000. Let us assume that the lowest estimate, $25,000,000, would be sufficient, and let us concede that this amount of money could be raised without difficulty; is it desirable even then that the state should spend so much on merely palliative health measures? Consider the incalculable benefit which would accrue to the state if only a small percentage of the foregoing amount were spent for real preventive measures—for work in tuberculosis and the establishment of sanatoriums; for laboratories in the aid of diagnosis, and for the manufacture of vaccines and serums; for sanitary measures to eradicate typhoid; for the establishment of colonies for the care of our mental defectives; for educational propaganda among the masses along the lines of prevention of infectious diseases; the early diagnosis and treatment of cancer, and the disastrous effects of drugged alcoholic "patent" remedies. The chief difficulty, however, in the way of the adoption of such activities is that there is little room in them for politics and politicians, while the compulsory health insurance bill opens a new and inviting field to practical politicians.

Without question some form of health insurance, perhaps compulsory health insurance, is desirable; but a plan of compulsory health insurance without the complex scheme involving the commercializing of the medical profession would be more desirable.

S. J. APPELBAUM, M.D., Rochester, N. Y.

HARVEY LABORATORY FOR RESEARCH IN BLOOD PRESSURE

To the Editor:—In the February, 1917, number of the *Medical World,* a medical monthly published in Philadelphia, there appeared an article under the title, "An Effort to Standardize Myocardial Capacity with Reference to Early Diagnosis of Tuberculosis." The article was signed Harley Stamp, M.D., Harvey Laboratory for Research in Blood Pressure, University of Pennsylvania.

I wish to call attention to the fact that there is no such laboratory at the University of Pennsylvania, and also that the name of Harley Stamp does not appear in the Directory of the American Medical Association. I believe that the title M.D. is an assumed one. Harley Stamp does hold, I am told, the degree of A.B. from the University of Pennsylvania, and he has been working in the Zoology Laboratory of the University of Pennsylvania. Carved on the walls of this laboratory are the names of a number of celebrated biologists and anatomists—among them the name of Harvey. Stamp's work was done, I believe, at a window under the name of Harvey, and this seems to be the only excuse offered for the creation of this make-believe laboratory—truly an easy way of starting a new research laboratory.

WILLIAM PEPPER, M.D., Philadelphia.
Dean, University of Pennsylvania, School of Medicine.

[COMMENT.—Harley Stamp seems to have had considerable newspaper notoriety. According to the Boston *Globe,* he was at one time dean of the American College of Neuropathy, an institution which in 1911 occupied two small rented rooms on the top floor of an old building on Broad Street, Philadelphia, the equipment of the rooms being in keeping with the rooms themselves. Notwithstanding the fact that this college had no enforced entrance standard, practically no laboratories or teaching material, the fees charged were $150 per year. In 1915, he sued the estate of a patient for $30,000 alleged to be due under a contract by which he claimed he was to receive $34,000 for two years' service in treating the patient.]

FOOD SHORTAGE: AN APPEAL TO PHYSICIANS

To the Editor:—A food shortage without precedent confronts the United States. Unless there is a change for the better, the coming winter will see prohibitive high prices and consequent suffering from lack of food. The physicians of the United States, as guardians of the public health, are vitally interested because the health and the vitality of the people are at stake. It is in the power of the physicians to help relieve the food shortage by taking the lead in teaching people how to conserve the food supply. It must not be forgotten that conservation of the food supply is just as important and just as necessary as is increased production. Physicians cannot very well increase the production of foodstuffs, but on the conservation side of the problem they can be of inestimable service to the nation.

It is generally recognized that people eat too much. As a nation we are more inclined toward "living to eat" than toward "eating to live." The physicians, better than any others, can discourage this habit of overeating.

Knowledge of what constitutes properly balanced rations is not widespread. Housewives have not yet had opportunity to absorb the information gained through scientific study of the food problem by experts in domestic science. The result is that the American dinner table contains much that is unnecessary and often lacks things which should be there. The physicians of the land can correct this. They can spread corrective propaganda among millions of people, and they will be heeded because of the position of trust they occupy in American families.

Correct dieting on the part of American people is of paramount importance as a measure to guard against the food stringency that faces us. We must stop the waste of food by learning how to maintain our health and our strength on less than we are now consuming. In a word, I mean we must begin eating to acquire a proper amount of nourishment instead of eating just to fill up. We must make a study of the nutrition in various foods and find out what will give the amount of nourishment we really need. When we have learned these things, our housewives can begin serving us with meals that will satisfy the appetite and provide us with plenty of nourishment without entailing any waste. With the waste eliminated, the food problem will be practically solved.

There is no doubt in my mind as to ability of the physicians of the nation to make themselves of prime importance in this fight to conserve the food supply. They have the necessary information and they have at their disposal the channels through which it can best be disseminated among the people of the land.

An old adage says, "Go to the busy man to get things done." Appealing to the physicians to help the food conservation movement is surely carrying out the thought in the adage. The physicians will do their "bit" for the fighting forces of the nation. We confidently expect the medical corps to outstrip their European contemporaries in solving the surgical and medical problems of the battlefield and the camp. But it is as necessary to have food as it is to have live soldiers, even in a time of war, for without food there would soon be no live soldiers.

Therefore the "bit" that the physicians can do for their country is not limited to the service they can render to the army on the battlefield. They can serve the army in binding up its wounds, and they can serve the nation by showing it how to conserve food through the intelligent use of a smaller quantity than is now being consumed.

As one familiar with the food situation, I can say that the public has not yet been sufficiently impressed either with the need for more production or with the necessity for more economical handling. This is a time when one can do things that would seem presumptuous in normal times. Under that right, I call on the physicians of the United States to interest themselves in the food conservation campaign and to do all in their power to advise the public as to the imperative need for conserving, to the greatest possible degree, the food supply of the nation.

By preventing waste now, we can avert hunger later on.

J. Ogden Armour, Chicago.

MOTILITY OF SPERMATOZOA

To the Editor:—In the Current Comment on "The Function of the Prostate" (The Journal, Feb. 17, 1917, p. 553), it is stated that "it has been noted that the spermatozoa are practically motionless while in the seminiferous tubules of the testis, but become actively motile in the vas deferens, or when mixed with prostatic secretion."

The statement that spermatozoa are motionless in the testicle and epididymis, and do not gain motion till they have left these organs, has been copied for years from one textbook into another, and will probably be repeated without investigation or challenge for some time to come, although it is incorrect.

Several years ago, while investigating the subject of sterility in both sexes, I frequently aspirated the testicle in both normal and pathologic cases, and found normal moving spermatozoa in the aspirated fluid thus obtained. I have called attention to this fact emphatically in my work on sterility published over four years ago. I do not claim any priority to the knowledge of this fact, but have frequently called attention to my surprise at the statement so frequently made that spermatozoa are motionless till they get beyond the epididymis, because Martin, many years before my book was published, stated that in his classic operation of epididymovasostomy for sterility he found live motile spermatozoa on the testicular side of the epididymis before proceeding with his anastomosis. As a matter of fact, in some of the lower animals, impregnation has been successfully performed by the injection of the pure aspirated testicular fluid into the genitals of the female.

Max Hühner, M.D., New York.

THE VINELAND EXPERIENCE WITH PINEAL GLAND EXTRACT

To the Editor:—In the *Medical Record,* May 10, 1913, in collaboration with Dr. Walter S. Cornell, I reported the results of an experiment with pineal gland extract conducted under the direction of Drs. C. L. Dana and William N. Berkeley of New York. Twenty-five children were chosen to whom the gland should be given. Each child was then paired with a control who was not given treatment but was weighed, measured and examined, as were the subjects.

Our report made at the end of two months' treatment states that (p. 42) "while the improvement was not great and indeed not great enough to be of itself very significant, it was nevertheless felt that it was sufficient to continue the experiment." The gland was therefore administered for another two months. Our conclusion at the end of our experiment, as stated on page 48 was: "On the whole, one cannot but feel that there is a distinct influence in the extract toward mental improvement. However, all such experiments are subject to so many disturbing factors that it seems necessary, in view of the slight gain recorded, that the experiment should be continued for a longer time." It was never expected that this experiment was more than a "try-out," which might show some positive results in case the gland had some powerful effect, such, for instance, as the thyroid is known to have on the cretin type, and if at the same time we were fortunate enough to include suitable types in our group.

One of the patients who made consistent improvement, both mentally and physically, and consequently seemed most likely to be a suitable case for the treatment was a little girl, aged 8 years, with a mentality of 3 when we began the experiment in August. At the close of the experiment she tested 4. This was a gain of one year in four months. Because of this result in her case she was later selected for a more elaborate experiment. This was carried on under the direction of Dr. Amos W. Peters, then biochemist in the Vineland Laboratory. Unfortunately, the details of this experiment are not on file in this department. Suffice it to say that the experiment was carried on under the most rigid scientific regulations. The child was observed, weighed, measured and tested, for a period, under her ordinary institution environment. She was then brought to the laboratory to live and given special diet, the observations being continued. After what might be called her "normal curve" was established, she was fed the pineal gland extract for about six months; then the medication was discontinued and she was again observed for another period. It is now about fifteen months since the experiment ceased entirely, and probably twenty months since the last administration of pineal gland extract. There was no marked change in her growth curve during the period of pineal administration, nor does there seem to be any after-effect as evidenced by her physical condition at the present time. Mentally there has been no change since March, 1912, at which time she tested 5. This is confirmed by the resident physician, by the teachers and attendants who report no noticeable improvement in her.

As the result of this experiment it was the opinion of Dr. Peters, as he expressed it to me, that the drug was practically inert.

There were no cases of the Mongolian type of imbecility included in the experiment with the twenty-five children.

Since the Mongolian type of imbecility is one that suggests glandular disturbance to many persons, it was thought worth while to make a crude experiment with them. Accordingly, two children were selected during the past year and given the extract, one for a full year, the other for six months. The first was a child, aged 10 years, with a mentality of 4; the second, aged 9 years, with a mentality of 3. For the first month one capsule a day was given, after that the dose was increased to two capsules a day. The results tend to confirm the previous experiment. Although mental and physical measurements were made regularly in these cases, there is no evidence of any effect of the gland. Teachers and attendants report the same experience of "no noticeable improvement."

It is thus seen that the Vineland experience, as far as it goes, is wholly negative.

HENRY H. GODDARD, Vineland, N. J.
Director, Department of Research, the Training School.

"THE 'OPEN DOOR' IN CHINA"

To the Editor:—Attention having been called to your editorial in the issue of March 31, entitled "The 'Open Door' in China," the Medical Society of South Carolina at its last meeting adopted the following resolutions and communicated them to the Department of Commerce:

"That the Medical Society of South Carolina expresses its surprise at and disapproval of 'Special Consular Report No. 76' entitled 'Proprietary Medicine and Ointment Trade in China' published by the Bureau of Foreign and Domestic Commerce of the Department of Commerce"; and

"That this resolution be communicated to the Department of Commerce."

HENRY P. WAGENER, M.D., Charleston, S. C.
Secretary, Medical Society of South Carolina.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EARLY WORKERS ON ANTHRAX

To the Editor:—Please let me know whether the following men were veterinarians or physicians: Chabert, 1780; Barthélemy, 1823; Rayer; Davaine, 1849; Pollender, 1850; Delafond, 1860; Solleysel, 1664. I have given the dates approximately when they wrote. All but Solleysel were concerned in the early work on anthrax; he worked on glanders.

MAZYCK P. RAVENEL, M.D., Columbia, Mo.

ANSWER.—Chabert, Barthélemy, Delafond and Solleysel were veterinarians.

Dr. Pollender, a physician at Wipperfurth, Rhenish Prussia, wrote the memoir on microscopic and microchemical investigation of the blood in anthrax: "Mikroskopische und Microchemische Untersuchung des Milzbrandblutes, sowie über Wesen und Kur des Milzbrandes" (*Vrtljschr. f. gerichtl. u. öffentl. Med.*, 1855, **8,** 103-114).

Casimir-Joseph Davaine, born at St. Amand-les-Eaux in 1811, graduated from the Paris Medical Faculty with the Dissertation "De l'hématocèle de la tunique vaginale" (1837); became a member of the Académie de Médecine (1868) and wrote a memoir, crowned by the Institut, entitled "De la paralysie générale ou partielle des deux nerfs de la septième paire" (1852), but never held a public position. He wrote much on the entozoa, his principal contribution being "Traité des entozoaires et des maladies vermineuses de l'homme et des animaux domestiques" (1860). His greatest contribution is his study of the bacteriology of anthrax: "Recherches sur la nature et la constitution anatomique de la pustule maligne" (*Compt. rend. Acad. d. sc.*, 1865, **40,** 1296-1299). He died at his estate at Garches (Seine-et-Oise), Oct. 14, 1882.

Biographical references:

Dureau, A.: *Bull. sc. dép. du nord*, 1882, **5**, 385-393; *Gaz. méd. de Paris*, 1882, Series 6, **4**, 521, 533.
Laboulbene, A.: *Compt. rend. Soc. de biol.*, 1884, Series 8, **1**, 1-20; Paris méd., 1884, **1**, 109, 121; *Gaz. d. hôp.*, 1882, p. 959; *Med. Times and Gaz.*, 1882, **2**, 537.

Pierre-François-Olive Rayer, born March 8, 1793, at St. Sylvain (Calvados), studied in Paris at the École pratique, Hôtel Dieu and Maison royale de Santé, graduated with the degree of M.D. in 1818, and became a member of the Académie de médecine (1823), and physician to the Bureau central des hôpitaux (1824), Hôpital St. Antoine (1825) and Hôpital de la charité (1832). He succeeded Magendie as president of the Comité consultatif de l'hygiène publique (1843), and became consulting physician to Louis Philippe (1848) and professor of comparative medicine and dean of the Paris Faculty (1862). He died at Paris, Sept. 10, 1867. His greatest works are his treatise on diseases of the kidneys (1839-1841) and the skin (1826) and his classical monograph on glanders and furcy ("De la morve et du farcin chez l'homme," Paris, 1837). He also wrote a history of the epidemic of sweating sickness of 1821 (1822), a memoir on delirium tremens (1819), a report on the origin of the Barcelona epidemic of yellow fever of 1821 (1822), and an investigation of a variety of hematuria endemic in Mauritius (1839). He became co-editor of the *Révue médicale* in 1822 and of the *Journal universelle et hebdomadaire de médecine* in 1830.

References:
Bull. de l'Acad. de méd., 1867, **32**, 1107.
Gaz. méd. de Paris, 1867, p. 3751.
Jour. de conn. méd. prat., 1867, **34**, 401-405.
Union méd., 1867, Series 3, **3**, 435; 449-458.

TREATMENT OF HORDEOLUM

To the Editor:—I wish some information regarding the most recent and best treatment for hordeolum or stye. I have a nephew, aged 5, who has had at least thirty or forty styes within the past year. I have used the various methods of treatment, alteratives, syrup of iodid of iron, etc. Do you think the cause may be due to some error of refraction?

J. P. BRANDON, M.D., Essex, Mo.

ANSWER.—Where there have been so many recurrences of styes as in this case, the causative agent is possibly a chronic blepharitis. This condition, by causing accumulation of scales and crusts on the borders of the lids, favors the multiplication of bacteria that are always present there, and which can thence readily penetrate into the orifices of the glands. The border of the lid may be swollen and this may cause occlusion of the excretory ducts of the glands. If the stye does not yield to abortive treatment (hot applications and antiseptic lotions), it should be incised. Ointment of yellow mercuric oxid is useful in the treatment of blepharitis. General tonic treatment is indicated, especially if the patient is anemic or scrofulous. In this particular case it would probably be wise to put the eyes thoroughly under the influence of a cycloplegic, and determine the absolute refraction.

FROSTILLA

To the Editor:—Please give me the composition of the "patent medicine" known as "Frostilla," a lotion for chapped hands. Please omit name.

K.

ANSWER.—The only reference we find is in "Secret Nostrums and Systems," quoting from the *Druggists Circular:*

Quince seeds	60 grains
Hot water	21 ounces
Glycerin	6 ounces
Deodorized alcohol	5 ounces

"Place the quince seeds in a bottle, pour the hot water on them and agitate occasionally until a mucilage is formed; then strain through muslin. To this add the glycerin and shake thoroughly. Dissolve the desired perfume in the alcohol and add the solution to the mucilage and agitate briskly until of a uniform consistency."

VALUE OF ACTINIC LIGHT RAYS IN DERMATOLOGY

To the Editor:—Will you kindly favor me with your opinion of the therapeutic value of actinic light rays, particularly in dermatology, as produced by the "Hereaus Quartz Light" apparatus, made by the Hanovia Chemical and Manufacturing Company, Newark, N. J.? I contemplate purchasing one of these machines, but as they are rather expensive, and the claims of the manufacturers are rather extravagant, I should like to have a disinterested and competent opinion.

Z. FULLER, M.D., Sac City, Iowa.

ANSWER.—The quartz light apparatus made by the Hanovia Chemical Company is a bona fide ultraviolet ray apparatus. It has some useful functions in dermatology. It is valuable in a few dermatoses, but, according to experience, its usefulness is limited and a very great deal more restricted than the claims of its makers would indicate.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 8-9. Sec., Dr. T. J. Stout, Brinkley, Ark.

ARKANSAS, ECLECTIC: Little Rock, May 8. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

ARKANSAS, HOMEOPATHIC: Little Rock, May 8. Sec., Dr. Scott C. Runnels, Little Rock.

GEORGIA: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, May 7-10. Chairman, Dr. R. W. Benz, 1141 Alakea St.

ILLINOIS: Chicago, June 14-16. Sec., Dr. C. St. Clair Drake, Springfield.

LOUISIANA: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.

MASSACHUSETTS: Boston, May 8-10. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MICHIGAN: Ann Arbor, June 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 5-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

NEVADA: Carson City, May 7. Sec., Dr. S. L. Lee, Carson City.

NEW YORK: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.

OHIO: Columbus, June 11-14. Sec., Dr. George H. Matson, State House, Columbus.

OREGON: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.

SOUTH CAROLINA: Columbia, June 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 15-16. Sec., Dr. A. B. De Loach, Scimitar Bldg., Memphis.

California January Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports that at the examination held at Sacramento, Jan. 9-10, 1917, 43 candidates were licensed through reciprocity, 3 were granted drugless practitioner's license, including 1 osteopath, and 1 was granted a license under a special exemption clause. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett College of Eclectic Medicine and Surgery		(1907)	Illinois
College of Physicians and Surgeons, Chicago		(1898)	Nebraska
	(1898) (1902)	(1908)	Washington
		(1905)	Illinois
		(1893)	Colorado
Hahnemann Med. Coll. and Hosp. of Chicago		(1914)	Illinois
	(1905)	(1906)	Illinois
Hering Medical College		(1908)	Illinois
Northwestern University		(1913)	Illinois
Rush Medical College	(1882) Nebraska;	(1904)	Illinois
Indiana University	(1910)	(1911)	Indiana
State University of Iowa College of Medicine		(1884)	Iowa
		(1902)	N. Dakota
Kentucky School of Medicine		(1888)	Alabama
Johns Hopkins University		(1912)	Maryland
University of Michigan Medical School		(1879) (1912)	Michigan
	(1892) Montana;	(1904)	Washington
University of Minnesota	(1900) Minnesota;	(1903)	Washington
Central Medical College of St. Joseph		(1895)	Colorado
Kansas City Medical College		(1905)	Washington
Medico-Chirurgical College of Kansas City		(1903)	Arizona
National University of Arts and Sciences		(1915)	Missouri
St. Louis College of Physicians and Surgeons		(1906)	Penna.
		(1913)	Missouri
New York Homeopathic Medical College and Hospital		(1905)	New York
New York Medical College and Hospital for Women		(1885)	Mass.
Eclectic Medical College		(1906)	Texas
Ohio Medical University		(1895)	Ohio
University of Wooster		(1875)	Nebraska
Western Reserve University		(1911)	Ohio
Jefferson Medical College of Philadelphia		(1902)	Penna
		(1908)	Dist. Colum.
University of Pennsylvania		(1908)	New Jersey
University of Vermont		(1903)	New Hamp.
Shunu Med. Coll., Kumamota*		(1894)	Hawaii

College	LICENSED UNDER SPECIAL EXEMPTION CLAUSE PASSED	Year Grad.	Total No. Licensed
Bellevue Hospital Medical College		(1898)	1

* No such medical college named on official list of Japanese Medical Colleges. See THE JOURNAL A. M. A., Sept. 4, 1915, p. 897.

North Dakota January Report

Dr. George M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, Jan. 2-5, 1917. The total number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. Eleven candidate were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1915)	90
University of Illinois		(1916)	76.4
Long Island College Hospital		(1910)	75.1
Manitoba Medical College		(1915)	75

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1908)	Illinois
Rush Medical College		(1914)	Illinois
University of Illinois		(1915)	Minnesota
Fort Wayne College of Medicine		(1898)	Minnesota
University of Minnesota	(1903) (1913) (1914) (1915, 2)		Minnesota
St. Louis University		(1910)	Illinois
University of Christiania		(1912)	Minnesota

Pennsylvania January Report

Mr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the written examination held at Philadelphia, Jan. 9-11, 1917. The total number of subjects examined in was 5; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 71, of whom 66 passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
University of Louisville		(1911)	1
College of Physicians and Surgeons, Baltimore	(1914)	(1915)	2
Eastern University		(1913)	1
Johns Hopkins University		(1914)	1
University of Maryland		(1915)	1
Columbia University		(1912)	1
New York Homeopathic Med. Coll. and Flower Hosp.		(1915)	1
University of Buffalo	(1913)	(1914)	2
Eclectic Medical College		(1915)	2
Western Reserve University		(1915)	1
Jefferson Med. Coll. of Philadelphia	(1914, 7)	(1915, 15)	22
Medico-Chirurgical Coll. of Phila.	(1914, 1)	(1915, 14)	15
Temple University	(1914)	(1915, 5)	6
University of Pennsylvania	(1913) (1914, 2)	(1915, 3)	6
University of Pittsburgh		(1915)	1
Woman's Medical College of Pennsylvania		(1915)	2
Medical College of Virginia		(1915)	1

College	FAILED		
College of Physicians and Surgeons, Baltimore		(1915)	69.2
Maryland Medical College		(1912)	52, 70.8
Jefferson Medical College of Philadelphia		(1915)	71.4
Medico-Chirurgical College of Philadelphia		(1915)	71.8

Wisconsin January Report

Dr. John M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the practical and written examination held at Madison, Jan. 9-10, 1917. The total number of subjects examined in was 24; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 5 passed, including 2 osteopaths, and 2 failed. Five candidates were licensed through reciprocity and two candidates were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1914)	79.6
		(1915)	77.2
Rush Medical College		(1915)	91.2

College	FAILED		
Bennett Medical College		(1915)	71.5
Chicago College of Medicine and Surgery		(1915)	69.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College		(1913)	Illinois
State University of Iowa College of Medicine		(1905)	Iowa
University of Minnesota		(1907)	Minnesota
St. Louis University		(1912)	Missouri
University of Pennsylvania		(1907)	Illinois

Hawaii January Report

Dr. K. B. Porter, secretary of the Hawaiian Territorial Board of Health, reports that the following candidates were licensed at the examination held Jan. 8-11, 1917.

College	PASSED	Year Grad.	Total No. Licensed
Rush Medical College		(1905)	1
Harvard University		(1914)	1
Aichi Prefecture, Special Medical School		(1914)	1

Social Medicine, Medical Economics and Miscellany

INSANITY IN THE PHILIPPINES

A. P. GOFF, M.D.
Chief, San Lazaro Hospital, Philippine Health Service
MANILA, P. I.

About 4,500 insane are reported at present in the Philippine Islands, distributed thus by provinces: Bohol, 463; Cebu, 343; Pangasinan, 270; Tayabas, 227; Leyte, 167; Oriental Negres, 163; Ilocos Sur, 146; Iloilo, 142, and so on down to Isabela with only 3. About 800 are cared for in institutions for the insane.

According to race there are seven Americans, fifteen Europeans, and thirteen Chinese and miscellaneous, all the others being Filipinos; 2,700 are male, and 1,800 female.

An analysis made recently of 650 deaths and discharges from hospital gave about the results shown in Table 1. The mention of "cures" among alcoholics and opium users means, of course, only that the patients left the hospital in good condition, and, temporarily at least, free from the habit. Practically all of the alcoholics were Caucasians.

TABLE 1.—DIAGNOSES IN SIX HUNDRED AND FIFTY CASES

Diagnosis	Cured	Improved	Unchanged	Died	Total
Mania, manic-depressive insanity etc.	63	111	28	43	245
Dementia, feeblemindedness, etc.	0	30	13	88	131
Melancholia	13	25	2	7	47
Paranoia	0	0	4	0	4
Epilepsy	0	0	3	0	3
Observation and miscellaneous	1	1	23	3	28
Opium habit	27	0	0	0	27
Alcoholism	161	0	0	4	165
Total	265	167	73	145	650

A series of 358 insane in the hospital were found to be suffering from the different forms of mental trouble shown in Table 2.

TABLE 2.—FORMS OF MENTAL TROUBLE

Diagnosis	Male	Female
Melancholia-mania, manic-depressive insanity	140	32
Dementia praecox, paranoia, paranoid forms	110	28
Epileptic insanity	16	1
Alcoholic insanity	7	0
Senile dementia	3	2
Opium habit	2	0
Miscellaneous and unclassified	15	2
Total	293	65

It may be seen from these tables that the forms of mental diseases in the Philippine Islands do not differ essentially from those in the United States or other countries, as regards either classification or numbers in each division.

If we place the number of inhabitants in the Philippine Islands at about 8,000,000, it will be seen that the proportion of insane is about 1: 1,800, or only about 562 to 1,000,000 of population; whereas the United States and Great Britain have over 3,000 per million, including both insane and idiots. It should be remembered, however, that the number of insane usually increases in proportion with the completeness of statistics.

At present those under institutional care in the Philippine Islands include the criminal insane and the more violent cases. It is hoped that shortly a new pavilion for the milder cases will be erected at San Lazaro.

The condition of the insane has improved greatly during the last fifteen years, not only as regards the number treated in institutions and otherwise, but also as to the general attitude adopted by relatives and friends. The common superstitious beliefs regarding the insane are well known; but it is only rarely at this time that these patients are regarded as other than sick persons and treated accordingly. Those in the hospital do a good deal of work in the garden and around the grounds, and also along industrial lines, making such articles as slippers, belts, baskets, mats, and clothing for themselves and other patients.

Insane Filipinos are comparatively docile and easily handled, much more so than an equal number of Caucasian insane, as they are not as strong physically, and perhaps not of as aggressive a diposition in general. It is naturally less difficult to care for the mentally afflicted here than in the United States, as the question of heating requires no attention, and ventilation almost takes care of itself, all buildings being made as open as possible. Clothing is also much simpler, and necessary bedding not nearly so abundant or elaborate.

There are only two asylums for the insane in the Philippines, both in Manila; they are the Hospicio de San José, a church institution, with a branch in Cavite, and San Lazaro Hospital, which is the regular government insane asylum, also being the officially designated institution for reception of criminal insane. It is obvious that more accommodation for the insane is needed, and it will without doubt be furnished in the near future.

Fixing Nitrogen

John E. Bucher of Brown University in a recent address before the Institute of Chemical Engineers advanced some new ideas for the fixation of nitrogen. This means getting nitrogen from the air into chemical combination so that it may be used for the production of chemicals, dyestuffs, explosives, fertilizers, and generally in chemical industry. Methods have been devised, but have hitherto been expensive and complicated. Bucher has discovered that nitrogen will combine with an alkali and carbon in the presence of iron as a catalyst and produce the cyanid of the alkali. From the mixing of soda ash with either powdered iron or iron ore and powdered coke and heating in an ordinary furnace with a stream of air through the furnace, sodium cyanid results, with the iron uncombined. No electric power is needed, no costly materials, and no expensive special apparatus. When the sodium cyanid is treated with steam, sodium bicarbonate and ammonia result, and in the latter the chemist has the fixed nitrogen from which he can make fertilizer or some other product containing nitrogen. By introducing into a solution of the sodium cyanid waste gas from the furnace containing carbon dioxid, urea is produced, which is three times as rich in nitrogen as sodium nitrate and twice as rich as ammonium sulphate, both of which are used as fertilizer and play an important rôle in food production. Sodium cyanid when treated with an electric current separates into metallic sodium and cyanogen. There is a large demand for the former in chemical industry, and the latter is rapidly absorbed by hydrochloric acid and becomes oxamid, which contains nearly one-third nitrogen, and on account of its slow solubility in the soil, should, it is said, make an ideal fertilizer. Heretofore urea and oxamid have been too expensive for use as fertilizers, but Bucher's ideas open up great possibilities in this line, as well as in others requiring the employment of nitrogen.

A Case of Quintuplets

W. Martin reports, in the *British Medical Journal*, March 17, 1917, the case of a woman, aged 39, who bore five babies in one labor. The woman was one of a family of eight children, with no history of multiple pregnancies, except that a sister had twins once. The husband was one of a family of six with no history of multiple pregnancies. The labor began at 9 p. m. and terminated with the birth of the fifth child at 3:48 the next morning. A quarter of an hour later the placenta was delivered, which was in one large mass, with five separate sacs, each of which presented in succession during the labor and was ruptured by Martin. The children were well formed, about 8 to 12 inches in length, and were all born alive. Four were boys. They lived for periods varying from one and a half to twenty-eight hours. The amount of liquor amnii was enormous. The mother had a normal puerperium. The labor took place in the eighth month and it was her eighth pregnancy. All of the other children were living.

Medicolegal

Duty of Employers to Furnish First Aid as Well as Surgical Assistance

(Hunicke vs. Meramec Quarry Co. (Mo.), 189 S. W. R. 1167)

The Supreme Court of Missouri, Division No. 1, in reversing a judgment that was rendered in favor of the defendant, says that this action was brought to recover damages for the death of an employee (who had been most grievously injured while in the service of the defendant) through the alleged negligence of the latter in not furnishing him with prompt emergency or first aid assistance and surgical assistance on that occasion. There was but one legal proposition presented by the record for determination, and that was with reference to the correctness of a ruling refusing an instruction to the jury, asked by counsel for the plaintiff, and the giving in lieu thereof, for the plaintiff, of a somewhat different instruction, and the giving of one in harmony therewith for the defendant. The only material difference between the instruction asked by the plaintiff and those given by the court for the plaintiff and the defendant was that the former told the jury (1) that it was the duty of the defendant to render to the injured employee such emergency or "first aid" assistance as was reasonably possible under the circumstances in order to stop the flow of blood, and also (2) that it was the duty of the defendant to furnish him with such medical and surgical assistance as was reasonably possible under the circumstances, while the instructions given for the plaintiff and the defendant eliminated the first duty mentioned, and submitted only the second to the jury. That action of the trial court was clearly erroneous. It was clearly erroneous to instruct the jury that if they believed and found from the evidence that after the employee was injured the defendant exercised ordinary care to secure for him surgical and medical treatment at the hands of competent physicians and surgeons, then the defendant fully discharged its duty toward said employee, and was not liable to the plaintiff in this case.

Not Unlawful Grant to Association of American Medical Colleges Restriction on Osteopaths

(State vs. Bonham (Wash.), 161 Pac. R. 377)

The Supreme Court of Washington affirms a judgment of conviction of the defendant of the crime of practicing medicine and surgery without a certificate from the board of medical examiners authorizing him so to do, although he held a certificate from the board to practice osteopathy. The court says that, first of all, the constitutionality of the statute was attacked. In the language of counsel: "When the legislature of 1909 incorporated in Section 8391 of the act the following language: 'In order to procure a certificate to practice medicine and surgery the applicant for such certificate must file with said board, at least two weeks prior to the regular meeting thereof, satisfactory testimonials of good moral character, and a diploma issued by some legally chartered medical school, the requirements of which shall have been at the time of granting such diploma in no particular less than those prescribed by the Association of American Medical Colleges for that year,' they granted to the Assn. Am. Med. Colleges, a nonlegislative body outside of the state, legislative functions, and by so doing aimed to establish a medical hierarchy, which would control the people from birth to death. The bureaucratic rule which it hoped to secure by the passage of that section is un-American in principle and despotic in spirit. It is monopolistic and tyrannical in the most offensive sense of those terms." But the court thinks it manifest that the clause quoted by counsel cannot bear the construction he placed on it. By this clause the legislature granted legislative functions to no one. It simply defined the medical schools from which an applicant to practice medicine and surgery in the state must produce a diploma before a certificate authorizing him to do so can be issued to him. The restriction may or may not be a wise one, but this is a question for the legislature and not for the courts. With the courts the question is one of the power of the legislature to impose the restriction, and this court sees no reason to question it. Again, the court thinks the restriction was not one of which the appellant (defendant) could be heard to complain. He was in no manner affected by it. He applied for and received a certificate to practice osteopathy, and was entitled to practice that profession in the manner and to the extent the certificate permitted. His second contention was that his certificate entitled him to employ for the treatment of diseased tonsils the methods employed by him in the treatment of the diseased tonsils of the patient mentioned in the information, which apparently were by administering an anesthetic (ether), placing a snare around each of the tonsils and cutting them out with a knife, in addition to which stypticin was administered. But the court holds that his right was to practice osteopathy as that practice was understood at the time the medical act was adopted, and this it concludes did not sanction the practice resorted to by him in the treatment of said patient. A perusal of the successive catalogues of the schools of osteopathy will show that their teachings are gradually being expanded, and that the more modern of them now teach in some degree much that is taught in the older schools of medicine. The parent school has been more marked in this respect than perhaps any of them. It now teaches that in "childbirth lacerations," in "certain types of congenital deformities, certain kinds of tumors, etc., surgery must step in," and that surgery must be resorted to for the removal of tissues so badly diseased or degenerated that regeneration is impossible by the process of adjustment. But this advance is modern. It was not in vogue even so late as 1909, the time of the enactment of the medical act. The framers of the latter, the court thinks, regarded the practice of medicine and surgery and the practice of osteopathy as separate and distinct methods of treating the sick and afflicted, and intended to confine the practitioners of each to the particular system he professed to practice; in other words, to the system in which he had been educated. That no definition of these terms was offered in the statute would only mean that the terms were used in their general and accepted sense, in the sense in which they were commonly understood at the time of the enactment of the statute.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Illinois State Medical Society, Bloomington, May 8-10.
Iowa State Medical Society, Des Moines, May 9-11.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Mississippi State Medical Association, Jackson, May 8-9.
Missouri State Medical Association, Springfield, May 14-16.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Nat. Assn. for Study and Prev. of Tuberculosis, Cincinnati, May 9-11.
Nebraska State Medical Association, Lincoln, May 8-10.
New Hampshire Medical Society, Concord, May 16.
North Dakota State Medical Association, New Rockford, May 9-10.
Ohio State Medical Association, Springfield, May 14-16.
Oklahoma State Medical Assn., Lawton-Medicine Park, May 8-10.
Oregon State Medical Association, Portland, June 28-30.
South Dakota State Medical Association, Yankton, May 28-30.
Texas State Medical Association, Dallas, May 8-10.
Washington State Medical Association, Spokane, June 17-19.
Wyoming State Medical Society, Douglas, May 9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

April 12, CLXXVI, No. 15

1 Scholarship in Medicinc. W. S. Thayer, Baltimore.—p. 519.
2 *Renal Calculus. G. G. Smith, Boston.—p. 524.
3 Disease Incidence in China. C. A. Hedblom, Rochester, Minn. —p. 530.
4 Lipoma of Intestine. A. H. Harrigan, New York.—p. 535.
5 Contribution to Vegetative Neurology; Touching on Heart Action, Status Lymphaticus and So-Called Vagatonia and Sympathicatonia. E. A. Tracy, Boston.—p. 538.
6 *Cause of Poliomyelitis. H. Greeley, Brooklyn.—p. 540.
7 *Nail Puncture Wounds of Foot; Results in One Hundred Cases. W. I. Clark, Worcester.—p. 541.

2. **Renal Calculus.**—In looking up the records of the thirty-four cases in which analyses of the stones were recorded, Smith found that five out of the thirty-four were bilateral. In three of these five, the disease was recurrent as well. There were no recurrent unilateral stones. In three of the five cases, the stones were practically pure phosphate stones. In the other two, the stones were composed fairly equally of phosphates and oxalates. Of sixteen cases with calcium oxalate stones, none was recurrent. It would seem, therefore, that the phosphatic stones are the ones to be dreaded, and that if dietetic measures will be of any help, they should be tried. The urine should be kept very dilute by the ingestion of much water. In addition to this, the ingestion and absorption of phosphates must be diminished. If the intake of calcium is also diminished, phosphates will be excreted as salts of sodium and potassium, which are soluble. To prevent the recurrence of phosphatic stone, one should drink freely of water, take a teaspoonful of calcium carbonate with or after meals, and avoid eggs, milk, fish and fruits. To prevent uric acid deposition, avoid highly acid urine. Eat chiefly of vegetables, fats and carbohydrates. Eat a low protein diet of purin free nature. Avoid asparagus, liver, sweetbread, kidneys, meat extracts and malt liquors, claret, etc.

6. **Cause of Poliomyelitis.**—Greeley compared the bacillus isolated by him with the "streptococcus-like" organism described by Rosenow and found them to correspond serologically and culturally. The accidental installation of a drop of a fluid culture into the eye caused an abortive attack in an experimenter and the organism was recovered in scrapings from his throat, and a suspension of the same caused paralysis in a rabbit, and, when inoculated into a guinea-pig, intraperitoneally, death within a week, with spinal cord congestion and cerebral engorgement and hemorrhage, the organism being recovered from the brain tissue. From contact (same cage) with the latter, two guinea-pigs and a young rabbit contracted the infection and died, showing the same lesions and organism. In a series of serum reactions (not yet published) in which the blood serum of animals, immunized to cultures (from cord tissue) from particular cases of human poliomyelitis, and blood from fifty cases of the recent epidemic were tested against particular cultures (including the one received from Rosenow and from distemper in dogs) evidence has been obtained indicating the existence of different strains of the organism and its intimate relationship to the organism of dog distemper. The behavior of various cultures also tends to confirm this idea, although it is not yet apparent whether these differences are as fixed as in the case of the organisms of the colon typhoid group.

7. **Nail Puncture Wounds of Foot.**—This paper represents work done at Norton Company Hospital during the year 1916. In all cases the technic was the same, though the treatment was administered by different physicians and nurses. The work having been done on employees covered by insurance, it has been possible to get accurate data on the exact duration of disability for work from the insurance company, while the hospital records give the number of dressings needed by each patient. Clark says that nail puncture wounds of the sole of the foot are not dangerous and seldom cause infection if promptly treated, when caused by clean nails projecting from a board, as occurring in the building trade and general construction. This type of wound does not produce tetanus, except possibly in very rare instances. A simple and effective method of sterilization of the puncture wound may be obtained by injecting the wound with pure tincture of iodin. These injuries, contrary to general belief, produce very little disability and require few dressings. Prompt treatment is essential in order to get the best results.

Georgia Medical Association Journal, Augusta

April, VI, No. 12

8 Use of Autogenous Vaccines. A. H. Bunce, Atlanta.—p. 241.
9 Diagnosis and Removal of Foreign Bodies from Trachea, Bronchi and Esophagus. C. L. Pennington, Macon.—p. 246.
10 First Aid in Contused and Lacerated Wounds. A. G. Little, Valdosta.—p. 248.
11 Subcutaneous Emphysema in Child. Foreign Body in Bronchi; Report of Case. H. C. Whelchel, Douglas.—p. 249.
12 Case of Tetanus Successfully Treated with Tetanus Antitoxin. F. Bird, Valdosta.—p. 250.
13 Tetanus. S. L. Vincent, Nichols.—p. 253.
14 Burns and Their Treatment; Report of Case of Phosphorus Burn. R. C. Dodson, Waycross.—p. 254.

Journal of Abnormal Psychology, Boston

February-March, XI, No. 6

15 Manic Depressive Attack Presenting Reversion to Infantilism. R. Reed, Cincinnati.—p. 359.
16 Genesis of Paranoic State. T. H. Haines, Cleveland.—p. 368.
17 Genetic Antecedents of Free Association Materials. C. S. Yoakum and M. C. Hill, Galveston, Texas.—p. 396.

Journal-Lancet, Minneapolis

April 1, XXXVII, No. 7

18 Spinal Fluid in Diagnosis, Prognosis and Treatment of Cerebrospinal Syphilis. C. R. Ball, St. Paul.—p. 209.
19 *Fractures and Dislocations of Semilunar Cartilages. F. F. Griebenow, Bismarck, N. D.—p. 214.
20 Syphilis in State of Minnesota. H. G. Irvine, Minneapolis.—p. 218.
21 School Nurse. M. A. Baker, La Moure, N. D.—p. 224.
22 Blood Agglutination; Methods and Certain Experimental Considerations. J. R. Turner, Tacoma, Wash.—p. 230.

April 15, No. 8

23 Internal Secretion of Ovary. J. L. Rothrock, St. Paul.—p. 249.
24 *Case of Systemic Blastomycosis, with Stomach as Possible Port of Entry. W. F. Sihler, T. A. Peppard, Devils Lake and J. W. Cox, University, N. D.—p. 253.
25 Pathology and Etiology of Goiter. A. Schwyzer, St. Paul.—p. 258.
26 Recent Developments in Rhinology and Laryngology. F. C. Todd, Minneapolis.—p. 263.
27 Mineral Springs Sanatorium and Medical Profession of Goodhue County. R. Bosworth, St. Paul.—p. 270.
28 Case of Pernicious Vomiting in Pregnancy. W. J. Cochrane. Lake City.—p. 273.

19. **Fractures and Dislocations of Semilunar Cartilages.**—Ten cases are reported by Griebenow. They were all injuries of the internal semilunar cartilages; five were fractures and five were displacements. The operations consisted of partial extirpation in seven cases, complete extirpation in two cases, and suturing in one case. All patients reported very satisfactory results with the exception of the one in which suturing alone was done. The fact that this patient had the poorest results, Griebenow says, is an argument for radical extirpation of the damaged cartilage. The best treatment is unquestiontionably the radical extirpation, but in a few early cases a cure or improvement for a time can be accomplished by immobilizing the joint for a number of weeks or months with plaster casts and rest in bed. Reduction should always be attempted by flexing the knee, and, in case of loose internal cartilage, rotating the tibia outward while pressing over the cartilage and then quickly rotating the leg inward with a sudden extension. In cases in which there is a posterior displacement, a fracture, or a dislocation deep in the joint, complete extirpation alone can give permanent cure.

24. **Blastomycosis, with Stomach as Possible Port of Entry.**—A case of systemic blastomycosis is described by the authors which was peculiar in that it lacked the cutaneous and subcutaneous lesions which have been quite constant in the other reported cases, and which have led to a diagnosis. It is said to be the first reported case having recurrent ascites as a finding. A stomach ulcer with the localization of the blastomycetes in the stomach wall suggest this as a portal of entry. Blastomycetes were found in the stomach wall,

liver, lymph node, urinary bladder wall, omentum, appendix and ascitic fluid; budding forms were within and without endothelial leukocytes.

Medical Record, New York

April 14, XCI, No. 15

29 Some of Commoner Deviations from Ordinary Met with in Examination of Heart of Supposedly Normal Individuals. W. S. Thayer, Baltimore.—p. 617.
30 Endocrine Neurasthenia. T. A. Williams, Washington, D. C.—p. 623.
31 Recurrence After Thyroid Operations. S. P. Beebe, New York.—p. 627.
32 Ether Hypnosis in Psychotherapy. F. R. Starkey, Detroit.—p. 631.
33 Gas Gangrene; Report of Two Cases. C. W. Roberts, Atlanta, Ga.—p. 632.
34 Importance of Roentgen-Ray Diagnosis in Dentistry. A. M. Nodine, New York.—p. 634.

Nebraska State Medical Journal, Norfolk

March, II, No. 3

35 Etiology and Pathology of Lobar Pneumonia. A. Sachs, Omaha.—p. 251.
36 Treatment of Pneumonia. E. L. Bridges, Omaha.—p. 254.
37 Chronic Alveolar Abscess as Source of Systemic Disease. W. L. Shearer, Omaha.—p. 258.
38 Roentgen Treatment of Uterine Hemorrhage. E. W. Rowe, Lincoln.—p. 261.

Northwest Medicine, Seattle

April, XVI, No. 4

39 Tuberculosis of Cecum; Report of Case. C. W. Sharples, Seattle.—p. 97.
40 *Volvulus; Report of Cases. R. E. McKechnie, Vancouver, B. C.—p. 101.
41 *Syphilis of Stomach; Report of Case. P. Rockey, Portland, Ore.—p. 103.
42 Stomach Operations in Aged. J. B. Eagleson, Seattle.—p. 106.
43 Gallbladder Disease. O. F. Lamson, Seattle.—p. 108.
44 *Osteoplastic Closure of Trifacial Foramina; Report of Cases. G. M. Horton, Seattle.—p. 112.
45 Check Ligament Operation for Recurrent Dislocations of Shoulder. E. A. Rich, Tacoma.—p. 114.
46 Social Concept or Psychosis. W. V. Gulick, Fort Steilacoom.—p. 116.
47 Report of Three Cases Showing Need of Mental Analysis. H. W. Wright, San Francisco.—p. 117.
48 Lipectomy; Report of Case. J. P. Schutt, Bremerton.—p. 118.

40. **Volvulus.**—The symptoms of one case cited by McKechnie were like what is usually found in appendicitis, with one exception. The patient had the initial pain in the epigastrium, accompanied by vomiting. In a second attack later on in the day, he had a return of this, but later, when he was examined, no tenderness was found in the epigastrium. the area complained of, but was found in the region of the appendix. The next morning he was found with tenderness and rigidity in the lower abdomen, with a weakened and quick pulse and a slightly subnormal temperature. The one symptom which is not usually found in appendicitis was the patient's greater comfort when sitting up, and especially when leaning forward. McKechnie suggests that this may possibly prove to be a pathognomonic symptom, especially if accompanied by symptoms of collapse. In this case there were no symptoms of collapse at first other than an extreme pallor but, the following morning when he was being moved to the hospital, he fainted and was in a very poor condition when he arrived at the hospital. In both cases reported the twisting was from right to left. In neither case was the occurrence preceded by any violent exercise, but in both cases there was an abnormally long mesentery and, in the case of the boy, an extremely mobile cecum and ascending colon. In both cases there was an abnormally long mesentery from birth, hence one would expect that previous attempts at the formation of a volvulus had occurred. This is proved by their histories, one of the patients, the boy, having been subject to colic, and the other patient, a man, had had similar attacks before, although not so severe.

41. **Syphilis of Stomach.**—A man had a severe gastric hemorrhage. The abdomen was opened by a median incision. On the anterior surface of the stomach near the greater curvature, about one third of the way down from the cardia, was a large gastric ulcer, about 3 inches across, and with induration about an inch thick, to part of which indurated omentum was attached, from where it extended to the spleen, to which it was also adherent. On the anterior surface of the stomach near the pylorus was a small, slightly indurated ulcer scar. All intra-abdominal lymph nodes were enlarged. Above and below the stomach one could pick up a handful of these lymph nodes. Operative diagnosis, probably syphilis. The omentum was tacked over the large ulcer as a protection, the abdominal wound was closed, and the patient put to bed. After the operation a Wassermann test was made and reported positive four plus.

44. **Closure of Trifacial Foramina.**—Horton has operated for the relief of trifacial neuralgia in four patients whose ages range from 28 to 84 years of age, by a method similar to that of Kavenel. The patient is first given a general anesthetic, an incision is made over the exit of the nerve, it is dissected free from the surrounding tissue and the nerve is then seized with a pair of Kelley forceps and by twisting is wound around the end of the forceps. The canal is now thoroughly curetted with a small curet or chisel, the edge of the foramen is chiseled through and broken down so as to close the opening. After this has been done the broken down edge is thoroughly tamped into the canal, much the same as dirt is tamped around a pole when it is set into the ground. In breaking down the edge of the foramen no attempt was made to preserve the periosteum, all being cut through with a chisel at one cut and broken over into the foramen. Considerable care was taken, however, in the tamping that all openings were covered with bone. The roentgenograms show the foramen closed.

Ohio State Medical Journal, Columbus

April, XIII, No. 4

49 Early Diagnosis of Pulmonary Tuberculosis. J. Harris, Mt. Vernon.—p. 229.
50 Significance of Diazo and Urochromogen Reactions in Pulmonary Tuberculosis. S. A. Douglass, Mt. Vernon.—p. 231.
51 Postoperative Ileus. G. Goodhue, Dayton.—p. 233.
52 Constitutional Conditions, Result of Tonsilar Infections. H. B. Harris, Dayton.—p. 235.
53 Mercury and Spinal Drainage in Treatment of Paresis. C. C. Kirk, Toledo.—p. 237.
54 Appendix. Résumé of Original Research. C. C. Waller, Warren.—p. 240.
55 Sydenham's Chorea with Special Reference to Treatment. C. F. Daniel, and G. L. Lambright, Tiffin.—p. 243.

Philippine Journal of Science, Manila

July, 1916, XI, Sec. B, No. 4

56 Relation Between Amount of Cholera Culture Injected into Gallbladder and State of Cholera Carriers in Experimental Animals. O. Schöbl, Manila.—p. 153.
57 Influence of Bile on Duration of State of Cholera Carriers in Experimental Animals. O. Schöbl, Manila.—p. 157.
58 Carbohydrate Fermentation by Bacillus Pestis, Comparing Certain American and Oriental Strains. H. W. Wade, Manila.—p. 159.

Southern Medical Journal, Birmingham, Ala.

April, X, No. 4

59 *Transmissibility of Pellagra—Experimental Attempts at Transmission to Human Subject. J. Goldberger, Washington, D. C.—p. 277.
60 *Pellagrous Intestine and Some of Its Parasites. K. M. Lynch, Charleston, S. C.—p. 286.
61 Is Average Physician Making Satisfactory Progress in Earlier Diagnosis of Pulmonary Tuberculosis? J. H. Way, Waynesville, N. C.—p. 291.
62 Cardiac Efficiency in Relation to Cardiovascular Renal Disease. J. S. McLester, Birmingham.—p. 295.
63 *Prognosis in Cardiovascular Renal Disease. G. Dock, St. Louis.—p. 298.
64 *Tuberculosis, Disease of Children. F. C. Moor, Tallahassee, Fla.—p. 300.
65 Plea and Plan for Eradication of Malaria. F. L. Hoffman, Newark, N. J.—p. 309.
66 Infantile Paralysis. W. A. Evans, Chicago.—p. 311.
67 Wassermann Test in Public Health Work. F. A. Coward, Columbia, S. C.—p. 320.
68 Cases of Gallstone, Goiter and Duodenal Ulcer. S. McGuire, Richmond, Va.—p. 324.
69 Hyperflexion (Jones) Treatment of Fractures of Elbow. D. Eve, Nashville, Tenn.—p. 327.
70 Bone Graft in Surgery. F. G. Hodgson, Atlanta, Ga.—p. 331.
71 Some Medicolegal Difficulties Met with by Railway Surgeon. J. L. Jelks, Memphis, Tenn.—p. 334.
72 Resuscitation of New-Born. R. W. Faulk, Monroe, La.—p. 337.

73 Cataract. E. C. Ellett, Memphis, Tenn.—p. 342.
74 Tonsil and Adenoid Clinic. M. M. Cullom, Nashville, Tenn.—p. 344.
75 Some Interesting Conditions Seen in Eye of Negro. C. W. Kollock, Charleston, S. C.—p. 345.
76 Modern Plague. T. W. Davis, Winston-Salem, N. C.—p. 350.
77 Hay Fever and Its Prevention in Southern States. W. Scheppegrell, New Orleans.—p. 356.

59. Abstracted in THE JOURNAL, Dec. 23, 1916, p. 1967.

60. **Pellagrous Intestine.**—In twenty-five cases examined by Lynch, the only organisms recognized constantly were small yeast cells and *Blastocystis enterocola. Trichomonas intestinalis* was found in fifteen cases and *Endameba coli* in twelve. The blastocystis, trichomonas and endameba were limited to the large intestine and were most numerous in the cecum. In one case scrapings from the inflamed mucosa of the cecum showed a large number of minute spirochetes within the cytoplasm of the epithelial cells. They were very small and active and practically filled many of the cells. They disappeared shortly on exposure and none was found in stained sections. This observation could never be repeated. *Blastocystis enterocola* has assumed a position of interest on account of its presence in these necropsies as well as its frequency in feces. In these necropsies it has occurred in large numbers in the inflamed portions, especially in the cecum, and has been found throughout the large intestine. It has appeared to be particularly active when the ulcer is present. A description of the parasite will be published later. While it is considered as having no pathogenic importance, it appears to be comparable to intestinal parasites such as endameba or trichomonas as an indicator of the prevalence of, and liability to, fecal contamination of the food or drink of an individual or community. No known pathogenic organism has been recognized as having any direct relationship to the "pellagrous intestine" in question.

63 and 64. Abstracted in THE JOURNAL, Dec. 23, 1916, pp. 1966 and 1967.

Texas State Journal of Medicine, Fort Worth

April, XII, No. 12

78 Outlook for Better Obstetric Practice. M. B. Stokes, Houston.—p. 456.
79 Diagnosis of Acute Osteomyelitis. W. B. Thorning, Houston.—p. 459.
80 Pyelitis in Women. C. H. Harris, Fort Worth.—p. 462.
81 Pyelitis in Children. C. R. Hannah, Dallas.—p. 465.
82 Functional Renal Diagnosis. G. T. Hall, Big Springs.—p. 466.
83 Ammonia and Acetone Content of Urine as Aids in Directing Treatment. H. L. Wilder, Clarendon.—p. 469.
84 Kidney; Its Relation to Life Insurance. G. C. Lechenger, Houston.—p. 471.
85 Significance of Albuminuria. C. H. Brooks, Waco.—p. 473.
86 Significance of Casts. P. C. Murphy, Waco.—p. 474.
87 Knocking One Another. W. D. Jones, Dallas.—p. 475.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

March, XXI, No. 10

1 Simple Methods of Jaw Roentgenography. H. A. Eccles.—p. 313.
2 History of Electrotherapy. H. A. Colwell.—p. 320.
3 Use of Repeated Roentgen Examinations for Observing Progress in Cases of Osteomyelitis. R. W. A. Salmond.—p. 327.

British Medical Journal, London

March 24, I, No. 2934

4 *Surgical Shock and Some Allied Conditions. Report of Medical Research Committee.—p. 381.
5 Medicine in Morocco. A. Tacquin.—p. 384.
6 Origin of Electric Currents Led Off from Human Body, Especially in Relation to Nerve Leaks. W. M. Bayliss.—p. 387.
7 Operative Treatment of Injury of Peripheral Nerves. J. R. White.—p. 388.
8 *Case of Enterospasm in which Portion of Intestine Involved was of Unusual Extent. C. H. Whiteford.—p. 392.
9 Practical Methods of Anesthesia. J. T. Gwathmey.—p. 393.

March 31, No. 2935

10 Infection of Hemothorax by Anaerobic Gas Producing Bacilli. T. R. Elliott and H. Henry.—p. 413.
11 Dysentery. T. J. C. Evans.—p. 418.
12 Two Cases of Heart Failure in Operating Room Treated by Heart Massage; Recovery. E. S. Molyneux.—p. 420.
13 *Relation of Peridental Gingivitis to Vincent's Angina. F. E. Taylor and W. H. McKinstry.—p. 421.
14 Abdominal Kneading in Treatment of Intestinal Stasis. J. S. Bolton.—p. 422.
15 Early Complications Resulting from Retained Bone Fragments in Case of Gunshot Wound of Head. We E. Tyndall.—p. 423.
16 Combined Suspension and Extension Apparatus for Compound Fractures about Hip. G. M. Hodges.—p. 423.

4. **Surgical Shock.**—The failure of injections of physiologic saline in fully developed shock is one of the phases discussed in this report. Experiments already made seem to indicate that better results might be obtained by the use of intravenous injections of hypertonic saline, the value of which in the treatment of cholera and bacillary dysentery is already familiar. Whether the action of these is entirely due to the passage of water into the vessels by osmosis, or in part to a restorative effect of the hypertonic solution on capillary tone, is not clear. Calcium ions have been found to have a specific action in reducing abnormal permeability of capillaries. It seems reasonable, therefore, to suggest that a fluid representing a concentrated Ringer solution should be used, rather than one in which only the proportion of sodium chlorid is increased. The following formula is suggested:

Sodium chlorid	2 gm.
Potassium chlorid	0.05 gm.
Calcium chlorid	0.05 gm.
Water	100 c.c.

8. **Enterospasm.**—Celiotomy in Whiteford's case demonstrated that the stomach was enormously distended by gas, measuring in its greatest circumference 14 inches, and that the duodenum was uniformly distended by gas (diameter 1¾ inches). The small intestine was traced downward for its whole length. The upper 3 feet of jejunum were distended by gas to the size of the duodenum. Three feet from the duodenum the jejunum became abruptly narrowed, being in a state of intense contraction. The next 3 feet of jejunum was uniformly contracted into a rugose, anemic cord half an inch in diameter. Below the spastic area the rest of the small intestine was normal, as was the large bowel.

13. **Peridental Gingivitis and Vincent's Angina.**—As the result of their investigations the authors suggest that when a patient complains of a sore throat which presents the characters of Vincent's angina it is essential to examine the tooth margins for evidence of peridental gingivitis or pyorrhea, and that smears be made from both sources for the detection of the causal organisms. When found to be present, the peridental gingivitis should be adequately treated as well as the Vincent's angina; otherwise the condition is likely to persist indefinitely and to cause repeated recurrence of the sore throat.

Dublin Journal of Medical Science

December, 1916, CXLII, No. 540

17 *Experiences of Renal Surgery. W. Taylor.—p. 361.
18 Allen Treatment of Diabetes. G. E. Nesbitt.—p. 379.

January, CXLIII, No. 541

19 Fractures and Fracture Dislocations. J. S. McArdle.—p. 1.
20 Vaccine Therapy in Treatment of Rheumatic Conditions. W. M. Crofton.—p. 4.
21 Hypnotism. C. P. Smyly.—p. 10.
22 Postmortem Findings in Two Cases of Hectic Fever. J. Moore.—p. 31.

17. **Experiences of Renal Surgery.**—Taylor has performed 138 operations on 128 patients. The operations consisted of 92 fixations, 26 total nephrectomies, 1 partial nephrectomy and 19 nephrotomies. Of the 19 nephrotomies, 5 were merely exploratory, and 14 were for the removal of calculi (in the case of one patient calculi were removed from both kidneys). There was one death. This death occurred in the case of a man whose left kidney was removed for hydronephrosis. There was nothing difficult about the operation. On the thirteenth day he was walking about. He died suddenly without warning. There were 92 fixations in 83 patients, 9 being double nephropexies. Of the 19 nephrotomies, performed on 18 patients, 14 were for the removal of calculi (in one patient calculi were removed from both kidneys), one was an exploration of the left kidney for very severe hemorrhage. The

remaining nephrotomies were undertaken in cases in which the most typical symptoms of stone were present, but the explorations were negative. Of the nephrectomies 26 were complete nephrectomies and one was partial. The latter was performed for the removal of a tumor which seemed to be growing from the lower pole of the left kidney. Of the 25 complete nephrectomies, 12 were performed for tuberculosis, 3 for hypernephroma, and 1 for a new growth, believed to be hypernephroma, but the nature of which was not definitely settled; 4 were performed for hydronephrosis, and 6 for extensive pyonephrosis.

Taylor is of the opinion that in cases in which movable kidney is unquestionably the cause of the symptoms complained of, or, when the mobility is leading to actual renal pathologic changes, active treatment is demanded, and nephropexy is undoubtedly preferable to the use of any mechanical apparatus. Calculi, once diagnosticated, should be removed by operation without delay, otherwise destruction of the kidney will inevitably occur sooner or later. Tuberculosis of the kidney is best treated by nephrectomy performed as soon as possible after the diagnosis has been effected, and if possible before secondary infections have occurred elsewhere. The prognosis of nephrectomy for hypernephroma, if performed before secondary deposits have occurred in other parts, is exceedingly favorable. Partial nephrectomy is an operation of very limited usefulness, but under certain conditions it is quite a safe and satisfactory procedure.

Glasgow Medical Journal

March, LXXXVII, No. 3

23 Popular Customs and Superstitions in Connection with Puberty and Obstetrics in Central Europe. G. B. Marshall.—p. 129.
24 Some Frightful Wounds of War. A. G. Faulds.—p. 144.
25 Residual Urine in Senile Bladder, with Special Reference to Conduct of Case so as to Postpone or Avoid Use of Catheter. D. Newman.—p. 153.

Journal of Laryngology, Rhinology and Otology, London

March, XXXII, No. 3

26 Unilateral Blindness, Associated with Cystic Distention of Maxillary Antrum of Same Side. G. H. Pooley and G. Wilkinson.—p. 81.
27 Lateral Sinus Disease; Infection of Meningeal Spaces; Recovery. A. Ryland.—p. 85.

Journal of Tropical Medicine and Hygiene, London

March 15, XX, No. 6

28 Clinical Features of Diseases Prevalent in Upper Nile and Sobat Pibor District. T. Lambie.—p. 61.

Lancet, London

March 24, I, No. 4882

29 Modern Aspects of Heart Disease. G. A. Sutherland.—p. 437.
30 Soldier's Heart. A. Abrahams.—p. 442.
31 *Important Principles in Drainage and Treatment of Wounds. W. Pearson.—p. 445.
32 *Influenza Epidemic of Spring, 1915; with Special Reference to Anomalous Throat Signs. A. G. Shera.—p. 450.
33 Nervous Factor in Relation to Ophthalmic Conditions. T. E. Harwood.—p. 452.
34 Calcified Fibroid Causing Complete Axial Rotation of Uterus. C. H. Roberts.—p. 454.
35 Calcified Adenoma of Thyroid. V. Pennell.—p. 454.
36 Obscure Case of Psoas Abscess. E. A. Constable.—p. 454.

March 31, No. 4883

37 Modern Aspects of Heart Disease. G. A. Sutherland.—p. 477.
38 *Experiences with Emetin Bismuth Iodid in Amebic Dysentery, Amebic Hepatitis, and General Amebiasis. G. C. Low.—p. 482.
39 Case of Psychasthenia with Criminal Impulses. W. N. East.—p. 486.
40 Excision of Retropharyngeal Gland; Report of Two Cases. N. Patterson.—p. 487.
41 Principles of Transfusion of Blood. A. E. Stansfeld.—p. 488.
42 Technic of Preparation of Culture Media Containing Albuminous Fluids. P. Fildes.—p. 492.
43 Case of Shell Wound of Heart Causing Complete Heart Block. C. E. Lea.—p. 493.
44 *Metabolism in Gout. W. Bain.—p. 494.

31. **Drainage and Treatment of Wounds.**—Efficient mechanical drainage in Pearson's opinion is the essential factor in the successful treatment of infection. He says that the cardinal principles governing drainage are: freedom of exit; gravity; capillary action. Drainage tubes should not be employed unnecessarily. They should effect the purposes for which they are used, and should not act injuriously in the wound. Dressings should not be tight, of close texture, or waterproof. They should be exposed to the air while discharge is profuse. Continuous irrigation aids disinfection by mechanical removal of discharge. It is usually not feasible when dealing with large numbers of cases. It is not necessary in order to obtain good results. Free administration of fluids to the patient is an important adjunct in the treatment of sepsis. The value of concentrated saline solutions and antiseptics as aids to disinfection is doubtful and negligible. The use of salines and antiseptics in no way diminishes the necessity for free mechanical drainage. Vaccines are not helpful in dealing with infections in wounds of war. Rest is an important factor in wound treatment and should never be neglected. Most of the complications and sequelae of infection are due primarily to inefficient mechanical drainage, and are therefore preventable. Delay in healing is almost invariably due to local mechanical causes.

32. **Influenza Epidemic and Anomalous Throat Signs.**—In no case examined with a typical influenza syndrome did Shera fail to find that the soft palate, uvula and posterior pharyngeal wall invariably showed some vesicles about the size of a pin's head, and nearly always accompanied by erythema; in fact, this throat syndrome was pathognomonic in this particular epidemic of influenza. Shera explains this by stating that the influenza toxin spreads centripetally along the sensory nerve tracts, expending itself on the first footholds, that is, pharyngeal mucosa and its substructures and then passes to the palatine nerves. The effect of the virus is inflammatory; on a mucous surface it causes a vesicular eruption ("vesicular neuritis"), while deeper down it causes similar inflammatory changes, giving rise to pain. The virus spreads far into the central nervous system, even poisoning the vagal or sympathetic nerves. Tachycardia and bradycardia are well known sequelae. The cerebrum shows the aftermath of influenza in a varied and sometimes to a sinister degree. The theory of centripetal diffusion of the toxin via the neurones seems borne out by the rarity of influenzal septicemia as compared with the frequency of neuralgia, etc., in influenza.

38. **Emetin Bismuth Iodid in Amebic Dysentery, etc.**—A study of a series of cases has convinced Low that emetin given by the mouth, as emetin bismuth iodid, is apparently as efficient as emetin by the needle in cases of amebiasis with liver involvement. These facts must mean that sufficient emetin is absorbed into the general circulation to act on the parasites in the liver, it being conceded, of course, that parasites are actually there when hepatitis, enlargement of the liver, and leukocytosis are present, the precursors of a definite abscess formation. The advantage of oral administration over hypodermic in such cases would seem to consist of the more potent sterilizing powers ultimately shown by the double iodid on the amebae in the bowel, thus removing a possible source of subsequent reinfection of the liver. Three grain doses every night for twelve consecutive nights (36 grains in all) is good treatment. Not less than 36 grains in all should be given, as smaller quantities are generally followed by relapse.

44. **Metabolism in Gout.**—Bain found that the excretion of calcium in the urine of patients with gout is lower than the accepted normal. However, the urinary content forms, as is usually the case, a small fraction of the total output, most of the calcium leaving the body via the fecal excrement. The effect of administering calcium chlorid in two cases of gout, kept on a fixed diet, was to cause a slight retention of nitrogen, but the phosphorus metabolism was practically unaffected. The effect on total calcium metabolism was not constant. In one case a small negative calcium balance was transformed into a small positive one; in the other the positive calcium balance was reduced. In both cases the urinary calcium was not affected. In the four cases observed by Bain the giving of calcium chlorid produced a marked fall in the uric acid output in the urine. This observation suggests that the administration of food rich in calcium should be restricted in cases of gout.

Medical Journal of Australia, Sydney

March 17, I, No. 11

45 Rise of Casualty Clearing Station. A. L. McLean.—p. 221.
46 Milk Curdling Properties of Pancreatic Juice. H. G. Chapman and A. H. Moseley.—p. 223. To be continued.
47 Intestinal Drainage in Septic Peritonitis. A. J. Nyulasy.—p. 226.

Archives Médicales Belges, Paris

February, LXX, No. 2, pp. 97-192

48 *Parenteral Injections of Peptone in Treatment of Infectious Diseases. (Des injections de peptone dans le traitement de la fièvre typhoïde et des autres états infectieux.) P. Nolf.—p. 97.
49 *Spirochete Jaundice. (47 cas de spirochétose ictéro-hémorrhagique.) L. Wilmaers and E. Renaux.—p. 115.
50 Roentgen Localization of Foreign Bodies. (La localisation des corps étrangers.) Henrard.—p. 135.
51 Present Status of Primary Suture of War Wounds. (La suture primitive des plaies de guerre.) R. Focquet.—p. 148.

48. **Parenteral Injection of Peptone in Treatment of Infectious Diseases.**—Nolf has been continuing during the war his study of parenteral injection of albumoses and peptones as a means of modifying the colloidal balance of the blood plasma, and thus transforming the clinical picture. Several years ago he called attention to the efficacy of this in treatment of a tendency to hemorrhages, whether from congenital hemophilia or insufficiency of the liver, severe infection or purpura. He also established that this same measure might check the tendency to paroxysmal hemoglobinuria. His war experience has further demonstrated the efficacy of parenteral injections of peptone in the treatment of typhoid, warding off intestinal hemorrhage from reduced coagulating power of the blood. In severe cases of typhoid, pinching, rubbing or pricking the skin may start small subcutaneous hemorrhages. These are the patients liable to develop intestinal hemorrhage. He uses 10 c.c. of a 5 per cent. solution of peptone, and makes the injection in the gluteal muscle, repeating it every day if there is much tendency to hemorrhage or every second day as a preventive. The advantages of peptone are that it is readily obtainable, can be sterilized at 120 C., and that the intensity of the reaction can be graduated by the dose.

Nolf also describes experiences with it in intravenous injection. When injected slowly, not more than 5 c.c. of a 10 per cent. solution per minute, there are few and briefly transient signs of a reaction, but they are intensified if the injection is made rapidly. The pulse is the guide here. An assistant counts the pulse aloud, and the inflow is retarded or arrested if the figure goes up above the preceding pulse rate. When there is fever, the temperature runs up by 2 or 4 degrees C. but soon drops, and the patient sweats, feels relieved and more inclined to sleep and there may be transient polyuria. Tympany also is favorably modified. He emphasizes that there is nothing specific about the peptone. Its effect is probably of the same nature as that from the colloidal metals, autoserotherapy or injection of any antigen. Distilled water might answer the same purpose. All these act probably by disturbing the balance of colloids in the blood plasma, and thus inducing a more or less violent reaction in the apparatus which regulate this balance. Hence the parenteral peptone injections might have a favorable influence on infections of all kinds, and his experience has confirmed this assumption in a few cases of scarlet fever, erysipelas, acute articular rheumatism and streptococcus septicemia.

49. **Icterohemorrhagic Spirochetosis.**—Wilmaers and Renaux say that there are certain clinical points of difference between this spirochete hemorrhagic jaundice and Weil's disease, and that no one to date has been able to cultivate a spirochete from Weil's disease at all like that of the Inada-Ido spirochetosis. The latter was first noticed in Belgium in August, 1916, at the Bourbourg hospital to which all the jaundice cases are referred. Before this all the cases had been simple catarrhal jaundice, but in August they began to come in very severe, and by January, there had been forty-seven of this spirochetosis type, confirmed bacteriologically in thirty-one, out of a total of 253 cases of jaundice. The onset is sudden and stormy, but only about 50 per cent. of the patients displayed the hemorrhagic tendency. In two of the fatal cases there was rebellious epistaxis. The early and practically constant presence of urobilin in the urine testifies to the damage to the liver, while albuminuria and kidney cells in the urine and the scanty amount indicate serious impairment of the kidneys. In fact, they remark, a better name for the disease would be hepatonephritic jaundice. Prostration and headache are pronounced and convalescence is long, with much anemia, even in the milder cases. The jaundice develops by the second to fourth day and has a peculiar cachectic tint. The fever curve is characteristic: 39 or 40 C. by the first or second day, keeping there for two or three days, with slight morning remissions, dropping by lysis, and becoming normal by the seventh to ninth day. After a few days of apyrexia the fever may return and show the same curve but less intense and less regular. On account of the evident injury of the liver and kidneys, they never ventured to use salvarsan or its substitutes, and quinin never seemed to benefit. Sodium salicylate and sodium sulphate, milk diet and epinephrin to combat the low blood pressure, were the main reliance for symptomatic treatment, with tonics later.

Bulletin de l'Académie de Médecine, Paris

March 6, LXXVII, No. 10, pp. 307-344

52 *The Antitoxic Action of the Thyroid in Uremia. Rémond and Minvielle.—p. 334.
53 Bullet Removed from Heart after Three Months; Recovery. (Plaie du cœur par balle restée fixée dans l'épaisseur du ventricule gauche. Absence presque complète de réaction cardiaque. Intervention opératoire trois mois après. Guérison.) H. Gaudier.—p. 339.

March 20, No. 12, pp. 375-408

54 A Family with Inherited Syphilis; Five of Eight Children Require Appendicectomy. Gaucher.—p. 387.
55 Solutions of Zinc Chlorid for Painless Injection. P. Carles.—p. 391.
56 *Immediate Exercise as Principle for Treatment of War Wounds of Joints. (Mobilisation active immédiate pour les plaies de guerre, du genou et du coude.) C. Willems.—p. 394.
57 Experimental Generalized Vaccinia. L. Camus.—p. 402.
58 Preparations of Strophanthus in Treatment of Cardiac Insufficiency. (L'ouabaine cristallisée d'Arnaud dans le traitement de l'insuffisance cardiaque.) Vaquez and Lutembacher.—p. 405.

52. **Antitoxic Function of the Thyroid.**—Rémond and Minvielle report here further experimental research to determine the part played by the thyroid in uremia. The findings demonstrate that the thyroid has unquestionably some influence on the clinical picture in case of uremia, either by neutralization of toxins, or it may stimulate the functioning of the suprarenals, or it may have an inhibiting action on some secretion antagonistic to that of the suprarenals. Four recently thyroidectomized animals showed marked suprarenal insufficiency, but they also presented inflammatory lesions in the kidneys. From these data they conclude that the thyroid has a toxin-destroying function, and that the loss of this function after removal of the thyroid allows these toxins to accumulate in the blood and damage both the kidneys and the suprarenals. The clinical picture of uremia was notably aggravated by removal of the thyroid with consequent loss of its antitoxic action.

56. **Exercise from the First for Wounds of Knee or Elbow.**—Willems has been preaching since 1909 the advantages of treating extravasation of blood in the knee by puncture, followed at once by the physiologic use of the knee. He now announces that his experience in industrial accidents and in these years of war has amply convinced him that systematic immobilization is contrary to physiology and should be definitely discarded. The joint will not become stiff and the muscles will not atrophy if the active joint movements are kept up. Exercising the joint in bed is not enough; it must have its physiologic play, as in walking. Exercising the joint is not painful, he says, even when there are lesions of the bones, on condition that the parts do not become displaced; in this case there is liable to be intense pain. There is no functional impotence at first unless the joint is distended with an effusion. Later it may develop from atrophy of the muscles. Far from irritating the wounded articulation, these movements promote absorption of effusions and infiltration, owing to the kind of internal massage which they induce. When the joint is widely opened every movement forces out pus, and the synovial membrane thus empties itself much more effectually than with the most perfect drainage. More than this, movements are the best of all means to ensure the reabsorption of the exudation around the joint, the invariable accompaniment

of every arthritis. He insists that every recent wound of a knee or elbow should be treated by excision of the path of the projectile (*excision du trajet*), removal of foreign bodies and sequesters, and the wound then be completely closed. Active movements should be commenced on the spot, and be pushed to the maximum of the excursions and repeated without let-up except in case of such severe injury of the bones that their displacement is to be feared. If suppuration ensues, the suture will have to be cut, the arthrotomy completed as required and the active movements resumed. With fracture this principle cannot be applied. A fracture with tendency to displacement has to be treated like any fracture.

The patients have to be forced to exercise at first, but when they find that it does not hurt them, they keep it up voluntarily. After two or three weeks the movements may be hampered by swelling of the epiphyses and retraction of the soft parts. During this temporary stage, it may be well to have supplementary passive exercises. If sudden inability to use the joint develops, there is probably extravasation of blood. This can be evacuated between two suture stitches, and all becomes smooth again. Exercise is even more important for the elbow than for the knee, as it is impossible to drain it effectually otherwise. Tubes cannot be used for the elbow. If the joint becomes infected the suture must be cut, arthrotomy prolonged if necessary and made bilateral, leaving everything open and continuing the movements.

Lyon Médical

March, CXXVI, No. 3, pp. 109-156

59 *Share of Proteins in Production of Diabetes and of Diabetic Coma. (Du rôle des matières protéiques dans le diabète.) R. Pauly and R. Boulud.—p. 118.

60 Later Roentgenography for the Wounded. (Radiographie tardive des projectiles chez les blessés de guerre.) Japiot.—p. 124.

59. **Share of Proteins in Production of Diabetes and of Coma.**—Pauly and Boulud are not convinced that the coma of diabetes is due exclusively to the presence of the acetone bodies and acidosis. In certain cases, at least, their rôle may be accessory and some other explanation must be sought for the coma. They report in detail a case which sustains this point of view. A young woman died in diabetic coma but during the three months she was under observation, although the sugar content of the urine was high, there was only 14 gm. of urea at first and then 9.5 gm. in twenty-four hours, although the food abounded in nitrogenous substances. The urine was only slightly acid, from 2 to 3.5 gm. and the ammonia content only 0.21 to 0.84; the normal figure is about 0.75. The azoturic coefficient ranged from 92 to 87 in the urine, and in the blood was at first 74 and later only 60. Although the diet was as free from carbohydrates as possible, yet the daily output of sugar kept at 180. They suggest that this sugar must have been formed from protein substances. This would explain the low proportions of them in the urine as such large amounts had been converted into sugar. The patient had shown barely traces of acetone in the urine and this only on two occasions, and the Gehrhardt reaction was never positive. The coma in this case seems to have been the work not of the acetone bodies but of the peptids resulting from defective metabolism of albuminoid substances.

Paris Médical

March 3, VII, No. 9, pp. 169-196

61 *Participation of Liver in Malarial Symptoms. (Les bilieuses paludéennes.) P. Carnot.—p. 169.

62 *Infectious Jaundice. (La spirochétose ictérigène.) M. Garnier and J. Reilly.—p. 176.

63 *Uremia in Infectious Jaundice. (L'azotémie dans les ictères infectieux bénins.) P. Merklen and C. Lioust.—p. 184.

64 Dropsy in Course of Infectious Jaundice. (Anasarque généralisée au décours d'un ictère infectieux.) R. Voisin.—p. 189.

65 Jaundice in Course of Neosalvarsan Treatment; Two Cases. B. Milian.—p. 191.

66 *The Rat as Reserve Focus of Infection for Infectious Jaundice. (Le rat réservoir de virus pour la spirochétose ictéro-hëmorragique.) P. Cornet.—p. 193.

61. **Malarial Jaundice.**—This entire number of the *Paris Médical* is devoted to disease of the liver. Carnot discusses jaundice for which malaria is responsible, from the participation of the liver in ordinary forms of malaria to intermittent and remittent, hemorrhagic and hemoglobinuric bilious fever. The simultaneous attack by the malarial parasites on the blood, the vessels, the spleen, the liver and the kidneys readily explains the peculiar and grave character of malarial jaundice, and the hemorrhages in hemoglobinuria liable to accompany the jaundice.

62. **Spirochete Jaundice.**—Garnier and Reilly remark that the first case of spirochete infectious jaundice known in France was published last October, but numbers have been encountered since. The diagnosis is based on results of inoculation of guinea-pigs with blood or urine from the sick, the detection of the spirochete in the urine, and the passive immunity conferred on the guinea-pig by serum from convalescents. The spirochetes are easily seen in the urine when 10 c.c. are centrifuged and a droplet of the sediment is mixed with India ink. Or a droplet of a 2 per cent. solution of Congo red can be used to mix with a droplet of the centrifuged urine. When the smear is dry, a few drops of a 1 per cent. alcoholic solution of hydrochloric acid are dropped on it. This shows up the spirochetes white on a blue background. They have a wavy outline, the ends forming a hook. Convalescent serum usually, but not always, confers passive immunity. The usual type of this "icterogenous spirochetosis," as they call it, is that of more or less grave infectious jaundice with febrile relapses. In the grave form with jaundice and nervous phenomena, there is more or less anuria, but coagulation of the blood is only slightly retarded. Necropsy shows the liver comparatively intact. The kidneys seem to bear the brunt of the attack. In cases of severe jaundice with acute degeneration of the liver, some primal cause other than this spirochete seems to be responsible for the latter.

63. **Uremia in Infectious Jaundice.**—Merklen and Lioust state that the azotemia with bénign infectious jaundice is of the type of acute hepatic azotemia. The danger is not from the large proportion of urea in the blood but from its long continuance. A transient, even high uremia does no harm, comparatively speaking, if the urea is promptly eliminated. If the kidneys are sound, the torchlight may flare up, but the uremia does not start a conflagration. By keeping watch of the uremia we can tell whether the jaundice is mild or tends to the grave type.

66. **Rats as Sources of Infection for Spirochete Jaundice.**—The finding of spirochetes in rats in the trenches and at Lyons has already been mentioned in these columns, abstract 61, p. 1219. The same data are republished here, and it is mentioned that the persons inclined to develop infectious jaundice are usually butchers, sewermen and others whose occupation or unusual circumstances, such as trench warfare, bring them in contact with rats. The statement is also made that during the course of the War of Secession, 70,000 men developed infectious jaundice, that is, 2.5 per cent. of the total forces engaged.

Presse Médicale, Paris

February 19, XXV, No. 11, pp. 97-112

67 *Pleurisy in the Interlobar Fissures in the Tuberculous. (Synthèse clinique des interlobites chez les tuberculeux.) C. Sabourin.—p. 97.

68 Presence of Spores of Anaerobic Bacteria in Military Uniforms in Belgium. J. P. Simonds.—p. 100.

69 Association of Bacillus Perfringens and Bacillus Edematis in Case of Gas Gangrene. G. V. Legros.—p. 101.

70 *Inguinal Herniotomy. Jayle.—p. 103.

February 22, No. 12, pp. 113-120

71 *Varieties and Evolution of Shell Shock. (Troubles nerveux et psychiques d'origine commotionnelle pendant la guerre.) H. Aimé.—p. 113.

72 Identification of Ameba Cysts. (Identification des kystes des entamibes intestinales de l'homme.) C. Mathis and L. Mercier.—p. 114.

March 1, No. 13, pp. 121-128

73 *Clinical Study and Prosthesis for Pseudarthrosis of the Humerus. Ducrocquet.—p. 121.

74 *Cirrhosis of the Liver plus Psychosis and Polyneuritis. V. Donnet.—p. 124.

67. **Pleurisy Affecting the Fissures.**—Sabourin here describes the complete clinical picture of what he calls the interlobitis of the tuberculous. It often lacks some of the symptoms we are accustomed to find with pleurisy, so that the diagnosis

is usually retrospective. When on the left side, it may leave adhesions liable to seriously hamper the heart action. He comments particularly on the form he calls "shirt-stud pleuritis," saying that in the majority of cases of interlobitis, the inflammation and the serous effusion in the fissure may have a beneficial influence on the primary tuberculous focus. It may act by revulsion or it may be that every crisis of activity by bacilli is able to enhance the immunity processes in the organism, and the pre-existing bacillary focus in the lung may profit by this.

70. **Simplified Technic for Inguinal Radical Herniotomy.**—Jayle does not use catgut but silk for reconstructing the wall, making a figure 8 suture with it, as he describes in detail. The operation is complete in from ten to twelve minutes or, with surgical assistance, in six minutes.

71. **Treatment of Shell Shock.**—Aimé explains that treatment must vary with the conditions in each case. When the traumatic psychoneurosis is manifested mainly by asthenia, he gives epinephrin and strychnin in large doses, even when the internal ear seems to be affected. Dieting, hydrotherapy and baths had a beneficial influence in the confusional cases, with complete abstention from sedative medication. In the mutism cases, after expectant study of the case, he overcomes the mutism by inhalation and injection of ether. These psychoneuroses affect mainly the internal ear or they may be of the medulla-sympathetic type or a psycho-confusional type. The shell shock seems to release toxic elements from a previously damaged organ, the liver, kidneys or intestines and these toxic elements may act on the brain. It is difficult in such cases to decide which of the symptoms are due to the concussion and which to the damaged organ. The asthenia so often noted with shell shock is evidently due to the sudden suppression of suprarenal functioning from the inhibiting influence of the sympathetic nervous system, as manifested otherwise in mydriasis, etc., in the *choqués*. He remarks that the *torpilles* or *minenwerfer* are dreaded most by the soldiers as they approach noiselessly while the shock of the explosion is felt on a radius of at least 50 meters.

73. **Pseudarthrosis of the Humerus.**—Ducroquet's profusely illustrated article describes the pseudarthrosis above and below the deltoid, and protheses for both. By the use of the devices described, the arm gradually regains as much of its functions as is possible.

74. **Cirrhosis and Psychopolyneuritis.**—Donnet reports in detail a case of the syndrome characterized by cirrhosis of the liver of alcoholic origin, a psychosis and polyneuritis, comparing it with similar cases on record. The patients usually succumb before long to intercurrent pneumonia, meningitis, cachexia or coma, but a few instances of recovery are known in men. The outlook seems to be less favorable for women. In his case the affection developed in two phases: first the chronic alcoholism and the gradually developing motor and sensory nervous symptoms. This phase lasted several years. The stomach and liver seemed to be functioning satisfactorily except for the small appetite and the hypertension in the portal system. The second phase proved fatal in two months, mental confusion and hallucinations developing, parallel with liver symptoms, insufficiency of the liver, jaundice and tachycardia, the pulse over 100 while the temperature kept normal.

Progrès Médical, Paris

March 17, XXXII, No. 11, pp. 85-92

75 *Why Suppurating Otitis Media Becomes Chronic. H. Bourgeois.—p. 85.
76 Primary Resection of the Elbow. (Resection primitive du coude en chirurgie de guerre.) A. Aimes.—p. 87.

March 24, No. 12, pp. 93-100

77 *Iodoform Spray Treatment of War Wounds. (La methode Mencière en chirurgie de guerre.) Braquehaye.—p. 93.
78 Case of Tardy Hemorrhage in Internal Ear after Shell Shock. H. Bourgeois.—p. 94.
79 *Thyroid Treatment of Neuroses. (Névroses et opothérapie.) J. Blanc.—p. 95.

75. **Why Acute Otitis Media Becomes Chronic.**—Bourgeois remarks that now, in more cases than ever before, acute otitis media is passing into a tenacious chronic phase, and he ascribes this in many instances to the lack of prompt and efficient treatment under war conditions. It is beyond our power to modify a bad general condition in time to affect otitis media, or to attenuate the virulence of peculiarly vicious germs, or prevent destructive lesions and immediate infection after wounds of the ear. But much can be done by early paracentesis, supervision of the efficiency of our drainage, aseptic dressings, and trephining in time. With these measures it is possible to control nearly all cases of otitis media, and an aseptic dressing will ward off further damage, so that the trauma of the tympanum may heal. Any general debility, adenoids, focus of osteitis, and secondary infection are potent factors in the chronicity. He expatiates further on the advantages of surgical incision rather than allowing the lesion to progress to spontaneous perforation of the membrane.

77. **Iodoform Mixture Spray in Treatment of War Wounds.**—Braquehaye states that in all his experience with the wounded he has never seen wounds heal so fast or so perfectly as under the Mencière treatment. (It was described in these columns, April 28, 1917, p. 1294.) It allows longer intervals between changing the dressings and thus enables more wounded to be treated in a given time. No special skill is required for its application, and so little of the fluid is used that the method is inexpensive, while, last but not least, the odor of the balsam is agreeable and refreshing. Others advocate this method also as being absolutely indispensable on the firing line during offensive fighting.

79. **Thyroid-Parathyroid Treatment of War Neuroses.**—Blanc comments on the remarkable frequency of abnormal thyroid functioning in the men on active service. He recalls that the thyroid is peculiarly susceptible to emotional stress, overfatigue and defective hygiene, which readily explains why so many of the troops present evidences of abnormal thyroid and parathyroid functioning. He has found the oculocardiac reflex a good index of conditions. With these functional disturbances of the nervous system this reflex is usually exaggerated, indicating vagotony. Under thyroid or parathyroid treatment or both, this reflex disappears or becomes inverted as recovery progresses.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 24, XLVII, No. 12, pp. 353-384

80 *Research on the Physiology of the Anterior and Posterior Central Convolution and the Parietal Convolutions. (Zur Physiologie der vorderen und hinteren Zentralwindung und der Parietalwindungen.) M. Minkowski.—p. 353.

80. **Physiology of the Anterior and Posterior Central Convolution of the Brain.**—Minkowski is assistant at the Institute for Anatomy of the Brain at Zurich of which von Monakow is director. He here describes with four illustrations research on monkeys the results of which, among other things, confirm von Monakow's statements (1914) in regard to the localization and organization of movements and sensibility in the cortex. Minkowski emphasizes the essential difference between the effects of removal of the anterior and of the posterior central convolution. The initial symptom after resection of the anterior central convolution was a crossed hemiplegia which gradually became transformed into a permanent hemiparesis. There was no paresis nor contracture after resection of the posterior central convolution, but merely crossed disturbances in sensation, and some persisted permanently. It is evident from these and other findings reported that the anterior central convolution is the area for the isolated finer kinds of movements as well as for locomotion. The adaptation of movements to the individual conditions is represented best in the anterior central convolution. The area mapped out by Munk for the movements of the extremities does not extend far enough.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 18, XXXVIII, No. 14, pp. 209-224

81 *Acute Cerebrospinal Meningitis. E. Belliboni.—p. 211.
82 *Iron Goggles for the Firing Line. (La protezione degli occhi nella linea di fuoco, come si pratica nell-esercito nemico.) T. Di Giuseppe.—p. 213.

February 22, No. 15, pp. 225-240

83 Fracture of the Astragalus with Detachment of Outer Edge; Two Cases. (Frattura di Shepherd.) E. Greggio.—p. 228.

84 Abdominal Wounds in War. G. Campora.—p. 230.

February 25, No. 16, pp. 241-256

85 Neuroses in Soldiers on Active Service. (Simulazione e nevrosi nella pratica castrense.) A. Salmon.—p. 241.

81. **Epidemic Meningitis.**—Belliboni remarks that enlargement of the spleen is an aid in differentiating epidemic from tuberculous meningitis, also the lack of harmony between the temperature, pulse and respiration. The stiffness of the vertebrae, the premastoid and Kernig signs, ocular phenomena and disturbances in sensibility depend on the region of the nervous system first involved. A catarrhal condition in the nasopharynx also aids in differentiation. He describes six cases, with the death of one of the three children, and extols the efficacy of intramuscular injections of antimeningococcus serum. It should be supplemented by disinfection of the nasopharynx.

82. **Goggles for the Firing Line.**—The iron goggles illustrated have slits, transverse and slanting, which permit ample vision. A circular piece of woolen goods is fastened around the part that serves as the lens. This absorbs sweat dripping from the forehead. The goggles protect against the sun and against small flying particles of shells, while the slits have the effect of rendering vision more acute.

Policlinico, Rome

March 11, XXIV, No. 11, pp. 337-368

86 *Bacteriologic Findings in Insane Pellagrins. (Ricerche batteriologiche sulle psicosi pellagrose.) G. Tizzoni.—p. 337.
87 Portable Device for Extension of Fractured Humerus. (Nuovo apparecchio ad estensione per fratture dell'omero.) G. Pierucci.—p. 339.
88 Organization of Field Hospitals. (Ancora a proposito dei servizi sanitari campali.) G. Mendes.—p. 341.

March 18, No. 12, pp. 369-404

89 *Pale Spirochetes Coiled Around Central Cylinder. (Nuovi reperti nel ciclo di sviluppo della spirochaeta pallida, e loro rapporto colla patogenesi della metalues.) E. Ciarla.—p. 369.
90 *Asepsis in Treatment of Infected Wounds in War. (Sul trattamento delle ferite settiche.) G. B. Stretti.—p. 372.
91 Palpitation of the Heart in Soldiers. (Il cardiopalmo nei soldati.) G. Galli.—p. 378.
92 Treatment of Stiffness of the Joints after War Wounds. (Delle anchilosi e rigidita articolari nei postumi traumatici di guerra.) T. C. Ippoliti.—p. 381.

86. **Bacteriologic Findings in Insane Pellagrins.**—Tizzoni declares that the germ he has described as the specific agent of pellagra was found present in the blood of all the numerous insane pellagrins examined at the Mombello Asylum. The findings were positive in all without exception, as also in a case of pellagrous skin lesions. In this case the germ was cultivated from the cerebrospinal fluid and spleen and from the scales from the skin lesions. He states that the germ passes through three phases in its cycle of evolution, first a bacillus, then a streptococcus and finally a staphylococcus, changing from one phase to the other in irregular fashion. The positive findings in the blood may continue through years, even in the mild forms of pellagra or intermissions, when the patients seem to be quite free from manifestations of the disease. The passage from one phase to another corresponds with some change in the manifestations of the disease. The streptococcus phase seems to be the most toxic, the staphylococcus phase next. The lack of any appreciable toxic action on the nervous system from the bacillary type of the germ is confirmed by its lack of coagulating and fermentative properties. Tizzoni is professor of general pathology at the University of Bologna and member of the Italian Academy of Sciences. He does not give any further details of the pellagra germ in this communication. He has been studying it since early in 1915.

89. **The Cycle of Development of the Spirochaeta Pallida.**—Ciarla has been studying for three years various phases of the development of the pale spirochete, and here relates that he has discovered a means to show phases of its development other than those hitherto described. In this preliminary communication he does not give the details of his technic, but presents a number of illustrations of these various phases. Some of them represent large spirochetes found in the organs of syphilitic fetuses. The spirals of the spirochete are extremely regular and form a comparatively stiff, straight coil as the spirals are wound around a central cylinder, a kind of membrane, forming a hollow tube. This central cylinder has also terminal coils or balls, suggesting terminal germinal buds. Some of the spirochetes terminate in a kind of rosette, like petals. This latter type was found only in the spinal ganglia of a tabetic. He thinks it possible that these rosettes are a spore phase of development of the spirochetes, which occurs only in tabes and progressive paralysis, explaining their peculiarly tenacious character.

90. **Asepsis in Treatment of Infected Wounds.**—The Journal described, Oct. 7, 1916, Ruggi's principles for treatment of war wounds, clearing out, ample drainage and then leaving the rest to Nature. Constant surveillance is indispensable, ready at any moment to reenforce the natural processes if they show signs of being unable to cope with the infection, as evidenced by pain, hemorrhage and rising temperature. His plea is that even the slightest displacement of any of the tissues in the wound permits germs to proliferate in the intervening spaces. The part must be strictly immobilized and the dressings changed only when absolutely necessary. The arguments for this method of treatment are presented anew by Stretti, assistant at the university surgical clinic at Bologna, of which Ruggi is chief. He calls attention to the excellent results obtained there with the Ruggi technic and replies to some theoretical objections made recently by Silvestrini. The wounded do not reach Bologna until several days after their first dressing, and the wound once cleared out, drained, dressed, and the limb immobilized, it is left unmolested sometimes up to eighteen days or even more. No statistics or further details of the technic are given.

Riforma Medica, Naples

February 17, XXXIII, No. 7, pp. 169-196

93 *Epilepsy from Nicotine Poisoning. (Sulla epilessia tabacica.) E. Tedeschi.—p. 169.
94 Gas Gangrene. C. Oliva.—p. 172. To be continued.
95 Treatment of War Wounds of the Lungs. E. Morelli.—p. 180. Commenced in No. 6, p. 146.
96 Epidemic Spirochete Jaundice. U. Gabbi.—p. 183. Commenced in No. 6, p. 155.

February 24, No. 8, pp. 197-224

97 Vaccine Therapy of Malta or Undulant Fever. (Contributo alla vaccinoterapia della febbre mediterranea.) C. Vallardi.—p. 197.
98 *Paralysis of the Diaphragm. (L'emiplegia diaframmatica nella patologia del mediastino.) A. Ferrannini.—p. 208.
99 Present Status of Ascending Traumatic Neuritis. L. Ferrannini.—p. 211.

93. **Tobacco Epilepsy.**—Tedeschi's first patient was a man of 32 presumably healthy until three years ago when he had a seizure resembling an epileptic seizure, and, after a few days' interval, a few more. He was in the habit of smoking sixty or seventy cigarettes a day but did not drink and had no history of venereal disease. On suspension of smoking he had no further attacks for two or three years. Believing himself cured, he began to smoke again, when suddenly, on the street, he had a severe and complete epileptic seizure, with loss of consciousness and biting the tongue. One of his mother's sisters was an epileptic. In a second case the man of 29 did not smoke, but chewed tobacco almost constantly. He developed typical epileptic seizures but had no more after giving up the use of tobacco. Tedeschi's investigation of the female workers in a large tobacco factory resulted in the discovery of three that had had epileptic seizures during work hours. Any such tendency outside of work hours would be concealed for fear of being dismissed. The three known cases were in women of 20, 36 and 35. The last mentioned had been a cigarmaker for seventeen years. She seemed otherwise healthy except for occasionally irregular and scanty menstruation, and had no seizures when she quit work for a year, but they returned then in a very severe form on resuming her work. There was no family history of epilepsy in this case. Tedeschi remarks that in all the known similar cases on record the age was between 20 and 36. Experimental research has confirmed that tobacco may induce a tendency to convulsions in animals. A number of research workers have recently reported cellular changes in the cortex of rabbits and guinea-pigs long submitted to slow tobacco intoxication. Peri reported in 1906 that workers on tobacco die

mostly from lesions in the circulatory system, especially from changes in the cerebral arteries. All these data sustain the assumption that tobacco is able to induce actual epilepsy in certain rare cases, even in the absence of a special predisposition.

98. **Paralysis of the Diaphragm.**—Ayerza called attention to the clinical picture resulting from paralysis of one half of the diaphragm. The paralysis of the phrenic nerve may be of diphtheric origin, or there may be atrophy of the diaphragm muscle from lesions in the central nervous system, from tuberculous mediastinal glands, sarcoma or aneurysm of the aorta. Roentgen examination will differentiate this diaphragm hemiplegia from echinococcus disease of the liver, as Ferrannini explains with a roentgenogram. The paralyzed diaphragm slants smoothly upward toward the outside, while with echinococcus disease in the liver the diaphragm is liable to bulge in the center. The paralysis may show phases of improvement and aggravation, as the unilateral lesion of the phrenic nerve varies in intensity.

Siglo Medico, Madrid

March 10, LXIV, No. 3300, pp. 145-164

100 *Substances in Urine, besides Glucose, that Give a Positive Response to Fehling's Test. (Sacarurias.) A. Pi Suñer.—p. 146.
101 Portable Apparatus for Electrotherapeutics. Petit (Barcelona). —p. 150.

March 17, No. 3301, pp. 165-184

102 *Preventive Treatment of Rabies. (6,000 casos de tratamiento profilactico de la rabia.) F. Murillo.—p. 166.

100. **Sugars Other than Glucose in the Urine.**—Pi Suñer is professor of physiology at Barcelona, and he discusses here the different *sacarurias,* as he calls them. He classifies them in three groups, those accompanying diabetes, the alimentary types, and the essential. Almost all types of sugars and pseudosugars can be encountered with diabetes, but they do not seem to modify the symptoms or treatment. The sugars found in essential sacarurias are maltose, lactose, pentose and pseudolevulose or isoglucuronic acid. The latter seems to be most abundant on a meat diet, and hence reduction of meat is called for. When this pseudolevulosuria accompanies diabetes, it may be wise to alternate periods of dieting directed first to one form of sugar and then the other.

102. **Rabies in Spain.**—Murillo reviews the 6,000 cases in which preventive treatment for rabies was given at the Instituto Nacional de Higiene at Madrid since 1901. Of the total 6,000, 3,162 were men and 1,140 children; 32 were physicians and 45 veterinarians—cases of laboratory or necropsy inoculations. There were 24 deaths among the 6,000 cases, but 10 occurred before the treatment had had a chance to prove its efficacy, leaving 14 in which the treatment proved a failure either because too long an interval had elapsed or because for some reason the organism was unable to generate sufficient antibodies. The mortality was thus 0.23 per cent. Of the total 6,000 patients 2,000 had been bitten at Madrid, showing that the ordinances against dogs are not enforced. The lesions in the total 6,000 were from cats in 422 cases, mules and asses 83, cows 131, horses 4 and dogs 5,412. Other animals mentioned are rats, deer, goats, monkeys, rabbits, wolves, foxes and ferrets. The different months averaged about the same, with a slight preponderance of April, May, June and July.

Russkiy Vrach, Petrograd

1916, XV, No. 51, pp. 1201-1224

103 The Scientific Work of N. O. Ziber-Sumova. M. D. Ilin.—p. 1201.
104 Exogenous Uric Acid in Urine as Differentiating Sign of Gout. (Ekzogennaya mochevaya kislota kak rasposnav. priznak podagri. Liechenie podagri atophanom.) G. Y. Yavein.—p. 1203.
105 War Wounds of Vessels. N. A. Dobrovolskaya.—p. 1210. Continuation.
106 *Scurvy at Petrograd. 500 Cases. (Nabliudeniya nad tsingoiu v Petrograd v 1916 godu.) A. A. Nechaeff.—p. 1216.

No. 52, pp. 1225-1232

107 Wounds of Vessels and Traumatic Aneurysms. (K ucheniyu o ranenii sosudov i o traum. aneurizmakh.) N. A. Dobrovolskaya. —p. 1225. Conclusion.

106. **Scurvy at Petrograd.**—Nechaeff's figures show that each year since 1894 till 1915 there have been from 13 to 275 cases of scurvy admitted to the Obukhovskoi Hospital. The smallest number was in 1914 and the largest in 1900. In 1916 an actual epidemic developed, 500 cases being treated there, nearly all in the months of May and June. This predominance of May and June, with the month before, was noticed also through all the preceding years. About 7 per cent. of the 500 scurvy cases terminated fatally. Nechaeff states that the quality of the food supply in Petrograd during 1916 was below the usual standard, and extensive use was made of frozen meat. He discusses from the etiologic point of view various features of the epidemic, his conclusions being that the epidemic of scurvy at Petrograd is traceable to the extensive use of frozen meat or of defective or spoiled potatoes or both. The patients had not been getting the proper proportions of vitamins. The freezing may have destroyed those in the meat. He rejects the theory that scurvy is due to chronic poisoning from the products of decomposition. It is more probably a vitamin deficiency disease.

Hospitalstidende, Copenhagen

February 28, LX, No. 9, pp. 197-220

108 Experimental Basis for Optochin Treatment. O. Thomsen.—p. 197.
109 *Present Status of Oculocardiac Reflex. (Øje-Hjærtereflexen: Réflexe oculo-cardiaque; Dagnini's Reflex.) V. C. E. Petersen. —p. 206.

March 7, No. 10, pp. 221-248

110 Optochin in Treatment of Pneumonia. (Optochinbehandling.) F. Vermehren.—p. 221.

109. **Present Status of Oculocardiac Reflex.**—Petersen summarizes the literature on this subject since Dagnini in 1908 called attention to the change in the pulse on compression of the eyeballs. He cites reports of the exaggeration of the reflex in epileptics, the increase greater the more frequent the seizures. Bromids attenuate it. The reflex seems to be lost very early in tabes, and this might aid in early differentiation. Gautrel found an inverse reaction in certain tabetics. In short, Petersen concludes, this reflex deserves great attention both from the medical and the neurologic point of view, especially as it is so simple and easy to elicit. He gives the pulse chart of a man of 22, a teacher, who complained of occasional attacks of arrhythmia, but the objective findings were all apparently normal. On compression of the eyeballs, bradycardia developed, and when the pressure was released there were presystoles. The patient said that the sensations during his attacks were like this presystole stage. In repose the pulse showed merely slight respiratory arrhythmia. The presystoles of nervous origin—in contrast to those resulting from myocardium disease—occur or are increased during the first phase of compression of the eyes, but stop when the pressure is removed. They can thus serve to differentiate between nervous and cardiac presystoles. Lian has proposed to utilize this pressure on the eyeballs reflex as a means to arrest paroxysmal tachycardia. Pressure on the eyeballs seems to be the most potent means at our command to influence the vagus and thus indirectly control heart action. It has proved more effectual for this in Petersen's hands than compression of the nerves in the neck.

Ugeskrift for Læger, Copenhagen

February 8, LXXIX, No. 6, pp. 225-250

111 Peptic Ulcers. (Et Par sjældne Ulcerationer i Fordøjelseskanalen.) E. Meulengracht.—p. 225.
112 Present Status of Urochromogen Reaction. C. Schwensen.—p. 231.
113 Technic for Reduction of Dislocation of Humerus. (Bidrag til Repositionstekniken ved Luxatio humeri subcoracoidea.) G. V. T. Borries.—p. 235.
114 Technic for Extraction of Teeth by Nonspecialist. (Et lille Bidrag til Tandextraktionens Teknik.) G. V. T. Borries.—p. 239.

February 15, No. 7, pp. 251-278

115 Otogenous Pyemia without Sinus Phlebitis. J. R. Kragh.—p. 251.
116 *Combined Radiotherapy. (En lysbiologisk Iagttagelse.) E. Collin. —p. 261.

116. **Combined Radiotherapy.**—Collin relates that a combination of the arc light and mercury vapor light exposures induced a more powerful reaction than either alone. He noticed further that the erythem developed earlier and more intense the higher the temperature of the skin.

THE NEW YORK SESSION

AMERICAN MEDICAL ASSOCIATION, SIXTY-EIGHTH ANNUAL SESSION, NEW YORK CITY, JUNE 4-8, 1917

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The sixty-eighth annual session of the American Medical Association will be held at New York City, June 4-8, 1917.

The House of Delegates will convene at 10 a. m., Monday, June 4. In the House the representation of the various constituents associations for 1917 is as follows:

Alabama	3	New Hampshire	1
Arizona	1	New Jersey	3
Arkansas	2	New Mexico	1
California	4	New York	11
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	5
District of Columbia	1	Oklahoma	2
Florida	1	Oregon	1
Georgia	3	Pennsylvania	9
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	1
Indiana	4	South Dakota	1
Iowa	3	Tennessee	2
Kansas	2	Texas	5
Kentucky	4	Utah	1
Louisiana	1	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	5	West Virginia	2
Michigan	4	Wisconsin	3
Minnesota	2	Wyoming	1
Mississippi	2	Canal Zone	1
Missouri	5	Hawaii	1
Montana	1	Philippine Islands	1
Nebraska	2	Porto Rico	1
Nevada	1		

The fifteen scientific sections of the American Medical Association, the Medical Department of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The general meeting, which constitutes the opening exercises of the Scientific Assembly of the Association, will be held at 8:15 p. m., Tuesday, June 5. The various sections of the Scientific Assembly will meet Wednesday, June 6, at 9 a. m., and subsequently, according to their respective programs.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., on Monday, Tuesday, Wednesday and Thursday, June 4, 5, 6 and 7, and from 8:30 a. m. to 12 noon, on Friday, June 8.

RUPERT BLUE, President.

HUBERT WORK, Chairman, House of Delegates.
ALEXANDER R. CRAIG, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state societies are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover delegates and of the newly elected members who have reported to THE JOURNAL in time to be included:

STATE DELEGATES

ALABAMA
L. L. Hill, Montgomery.
E. F. Moody, Dothan.

ARIZONA
J. I. Butler, Tucson.

ARKANSAS
C. P. Meriwether, Little Rock.

CALIFORNIA
H. Bert Ellis, Los Angeles.
O. D. Hamlin, Oakland.

COLORADO
L. H. McKinnie, Colorado Springs.
Oliver Lyons, Denver.

CONNECTICUT
D. Chester Brown, Danbury.

DELAWARE
Willard Springer, Wilmington.

DISTRICT OF COLUMBIA
G. Wythe Cook, Washington, D. C.

GEORGIA
S. R. Roberts, Atlanta.
F. W. McRae, Atlanta.

IDAHO
C. R. Scott, Twin Falls.

ILLINOIS
T. O. Freeman, Mattoon.
C. W. Lillie, East St. Louis.
Robert S. Denny, Aurora.
A. M. Harvey, Chicago.
Hugh McKechnie, Chicago.
J. C. Krafft, Chicago.

INDIANA
J. Rilus Eastman, Indianapolis.
A. E. Bulson, Jr., Fort Wayne.
C. H. Good, Huntington.
Miles F. Porter, Fort Wayne.

IOWA
L. W. Littig, Davenport.
M. Nelson Voldeng, Woodward.

KANSAS
O. D. Walker, Salina.

KENTUCKY
C. L. Wheeler, Lexington.
W. W. Richmond, Clinton.

MARYLAND
Randolph Winslow, Baltimore.

MASSACHUSETTS
J. B. Blake, Boston.
H. G. Stetson, Greenfield.
L. F. Woodward, Worcester.

MICHIGAN
F. C. Warnshuis, Grand Rapids.
A. I. Lawbaugh, Calumet.

MINNESOTA
W. L. Beebe, St. Cloud.
H. P. Ritchie, St. Paul.

MISSISSIPPI
I. W. Cooper, Newton.

MISSOURI
Wilson J. Ferguson, Sedalia.
W. J. Frick, Kansas City.
H. L. Reid, Charleston.

MONTANA
J. H. Irwin, Great Falls.

NEBRASKA
I. H. Dillon, Auburn.

NEW HAMPSHIRE
C. W. Hannaford, Portsmouth.

NEW JERSEY
Edward Guion, Atlantic City.

NEW MEXICO
S. D. Swope, Deming.

NEW YORK
Wendell C. Phillips, New York.
W. J. Cruikshank, Brooklyn.
J. W. Fleming, Brooklyn.
F. E. Sondern, New York.
Dwight H. Murray, Syracuse.

OHIO
B. R. McClellan, Xenia.
C. D. Selby, Toledo.

OKLAHOMA
John W. Riley, Oklahoma City.

OREGON
Walter T. Williamson, Portland.

PENNSYLVANIA
A. R. Allen, Carlisle.
William F. Bacon, York.
Wilmer Krusen, Philadelphia.
Charles G. Strickland, Erie.
Frederick L. Van Sickle, Olyphant.
David N. Dennis, Erie.
Edward B. Heckel, Pittsburgh.
John D. McLean, Philadelphia.
C. L. Stevens, Athens.

PHILIPPINE ISLANDS
S. C. Gurney, Manila.

PORTO RICO
Jose S. Belaval, San Juan.

RHODE ISLAND
J. E. Mowry, Providence.

SOUTH CAROLINA
E. A. Hines, Seneca.

TENNESSEE
Perry Bromberg, Nashville.
A. F. Richards, Sparta.

TEXAS
M. L. Graves, Galveston.

UTAH
Sol G. Kahn, Salt Lake City.

VERMONT
Alan Davidson, St. Albans.

VIRGINIA
W. E. Anderson, Farmville.
Southgate Leigh, Norfolk.

WASHINGTON
Don Palmer, Seattle.
D. E. McGillivray, Pt. Angeles.

WEST VIRGINIA
Frank LeMoyne Hupp, Wheeling.
C. R. Ogden, Clarksburg.

WISCONSIN
T. H. Hay, Stevens Point.
Rock Sleyster, Waupun.
H. M. Brown, Milwaukee.

DELEGATES FROM THE SECTIONS

PRACTICE OF MEDICINE
Samuel J. Meltzer, New York.

SURGERY, GENERAL AND ABDOMINAL
Dean D. Lewis, Chicago.

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY
Horace G. Wetherill, Denver.

OPHTHALMOLOGY
F. P. Calhoun, Atlanta, Ga.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY
Robert Levy, Denver.

DISEASES OF CHILDREN
H. M. McClanahan, Omaha.

PHARMACOLOGY AND THERAPEUTICS
R. A. Hatcher, New York.

PATHOLOGY AND PHYSIOLOGY
H. Gideon Wells, Chicago.

STOMATOLOGY
W. C. Fisher, New York.

NERVOUS AND MENTAL DISEASES
George A. Moleen, Denver.

DERMATOLOGY
Richard L. Sutton, Kansas City, Mo.

PREVENTIVE MEDICINE AND PUBLIC HEALTH
William C. Rucker, Washington, D. C.

GENITO-URINARY DISEASES
Edward L. Keyes, Jr., New York.

ORTHOPEDIC SURGERY
John Ridlon, Chicago.

MEDICAL NEW YORK CITY

The Medical Features of the Convention City*

To understand medical conditions in New York requires a certain knowledge of its geography and peculiarities of city government. The statement that New York has a population of 5,737,000 carries to the average mind the idea of a vast city. How vast it is can be comprehended only by comparison. It is composed of five great cities known as boroughs. In population, the Borough of Manhattan is larger than Chicago; Brooklyn is larger than Philadelphia; the Bronx is as large as Detroit; Queens is larger than Minneapolis; Richmond is larger than Salt Lake City.

These five boroughs are also five counties of the state of New York. Each county has its own county government and elects such county officers as district attorney, sheriff and county clerk. The great government interests of the city are carried on by numerous departments, each with its commissioner, appointed by the mayor. The departments of health and public charities come most nearly in touch with the medical profession. Most of these departments, like the health department, have their headquarters in the city hall region of Manhattan. They have, however, subheadquarters in each borough, with an official who has special duties in that borough. The reports of the health department cover the whole city and must be read with the knowledge that they are based on the population of the five boroughs.



The Hotel Astor.

MEDICAL SOCIETIES

Each of the five counties composing New York has its county medical society, independent of each other but affiliated with the state medical society. The state and county medical societies are all organized and chartered pursuant to the law of 1806. This was the greatest medical law of New York State and looms up like a landmark in its medical history. The state medical society was organized at once on the passage of the law, and numbers 8,454 members.

The Medical Society of the County of New York was organized in 1806, with 371 members. The membership is now 2,766. It was virtually a reorganization of a society which had been formed in 1795.

The Medical Society of the County of Kings was organized in 1822, and has a membership of 884. It maintains a handsome building in Brooklyn and performs the work assumed in many cities by the academy of medicine. In addition to its county society functions it maintains a medical library of over 70,000 volumes.

The Medical Society of the County of Queens-Nassau was organized in 1806. Its membership is 160.

The Medical Society of the County of Richmond was organized in 1806. Its membership is fifty-six.

The Medical Society of the County of the Bronx was organized in 1914. Its membership is 298.

These societies are all component parts of our organization, being affiliated with the state society and the American Medical Association. The State Medical Society of New York carries on five activities of especial interest. It publishes a monthly journal. It publishes an annual medical directory of New York, which includes also New Jersey and Connecticut. It defends its members when sued for alleged malpractice. This legal defense is accorded to every member in good standing, and the expenses are covered by the regular dues, no assessment or other charge being made. It maintains an active legislative committee which keeps close watch on all legislative work at Albany relating to medical subjects. It has a standing committee on medical economics.

The Medical Society of the County of New York, in addition to the usual society functions, takes an active interest in legislative matters and maintains a milk commission. It maintains a legal department at large expense for the prosecution of illegal and criminal practitioners. This work is the most extensive of its kind in the country.

The New York Academy of Medicine was founded in 1847 and incorporated in 1851. Its membership is limited to 1,200 resident fellows, and physicians of the entire city are eligible five years after graduation. Nonresident fellows are received to the number of 250. It has four special activities. It is divided into twelve sections, similar to those of the American Medical Association. Each section meets monthly and is presided over by its own chairman, while the Academy holds two meetings monthly presided over by the president. Its scientific work is of the highest type.

The second important feature of the academy's work is the academy building. This handsome structure shelters many professional organizations and is the medical center of Manhattan—in fact, of the greater city. The third and a most important feature of the academy's work is the maintenance of a medical library which now numbers 106,706 volumes, not including duplicates. The fourth is its committee on public health. This committee has developed a plan by which the public may be informed on medical questions, and the great departments of the city government may receive medical advice without advertising individual physicians or making them prominent. A question under consideration is referred to a subcommittee which reports to the whole committee. A decision, when reached, is given out as that of the Committee on Public Health, no names of individuals being given.

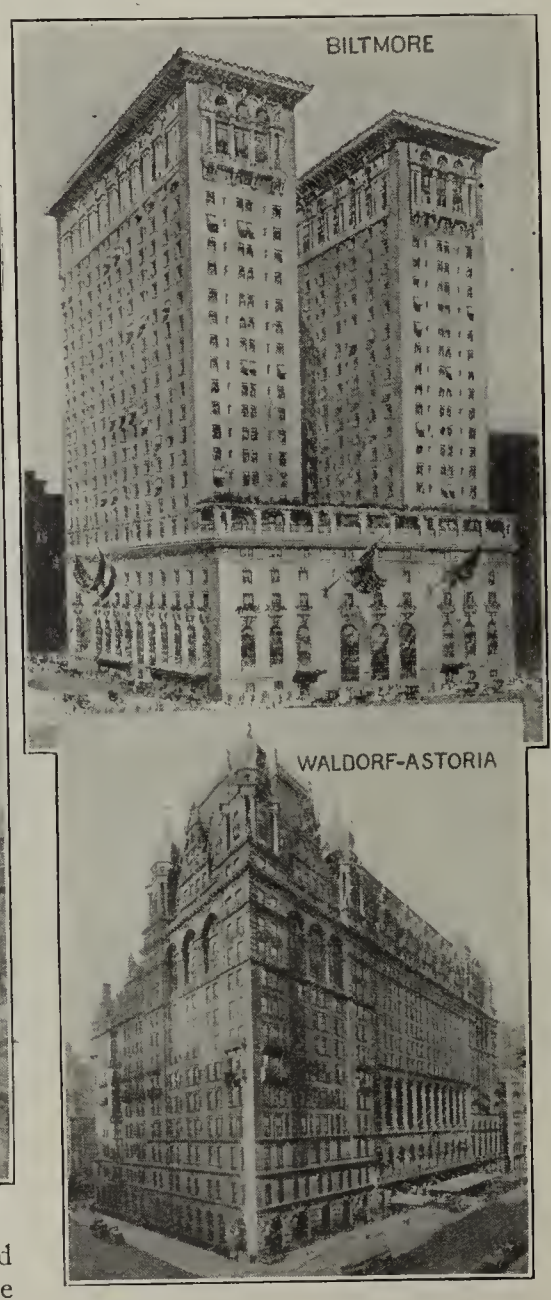
In the large size of their membership and the wide area from which it is drawn and in their peculiar and varied functions, the academy and the county societies differ from other medical societies and form a class by themselves. They divide between them functions which in some cities are fulfilled by a single body. These functions consist in the performance of certain duties to the public and to the medical profession as a whole. It is in this that they differ radically from other societies whose interests are centered in the *individual*. In these two societies interest is bestowed also

* We are indebted for this description of Medical New York City to the local committee on arrangements.

on the *profession* and the *public*. The division of function between them has been made with great skill. They work side by side in perfect harmony, the membership of one being almost wholly included in that of the other, while the same names are frequently found on the official boards of each. The "academy idea" as developed in New York has been productive of great good and has been widely copied by other cities.

Osler says that medical societies are professional cement which binds professional men together. Certain it is that they are the most potent of all agencies in bringing medical men into touch with each other and fostering fraternal relations. New York is certainly not lacking in medical societies. There are some, indeed, who feel that they have been injudiciously multiplied. Including the eleven sections of the Academy of Medicine there are 152 medical societies in the city, of which 123 are in New York County. Of these, twenty-six are devoted to special branches of medical science, the Neurological and Obstetrical Societies being examples. Recently a number of societies have been organized devoted to pure medical science, the Society of Experimental Biology being an example. In the earlier days a few general societies were ample, but the enormous expansion of the city has been followed by the formation of at least sixteen local societies, of which the Harlem Medical Association is an example. These societies vary from semipublic bodies to private clubs which meet in the homes of the members.







Some Hotels and Headquarters.

The remarkable hospital development of the past three decades has been followed by the formation of a new type of medical society, namely, the hospital alumni society. The first of these to be formed in New York was the Society of the Alumni of Bellevue Hospital, in 1886. There are now at least twenty-seven such societies, ranging in numbers from a few dozen to the 380 of Bellevue. Two benevolent societies stand in a group by themselves, namely, the Physicians' Mutual Aid Association and the Society for the Relief of Widows and Orphans of Medical Men.

These facts may suggest some of the difficulties which have been encountered by the local Committee on Arrangements. In most cities that committee has one county society alone to consider and provide for. In New York it has been obliged to consider five county societies with an aggregate membership of 4,164.

MEDICAL COLLEGES

There are ten medical colleges in the state of New York. Of these, seven are in New York City. The remaining three are in a line extending across the state, being located at Albany, Syracuse and Buffalo. They draw their students largely from New York State, and return them to the state in large proportion when graduated. Of the seven colleges in New York City, one is located in Brooklyn, one in Bronx County, and five in New York County.

The College of Physicians and Surgeons is the oldest medical college in the state, having been chartered in 1807. King's College had a medical school which was organized in 1767. In 1784 King's College became Columbia College, and in 1814 the medical faculty of Columbia College was merged in the College of Physicians and Surgeons. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. In 1896 Columbia College became Columbia University. The first president of the College of Physicians and Surgeons was Nicholas Romayne, who was also the first president of the New York County Medical Society.

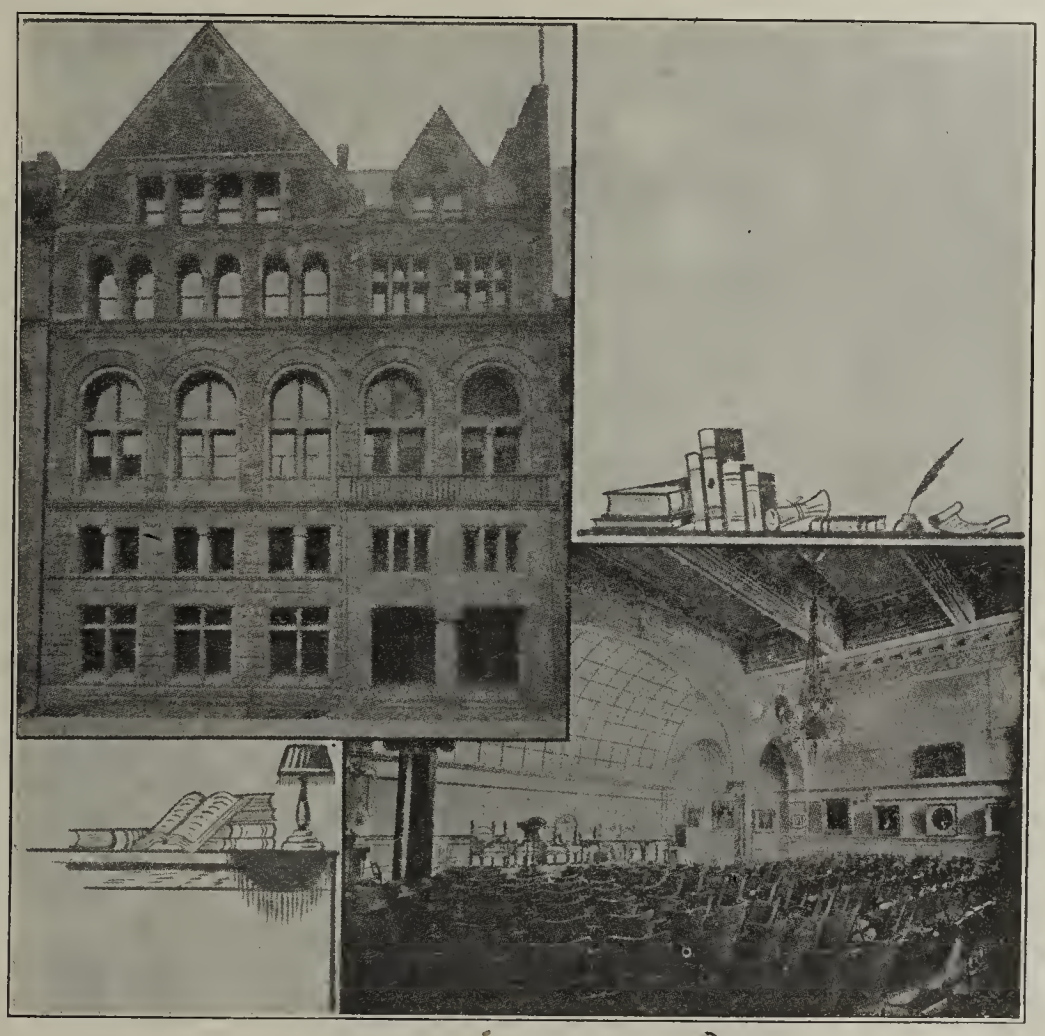
In the first faculty we find David Hosack, whose name has been perpetuated by the generosity of his descendants as Hosack Hall in the Academy of Medicine, in which the House of Delegates will meet. The second president was Samuel Bard, remembered in medical history as the man who first wrote a clear description of a type of "putrid sore throat" which was certainly diphtheria. His essay, published in 1770, Osler asserts, "was one of the most solid contributions made to medicine in America."

During its long history this college has occupied six sites, and is now located at Fifty-Ninth Street and Amsterdam Avenue. The college buildings, together with the Vanderbilt Clinic and Sloane Hospital for Women, form a notable group. Across the street is Roosevelt Hospital, with which it

is closely associated. In 1912 an alliance was effected with the Presbyterian Hospital, which permits the scientific and physiologic direction by the college of the medical, surgical and pathologic services of the hospital.

The University and Bellevue Hospital Medical College is the result of the union of two great medical schools. In 1841 a medical school was organized by the New York University. The first faculty was a notable one, but two names stand forth with especial prominence. Valentine Mott was the professor of surgery and John W. Draper professor of chemistry. The school was first located at 659 Broadway. It occupied three other sites until 1875, when a commodious building was erected at 210 East Twenty-Sixth Street, where instruction was continued until 1898. This is the building which the present generation remembers as the University Medical College.

Clinical instruction had been given in Bellevue Hospital by members of the staff since 1847. The clinical facilities were so great that it was felt that a medical school should be connected with the hospital. In 1861 the commissioners of public charities notified the medical board that they would allow a college building to be erected on the hospital grounds. This building was soon erected, and the faculty of the Bellevue Hospital Medical College was formed. It was truly a notable one, and the names of Austin Flint, Lewis A. Sayre, Fordyce Baker, Frank H. Hamilton, James R. Wood, Stephen Smith and J. W. S. Gouley stand out prominently. In 1884, Andrew Carnegie gave a sum of money for the building of a laboratory. This was the first laboratory in this country in which systematic instruction was given to medical students in pathology and bacteriology.



Above, Academy of Medicine; Below, Hosack Hall.

In 1898 these two medical schools consolidated, and the resulting medical school became an integral part of the New York University. A new college building was erected at the corner of First Avenue and Twenty-Sixth Street, and the Carnegie laboratory building became virtually part of the college building. In 1904 a new laboratory building was erected, and in 1910 the Carnegie laboratory was extended.

The Cornell University Medical College is the youngest of the three great medical schools in New York County. It was established in 1898. This undertaking had been contemplated by the trustees for several years, and was made possible by the gift to the university of a commodious and fully equipped building for medical instruction and by an endowment sufficient to maintain generously a vigorous school for higher education in medicine. The main college building occupies the block between Twenty-Seventh and Twenty-Eighth streets on First Avenue, and is directly opposite Bellevue Hospital. It comprises the medical school and dispensary. The Loomis Laboratory on Twenty-Sixth Street is used for undergraduate instruction and as a research laboratory. The first two years of the medical course may be taken at Ithaca, N. Y., the seat of Cornell University. Here, also, special courses preparatory to the study of medicine may be taken. The entrance requirements of Cornell Medical School are very severe. It stands in the first rank among the medical schools of the country.

The Long Island College Hospital was founded in 1857, and has occupied the same building since its founding. In 1887 the Hoagland Laboratory was established, and in 1896 the Polhemus Memorial Clinic was built. It is a handsome building and is amply endowed. The Long Island College is unique in the fact that the head of each college department is also the head of the same department in the hospital and dispensary. The buildings occupy a block on Henry Street between Pacific and Amity streets. It has 500 beds and maintains a large maternity department.

The Fordham University School of Medicine opened its doors in 1905. Fordham University was the name adopted in 1907 to supersede "St. John's College, Fordham." It is under supervision of the Jesuit order. The buildings are situated at the corner of Third Avenue and Fordham Road (One Hundred and Ninetieth Street), Borough of the Bronx.

The New York Homeopathic Medical College and Hospital was founded in 1860. It has occupied four sites, and removed to its present location, Eastern Boulevard and Sixty-Third Street, in 1889. It is closely associated with the Flower Hospital, which was opened for the reception of patients in 1890. It is regarded as being one of the highest type of homeopathic colleges.

The New York Medical School and Hospital for Women is a small homeopathic school situated at 17 West One Hundred and First Street. It was chartered in 1863.

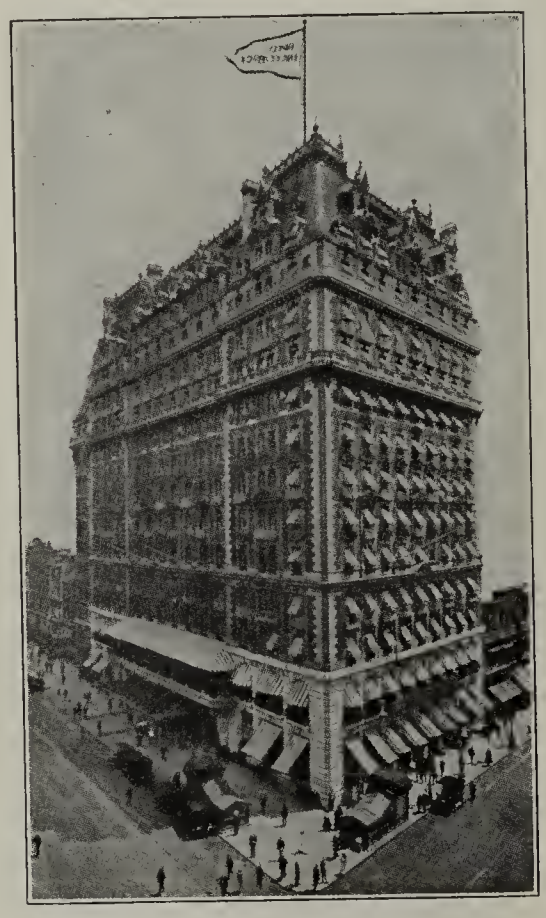
The New York Polyclinic Medical School and Hospital is now located in new and modernly constructed buildings at 341 West Fiftieth Street. The Polyclinic was organized in 1881, and for thirty years was located on East Thirty-Fourth Street. From its inception to the present day, Dr. John A. Wyeth has been its president and moving spirit. In 1912 the present building was occupied at 341 West Fiftieth Street. It is in some regards a new departure in hospital construction, being of the skyscraper type, and utilizes every foot of ground, which in New York is valued by the square inch. Its hospital contains 237 beds, and last year 4,896 patients were treated.

The New York Post-Graduate Medical School and Hospital, at Second Avenue and Twentieth Street, was organized in 1882, and the present building was opened in 1886. Drs. D. B. St. John Roosa and William A. Hammond were moving spirits in its founding. The number of beds is 406, and the number of patients treated annually is over 9,000. As a matter of fact, there are two institutions under one roof. The one is the hospital, already referred to; the other is the school for graduate physicians, with an attendance of over 700 annually. About five years ago the institution received a legacy by means of which its borders have been largely extended.

HOSPITALS

There are 102 hospitals in New York, and a host of dispensaries. Bellevue Hospital is the oldest and largest hospital of the city. It had its beginning in 1736, when a room was set aside in the poorhouse for hospital purposes. It was under the charge of Dr. John Van Beuren, a graduate of Leyden. Three years later a building was erected at the poorhouse by the city as a "Recepticle and Conviency of Such unhappy Poor as are or shall be Visited with any Malignant or Obnoxious disease." In 1794 "Belle Vue place, opposite the third mile stone" was purchased as a site for a quarantine hospital, and later the city hospital was located there. In 1816 the old buildings at Chambers Street were abandoned and two buildings were opened at Belle Vue for hospital purposes, one for male and one for female patients.

During the next forty years Bellevue Hospital was the scene of many epidemics of typhus fever, smallpox, and cholera. In those days there were times when internship meant more certain death than does enlistment in the army today. In a single year (1848) six members of the house staff died from typhus. A year or two later a summer came in which but two members of the staff were able to perform their duties, cholera then being the cause of the epidemic. In the early fifties, typhus, cholera, puerperal fever and erysipelas fairly made a pesthouse of the hospital. As late as 1874 there were within one week thirty-four deaths from puerperal fever. The obstetric service was then moved to Randall's Island, where it has since been conducted. The Emergency Hospital, however, was soon established for precipitate and emergency cases of confinement. For many years there was a special emergency hospital located in Twenty-Sixth Street and was attended by the staff of Bellevue. It is now housed in commodious and ample quarters in one of the new pavilions of the hospital. In 1907, arrangements were completed for the rebuilding by the city of New York of Bellevue at the expense of many million dollars. In the following year two of the new pavilions were opened, and 430 beds were made available for medical and obstetric cases. The pavilion for the city morgue was opened soon after. The morgue is the largest, most complete, and best appointed in the world. The laboratory building is also in use. It is one of the most complete hospital laboratory outfits in the country.



Hotel Knickerbocker.

The training school of Bellevue Hospital was the first training school for nurses in the United States, and has been the model on which most such schools have been organized. In 1896 the city of New York appropriated $628,000 for a new home for nurses. It is situated on East Twenty-Sixth Street opposite the entrance of the hospital, and is a model of its kind. In 1911, women nurses were placed in every ward of the hospital. The Mills school for male nurses was transformed into a school for the education of trained orderlies. A school for the education of midwives was opened in the old Emergency Hospital building. Owing to the large foreign population of New York, midwives are largely employed. Two years ago the capacity of the hospital was 1,379; the visiting staff numbered 101; the house staff, 70; nurses, 336; male attendants, 47; officers and employees, 725.

The City Hospital is located at the southern extremity of Blackwell's Island. It was originally known as Charity Hospital, but out of consideration for the sick poor the name was changed a few years ago. It was organized in 1846 and is managed by the Department of Public Charities. Its bed capacity is about 1,000. The City Hospital School of Nursing was the third school of its sort organized in the country. In connection with the Metropolitan Hospital it maintains at the foot of East Seventieth Street an emergency, relief and ambulance station. In January of this year new operating theaters were opened which are asserted to be the finest in the country, the sterilizing plants being particularly excellent. The City Maternity Hospitals are on Blackwell's Island and are associated with the City Hospital.

Patients with contagious diseases are received only in the hospitals of the department of health, which maintains three great hospitals, the Willard Parker Hospital in Manhattan, the Riverside Hospital on North Brother Island, and the Kingston Avenue Hospital in Brooklyn. The Mintern Hospital, situated near Willard Parker Hospital on East Sixteenth Street, has a large endowment and is designed for the treatment of private patients suffering from diphtheria and scarlet fever. While not a charity hospital, it proves a real charity to strangers in New York whose children are seized with scarlet fever or diphtheria in hotels or in homes of friends.

The oldest of the private hospitals are those maintained by the Society of the New York Hospital. The New York Hospital was organized in 1771. The present buildings on Sixteenth Street were occupied in 1877. The number of beds in the hospital is 270, and the number of bed patients treated annually is about 6,000. The number of outpatients treated is about 16,000 and the number of ambulance calls about 8,000 annually. The Society of the New York Hospital also maintains the House of Relief on Hudson Street and the Convalescent Cottages in White Plains, New York. Of equal importance with the New York Hospital is the Bloomingdale Hospital for mental diseases, widely known for years as Bloomingdale Asylum. It is now located at White Plains, N. Y., and is looked on as a most satisfactory hospital for the insane.

The Memorial Hospital at One Hundred and Sixth Street and Central Park West is largely endowed and occupies remarkably handsome buildings. It is devoted exclusively to the study of cancer and allied diseases.

The New York Lying-In Hospital was founded in 1798. During 1916, 7,451 patients were treated in all departments. The Sloane Hospital on Fifty-Ninth Street is also a large maternity hospital. Among other special hospitals the Manhattan Eye, Ear and Throat Hospital treated last year 9,258 patients in the beds, and 51,920 different patients in the dispensary. The New York Eye and Ear Infirmary is another institution whose patients run into the thousands.

It is impossible to enter on a description of the scores of other hospitals or to refer to them without apparent discrimination. The following figures may be given, however, as showing the work done by a few of the great private hospitals, whose work is of such magnitude that they are popularly regarded as public hospitals. During 1916, Mount Sinai Hospital treated 9,286 bed patients; Roosevelt Hospital, 4,832 patients; St. Luke's Hospital, 7,328; German Hospital, 10,281, and 34,058 in its dispensary; St. Vincent's Hospital, 5,798, and the Methodist Episcopal Hospital (Seney Hospital) in Brooklyn, 4,288.

PREVENTIVE MEDICINE

There are few subjects in which New York City takes greater pride than in the work done in preventive medicine by its department of health. For years the commissioners have been highly equipped scientists and each has done his share in advancing the standard originally set by Herman M. Biggs. The department has instituted many innovations, most of which have long been accepted the country over as legitimate and necessary work of a health department. It is impossible here even to enumerate the activities now daily utilized in New York for the prevention of disease.

TRANSPORTATION TO THE MEETING

Railroad and Pullman Fares to New York City

Those who are going to New York for the Annual Session are urged to consult the local ticket agent at their home town for complete information regarding fares, time limits, extentions and stop-over privileges available in making the trip. There is on file in every ticket office the traffic schedule which officially informs local agents of the rates from that point. Fellows should not leave the determination of the route desired until just before they are ready to start on the trip. Local ticket agents may have to obtain special tickets for these excursions from central points, and they must be arranged in time so that the tickets may be purchased when the journey is begun. These agents will also be able to give information concerning circuit routes which will permit making whatever side trips may be desired in connection with the journey to or from New York. Those from Chicago, St. Louis and the West may purchase short limit summer tourist tickets, which will be on sale to New York City, commencing June 1, at lower fare and with more liberal limit and stop-over privileges than apply in connection with reduced fares authorized for conventions. Round trip circle tour tickets, going one route and returning another, are available, sale commencing May 15, to New York and to Boston, in one direction via New York with a choice of many routes: through Niagara Falls, Montreal, Washington, D. C., Baltimore, and Norfolk, Va., including rail and water trips if desired.



Hotel Plaza.



Hotel Woodward.



Hotel Belmont.

In order to give a general idea of the fares available, the following round trip railroad fares and one-way Pullman lower berth charges to New York are given. In some instances, these fares are approximated:

	R. R. Fare	Pullman Fare		R. R. Fare	Pullman Fare
Buffalo	$16.45	$ 2.00	Indianapolis	32.50	5.00
Chicago	35.00	5.00	Kansas City, Mo.	51.20	7.50
Cincinnati	30.10	4.00	Louisville, Ky...	34.00	5.00
Cleveland	22.90	3.00	Milwaukee, Wis..	39.08	5.50
Columbus, Ohio..	25.30	3.50	Minneapolis	54.00	7.00
Dallas, Texas....	61.50	10.50	Omaha	59.10	7.50
Denver	78.70	11.00	St. Louis.....	40.00	6.00
Detroit	26.50	3.50	St. Paul.....	54.00	7.00

These rates are in accordance with those which have been announced by the various passenger associations listed below:

CENTRAL PASSENGER ASSOCIATION: Two cents per mile in each direction, but in no case more than summer tourist fares. Signature form of tickets will be sold June 3, 4 and 5, final return limit to reach the original starting point not later than midnight, June 12. A joint tariff authorizing fares for the annual session of the Association from points in the Central Passenger Association territory is now being compiled.

THE TRUNK LINE ASSOCIATION: This serves most of New York, Pennsylvania, New Jersey, Delaware, Maryland and West Virginia, also a part of Virginia, and announces that there will be available for those attending the coming session of the American Medical Association a railroad rate of 2 cents per mile in each direction with a minimum of $1 for the round trip on the certificate plan, going and returning via same route, only. Going tickets in connection with certificates to be sold June 3, 4 and 5 at one-way fares applicable to New York City on the certificate plan. These certificates must be obtained from the ticket agent at the starting point (or nearest station issuing through tickets to New York City) and to be valid for the reduced fares returning, must be endorsed by the secretary of the American Medical Association, indicating that the holder has been in attendance at the meeting and is entitled to the reduction, and must also be validated by a special agent on either June 5, 6 or 7. Return tickets will be sold on presentation of validated certificates June 5-11 at the difference between the fares paid on the going trip and the fares for the round trip; these latter tickets to be limited to continuous passage to destination, which must be reached in no case later than on June 12. No fee will be required for the validation of certificates.

NEW ENGLAND PASSENGER ASSOCIATION: Two cents per mile in each direction, short line mileage, going and returning via the same route and that one over which one-way tickets are regularly sold, and only from points where regular one-way fare to New York City is over $1. From points on the B. & A. and N. Y., N. H. & H. R. R.'s certificate plan arrange-

ments will be in effect from stations where the one-way fare to New York City is more than $1. Tickets to be sold or certificates issued and good going June 3, 4 and 5, and returning to reach original starting point not later than midnight of June 12. Reductions will not apply via the Bangor & Aroostook R. R., New England Steamship Company, nor Eastern Steamship Corporation (Metropolitan Line).

WESTERN PASSENGER ASSOCIATION AND SOUTHWESTERN PASSENGER ASSOCIATION: The members of the Western Passenger Association and Southwestern Passenger Association have not announced any reduced fares; but commencing June 1, 1917, round-trip summer tickets will be on sale to New York from points in the territory of those associations, at lower fares and with more liberal return limit and stop-over privileges than apply in connection with reduced fares authorized for conventions.

American Medical Special Trains

The New York Central Lines will run two trains from Chicago, one via the Michigan Central Railroad, leaving from Twelfth Street and Lake Front, at 5:40 p. m., June 2, arriving Niagara Falls Sunday morning, June 3, where the entire day will be spent visiting various points of interest. Special train will leave Niagara Falls at 7:20 p. m., Sunday, June 3, arriving New York Monday morning at 7:50. To permit those who desire to spend Monday, June 4, on the Hudson River from Albany to New York, a special car will be attached to the "American Medical Special" at Niagara Falls, and will be detached on arrival of the special at Albany, and placed for occupancy until 8 a. m. The other train for the accommodation of those who do not desire to spend the day at the Falls but to arrive at New York the next evening will leave from La Salle Street Station, Chicago, via the New York Central Railroad (Lake Shore) at 5:30 p. m., June 2, arriving New York 5:25 p. m. the next day. These are convenient schedules for those going from Chicago, and provide comfortable connections for those coming from points west of Chicago. These trains will consist of Pullman cars, including drawing-room and compartment cars, club car, observation car with ladies' maid, barber and valet service, and will run on the following schedule: A competent representative of the New York Central Lines will accompany each train to look after details and the comfort of the passengers.

Via Michigan Central

	Central Time
Leave Chicago June 2	5:40 p. m.
Leave Kalamazoo June 2	8:58 p. m.
Leave Battle Creek June 2	9:26 p. m.
Leave Jackson June 2	10:26 p. m.
Leave Detroit June 2	12:11 a. m.
	Eastern Time
Arrive Niagara Falls June 3	6:10 a. m.
Leave Niagara Falls June 3	7:20 p. m.
Arrive Albany June 4	4:00 a. m.
Arrive New York June 4	7:50 a. m.

Via New York Central

	Central Time
Leave Chicago June 2	5:30 p. m.
Leave Toledo June 2	11:15 p. m.
Leave Cleveland June 3	2:00 a. m.
	Eastern Time
Leave Rochester June 3	8:50 a. m.
Leave Syracuse June 3	10:35 a. m.
Leave Utica June 3	11:50 a. m.
Leave Albany June 3	2:05 p. m.
Arrive New York June 3	5:25 p. m.

An extra fare of $5 will be charged on these trains from Chicago and $2 from Cleveland.

Round trip tickets will be on sale to New York at reduced fares from all points on the New York Central Lines. Fares from the principal points will be as follows:

	Round-Trip R. R. Fares		One-Way Pullman Fares		
	Convention Fare	Summer Tourist Fare	Lower	Compt.	Drawing Room
Battle Creek, Mich.	$29.25	$31.70	$4.25	$12.00	$15.00
Bay City, Mich.	28.00	32.20	4.00	11.50	14.00
Chicago	*	35.00	5.00	14.00	18.00
Cincinnati	30.10	32.00	4.00	11.50	14.00
Cleveland	22.90	.....	3.00	8.50	11.00
Columbus, Ohio	25.30	29.00	3.50	10.00	13.00
Dayton, Ohio	28.10	30.50	4.00	11.50	14.00
Detroit	26.50	30.50	3.50	10.00	13.00
Grand Rapids, Mich.	30.55	31.70	4.50	13.00	16.00
Indianapolis	32.50	33.00	5.00	14.00	18.00
Jackson, Mich.	27.45	31.70	4.00	11.50	14.00
Kalamazoo, Mich.	30.15	31.70	4.50	13.00	16.00
Saginaw, Mich.	27.50	31.70	4.00	11.50	14.00
South Bend, Ind.	*	31.70	4.50	13.00	16.00
Springfield, Ohio	27.10	30.00	3.50	10.00	13.00
St. Louis	*	40.00	6.00	16.00	21.00
Terre Haute, Ind.	35.40	36.60	5.00	14.00	18.00
Toledo, Ohio	26.50	30.50	4.00	11.50	14.00

*Summer tourist fares will apply from these points.

Tickets will be on sale at convention fare, June 2, 3 and 4, final return limit to reach original starting point not later than midnight of June 12, 1917.

Tickets will be on sale at summer tourist fare from June 1 to September 30, final return limit to reach original starting point not later than thirty days from date of sale.

For the convenience of those coming from St. Louis, Indianapolis, Cincinnati, Columbus and the surrounding territory, the Cleveland, Cincinnati, Chicago & St. Louis Railway, "Big Four Route," will run special sleeping cars through to New York as follows, connecting with the foregoing train via the New York Central Railroad at Cleveland:

	Central Time
Leave St. Louis	12:00 noon
Leave Terre Haute	4:23 p. m.
Leave Indianapolis	6:15 p. m.
Arrive Cleveland	1:45 a. m.
Leave Cincinnati	6:05 p. m.
Leave Dayton	7:50 p. m.
Leave Springfield	8:33 p. m.
Leave Columbus	9:55 p. m.
Arrive Cleveland	1:45 a. m.
Leave Cleveland	2:00 a. m.
	Eastern Time
Arrive New York	5:25 p. m.

In addition, the New York Central Lines provide through service to New York as follows:

Via Michigan Central R. R.

	No. 8	No. 10	No. 48	No. 14	No. 36
	a. m.	a. m.		p. m.	a. m.
Leave Chicago, C. T.	*9:05	10:30	†.....	3:00	12:05
	a. m.			p. m.	
Leave Grand Rapids, C. T.	11:05	.....	.....	5:10	.....
	a. m.				
Leave Saginaw, C. T.	11:59	.....	.....	....	.....
	a. m.				
Leave Bay City, C. T.	11:30	.....	.....	....	.....
	p. m.	p. m.	p. m.	p. m.	a. m
Leave Detroit, C. T.	3:55	6:20	6:10	10:55	8:15
	p. m.	a. m.	a. m.	a. m.	p. m
Leave Buffalo, E. T.	10:35	1:15	12:01	7:40	7:30
	p. m.	p. m.	a. m.	p. m.	a. m
Arrive New York, E. T.	9:00	3:30	9:30	8:45	7:03

* Extra fare Chicago to New York, $5.
† Extra fare Detroit to New York, $2.

Via C. C. C. and St. L.—Big Four Route

	No. 16	No. 20	No. 46
Leave St. Louis, C. T.	8:25 a. m.	5:00 p. m.	12:05 midn.
Leave Terre Haute, C. T.	12:58 p. m.	9:17 p. m.	5:11 a. m.
Leave Indianapolis, C. T.	2:45 p. m.	11:00 p. m.	7:00 a. m.
Arrive New York, E. T.	3:45 p. m.	8:00 p. m.	8:00 a. m.

An extra fare of $2 is charged on train No. 20 St. Louis to New York; $2 Terre Haute to New York; $1 Indianapolis to New York.

	No. 46	No. 6	No. 26	No. 42
Lv. Cincinnati, C. T.	8:30 a. m.	12:05 noon	3:00 p. m	12:05 midn.
Lv. Dayton, C. T.	10:10 a. m.	1:25 p. m.	4:23 p. m.	1:40 a. m.
Lv. Springfield, C. T.	10:50 a. m.	2:00 p. m.	5:02 p. m.	2:20 a. m.
Lv. Columbus, C. T.	12:00 noon	3:03 p. m.	6:03 p. m.	3:40 a. m.
Ar. New York, E. T.	8:00 a. m.	9:21 a. m.	3:45 p. m.	5:05 a. m.

VIA NEW YORK CENTRAL R. R.

	No. 44	No. 46	No. 6	No. 10	No. 26	No. 16	No. 14	No. 86	No. 90	No. 28
Lv. Chicago C. T.	....	8:25 a. m.	10:25 a. m.	10:30 a. m.	12:40 noon	1:40 p. m.	3:15 p. m.	8:00 p. m.	11:00 p. m.	11:45 p. m.
Lv. Toledo C. T.	....	1:40 p. m.	3:40 p. m.	4:45 p. m.	5:15 p. m.	7:45 p. m.	11:30 p. m.	1:30 a. m.	4:25 a. m.	5:00 a. m.
Lv. Cleveland C. T.	3:00 p. m.	5:00 p. m.	6:20 p. m.	7:45 p. m.	7:35 p. m.	10:35 p. m.	2:35 a. m.	5:55 a. m.	7:30 a. m.	8:00 a. m.
Lv. Buffalo E. T.	9:00 p. m.	10:05 p. m.	....	1:15 a. m.	.....	4:10 a. m.	9:30 a. m.	10:45 a. m.	1:00 p. m.	3:15 p. m.
Ar. New York E. T.	7:50 a. m.	8:00 a. m.	9:21 a. m.	3:30 p. m.	9:40 a. m.	3:45 p. m.	8:45 p. m.	8:00 p. m.	10:10 p. m.	5:05 a. m.

An extra fare is charged to New York on the following trains:

No. 46 from Chicago $6.
No. 6 from Chicago $6. Cleveland $2. Toledo $2.
No. 26 The Twentieth Century Limited. Chicago $8. Toledo $5. Cleveland $3.
No. 16 from Chicago $3.
No. 86 from Chicago $5.
No. 90 from Chicago $6.

Missouri Valley and Southwest Special

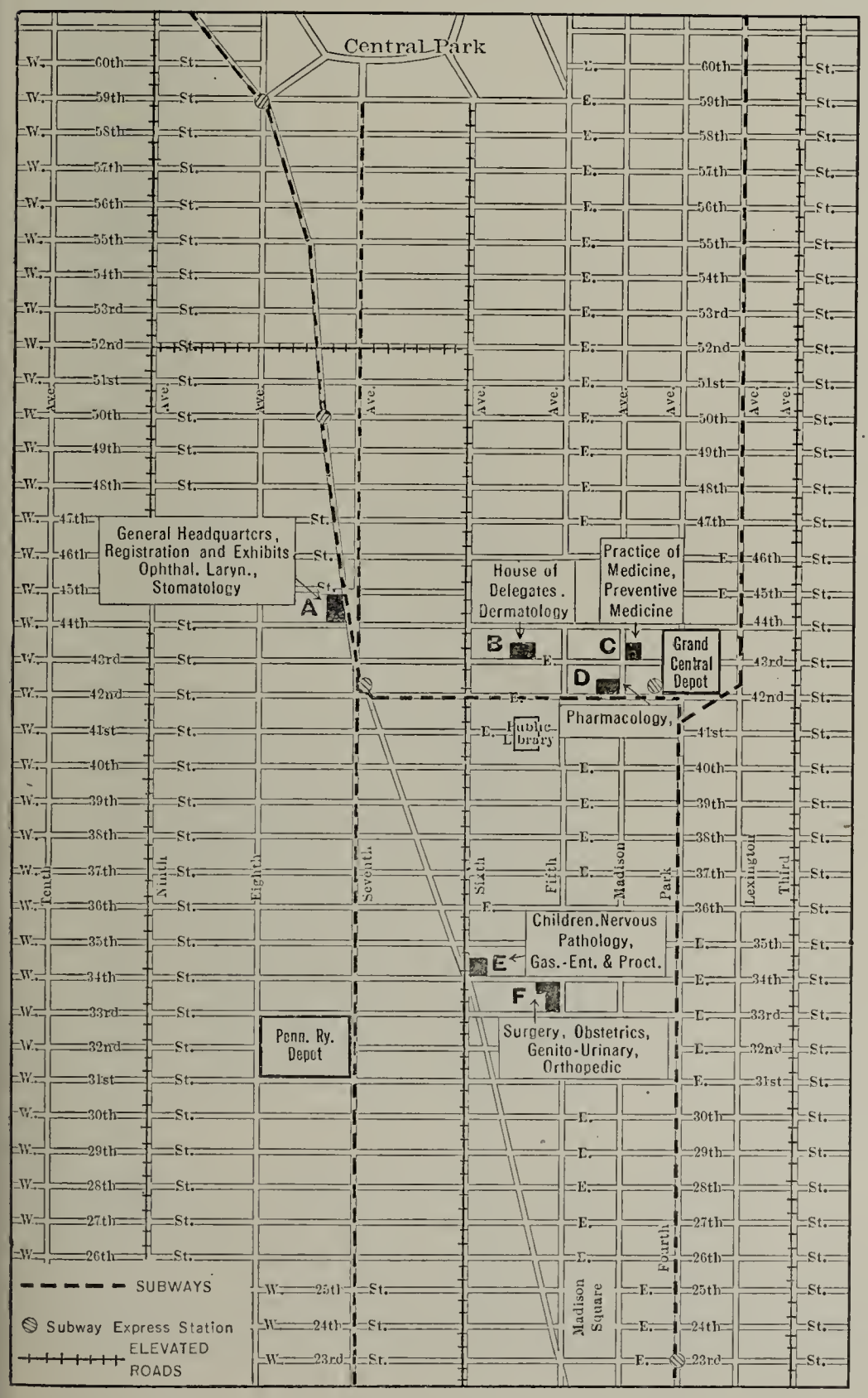
Arrangements have been made for a special through train to New York City for those going to New York from the Missouri Valley and the Southwest. This train will run from Dallas and Fort Worth, Texas; Oklahoma City, Wichita, Kansas City and St. Joseph to Chicago, over the Santa Fe railway; from Lincoln, Omaha, Des Moines and intermediate points, over the Illinois Central railway, and from Chicago to New York over the Pennsylvania lines. The service and appointments will be first class and sleepers will be run through to New York without change. Those from this territory, who have enjoyed previous trips to the American Medical Association annual sessions will appreciate the advantage of social intercourse and the opportunities for getting better acquainted on an excursion of this character. Stop-overs at all points, including Chicago, Washington, Philadelphia, Atlantic City, will be given those who desire. The regular low summer rates will be in effect. Those who desire to join this party should make reservations early in order to secure lower berths. This special will leave Kansas City on Saturday evening, June 2, at 8 o'clock. No excess fare charged on this train.

MEETING PLACES AND HOTEL HEADQUARTERS

This list has been compiled from the latest information furnished by the Local Committee on Arrangements.

HOUSE OF DELEGATES—Hosack Hall, Academy of Medicine Building, 17 West Forty-Third Street. (B)

GENERAL MEETING—The opening meeting of the Scientific Assembly will convene at 8:15 o'clock, Tuesday evening, June 5, instead of at 10 a. m., as at previous sessions.



SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, COMMERCIAL EXHIBIT, INFORMATION BUREAU AND BRANCH POST-OFFICE—Hotel Astor, Times Square. (A)

Sections, Hotel Headquarters and Meeting Places

PRACTICE OF MEDICINE—Biltmore. Biltmore, Supper Room. (C)

SURGERY, GENERAL AND ABDOMINAL—Waldorf-Astoria. Waldorf-Astoria, Grand Ball Room. (F)

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY—Waldorf-Astoria. Waldorf-Astoria, Astor Gallery. (F)

OPHTHALMOLOGY—Astor. Astor, North Ball Room. (A)

LARYNGOLOGY, OTOLOGY AND RHINOLOGY—Astor. Astor, East Ball Room. (A)

DISEASES OF CHILDREN—McAlpin. McAlpin, Winter Garden. (E)

PHARMACOLOGY AND THERAPEUTICS—Manhattan. Manhattan. (D)

PATHOLOGY AND PHYSIOLOGY—McAlpin. McAlpin, Blue Room. (E)

STOMATOLOGY—Astor. Astor, Yacht Room. (A)

NERVOUS AND MENTAL DISEASES—McAlpin. McAlpin, Roof Garden. (E)

DERMATOLOGY—Manhattan. (D) Academy of Medicine, Du Bois Hall. (B)

PREVENTIVE MEDICINE AND PUBLIC HEALTH—Biltmore. Biltmore, Music Room. (C)

GENITO-URINARY DISEASES—Waldorf-Astoria. Waldorf-Astoria, Green Room. (F)

ORTHOPEDIC SURGERY—Waldorf-Astoria. Waldorf-Astoria, Assembly Hall. (F)

GASTRO-ENTEROLOGY AND PROCTOLOGY—McAlpin. McAlpin, Green Room. (E)

HOTEL RESERVATIONS

Although New York can easily accommodate those in attendance on the annual session, hotel reservations should be made early.

The Committee on Arrangements requests that these be made directly with the hotels. In writing for reservations, it is well to state the number of rooms desired for the accommodation of your party, the day you expect to arrive in New York and how long you plan to remain. Also, name the rate you are willing to pay. Those who desire rooms with bath should state whether a tub or a shower is preferred. It will be a great comfort on arriving at New York to go at once to a hotel which is expecting you rather than to make a round of hotels, finding a number of them completely filled and finally being compelled to take the first lodgings which can be found in a hurried personal search. The list appearing in this issue locates the different hotels and gives their rates. Make your selection, write to the manager and take with you to New York his reply assuring you that a reservation has been made for your use. Then, on arriving all you will have to do is to go to that hotel and register.

TABLE OF DAILY RATES AND ACCOMMODATIONS OFFERED BY NEW YORK HOTELS

Hotels, Number of Rooms and Street Addresses	Rooms without Bath		Rooms with Bath		Parlor, Bedroom and Bath or Connecting Rooms for One or More Persons*
	For One Person	For Two Persons	For One Person	For Two Persons	
ASTOR—1,000—Times Square	$..... $.....	$..... $.....	$ 4.00 to $ 6.00	$ 5.00 to $ 8.00	$ 9.00 to $12.00
General Headquarters; also headquarters of the Sections on Ophthalmology, on Laryngology, Otology and Rhinology and on Stomatology.					
BILTMORE—1,000—Madison Ave. and 43d.	....	....	4.00 to 5.00	6.00 to 7.00	....
Headquarters of the Sections on Practice of Medicine, and Preventive Medicine and Public Health					
MANHATTAN—700—Madison Ave. and 42d.	2.50	....	3.50 to 4.00	5.00	....
Headquarters of the Sections on Pharmacology and Therapeutics and on Dermatology.					
McALPIN—1,600—Broadway and 34th.	2.50 to 3.00	3.50 to 4.00	3.00 to 4.00	4.00 to 5.00	6.00 to 8.00
Headquarters of the Sections on Diseases of Children, on Nervous and Mental Diseases, on Pathology and Physiology and on Gastro-Enterology and Proctology.					
WALDORF-ASTORIA—1,200—Fifth Ave. and 34th.	3.00	4.00	4.00	6.00	14.00 .....
Headquarters of the Sections on Surgery, General and Abdominal; on Obstetrics, Gynecology and Abdominal Surgery; on Genito-Urinary Diseases and on Orthopedic Surgery.					
ALBEMARLE—525—Broadway and 54th.	....	....	2.00	3.00	4.00 .....
ALBERT—450—University Place and 11th	1.00	....	1.50	....	....
ALGONQUIN—250—59 W. 44th.	....	....	2.50	3.50	5.00 to 6.00
ANSONIA—1,600—Broadway and 73d.	2.00	3.00	2.50	5.00	6.00 to 10.00
ARLINGTON—175—18 W. 25th: European.	1.50	2.50	2.00	3.00	3.00 to 4.00
American.	3.00	5.50	3.50	6.00	4.50 to 7.00
BELLECLAIRE—320—Broadway at 77th.	....	....	2.50	3.50	5.00 to 6.00
BELMONT—700—Park Ave. and 42d.	2.50 to 3.50	3.50 to 4.50	3.50 to 8.00	4.50 to 9.00	....
BERKLEY—300—170 W. 74th	....	....	3.00	5.00	....
BLACKSTONE—300—50 E. 58th.	....	....	2.50	4.00	5.00 to 6.00
BRESLIN—500—Broadway and 29th.	2.00 to 3.00	4.00 to 5.00	2.50 to 4.00	5.00 to 8.00	....
BRISTOL—180—122 W. 49th: European.	1.50	2.00	2.00	3.00	4.00 to 6.00
American.	3.00	5.00	3.50	6.00	7.00 to 12.00
BROADWAY CENTRAL HOTEL—600—Broadway and 3d.	1.00 to 1.50	2.00	2.00	3.00	....
BROZTELL—250—Fifth Ave. and 27th.	....	....	1.50	2.50	....
BUCKINGHAM—260—5th Ave. and 50th.	1.50	2.50	2.50	3.50	....
CALUMET—140—340 W. 57th.	....	....	1.50	2.50	....
CLARIDGE—250—Broadway and 44th.	2.50	3.50	3.00 to 6.00	4.00 to 8.00	8.00 .....
CLENDENING—230—202 W. 103d.	....	....	1.50 to 3.00	2.00 to 3.00	....
COLLINGWOOD—250—45 W. 35th.	1.50	2.00	2.50	3.00 to 3.50	5.00 to 7.50
COLONIAL—300—81st St. and Manhattan Sq.	1.50	....	2.00	....	....
CONTINENTAL—300—Broadway and 41st.	....	....	2.00 to 3.00	3.00 to 4.00	....
CUMBERLAND—250—Broadway at 54th.	1.50 to 2.00	2.50 to 3.00	2.00 to 2.50	3.00 to 3.50	4.00 to 5.00
DEVON—200—70 West 55th.	....	....	3.00	5.00	5.00 to 6.00
EARLE—150—103 Waverly Pl.: European.	....	....	2.00	3.00	4.00 to 5.00
American.	....	....	3.50	5.00	6.00 to 7.00
ENDICOTT—600—Columbus Ave. and 81st.	1.00 to 1.50	2.00 to 2.50	1.50 to 3.50	250 to 5.00	....
FLANDERS—300—135 W. 47th.	....	....	1.50 to 2.50	2.50 to 3.00	3.50 to 4.00
FOURTEEN EAST 60TH—350.	....	....	3.00 to 4.00	3.00 to 4.00	8.00 .....
GOTHAM—400—Fifth Ave. and 55th.	....	....	4.00 to 5.00	5.00 to 8.00	....
GREAT NORTHERN—400—118 W. 57th.	....	....	2.50 to 3.00	3.50 to 4.00	5.00 to 7.00
HARGRAVE—300—110 West 72d.	....	....	2.00	2.50	....
HERALD SQUARE—310—114 W. 34th.	1.50	....	2.00	....	5.00 .....
HERMITAGE—250—Seventh Ave. and 42d.	1.50 to 2.00	2.50 to 3.00	2.00 to 3.00	3.50 to 5.00	....
HOLLAND HOUSE—350—5th Ave. and 30th.	....	....	3.00	4.00	5.00 to 8.00
HOLLEY—200—Washington Sq. W.: European.	....	....	1.50	2.50	....
American.	....	....	3.00	5.00	....
IMPERIAL—800—Broadway and 32d.	2.00	3.00	2.50 to 3.00	4.00	5.00 .....
JUDSON—200—53 Washington Sq.: European.	1.00	2.00	1.50	2.50	....
American.	2.50	5.00	3.00	6.00	....
KNICKERBOCKER—600—Broadway and 42d.	2.50	4.00	3.50	5.00 to 8.00	....
LAURELTON—150—145 W. 55th.	....	....	2.00	3.00	....
LE MARQUIS—170—12 E. 31st: European.	1.50	2.00	2.00	3.00	....
American.	3.00	5.00 ...	3.50	6.50	....
LEONORI—225—Madison Ave. and 63d.	1.50	....	....	3.00	5.00 to 10.00
LONGACRE—250—157 West 47th.	1.00	....	1.50 to 2.50	....	....
LUCERNE—300—201 W. 79th.	....	....	1.50	2.00	....
MADISON SQUARE—200—37 Madison Sq.	....	....	2.00	3.00 to 3.50	4.00 to 8.00
MAJESTIC—700—W. 72d at Central Park.	2.00	3.00	2.50	4.00	6.00 to 8.00
MANHATTAN SQUARE—300—50 W. 77th.	....	....	2.50	3.00	3.50 to 10.00
MARGARET—200—97 Columbia Heights, Brooklyn.	1.00	....	2.00	....	3.00 .....
MARIE ANTOINETTE—500—Broadway and 66th.	2.00	4.00	3.00	5.00	8.00 .....
MARLTON—150—3 W. 8th.	1.00 to 2.00	2.00 to 3.00	2.00 to 3.00	3.00 to 4.00	....
MARTHA WASHINGTON—425—29 E. 29th (women only)	1.50	2.50	3.00	4.00	....
MARTINIQUE—625—Broadway and 32d.	2.00	3.00	2.50	3.50	6.00 .....
MURRAY HILL—600—Park Ave. and 40th.	2.00	3.00	3.00	4.00	5.50 to 7.50
NASSAU—500—Long Beach.	....	....	4.00 to 5.00	5.00 to 8.00	....
NETHERLAND—400—Fifth Ave. and 59th.	1.50 to 2.00	....	2.00 to 4.00	3.50 to 5.00	....
NEW GRAND—400—Broadway and 31st.	1.00	....	1.50	....	....
PARK AVENUE—430—Park Ave. and 32d.	1.50 to 2.00	2.50 to 4.00	3.00	4.00 to 5.00	....
PLAZA—750—5th Ave. and 58th.	....	....	4.00 to 5.00	6.00 to 7.00	7.00 to 10.00
PRINCE GEORGE—750—5th Ave. and 28th.	....	....	2.50	4.00	....
RITZ-CARLTON—425—Madison Ave. and 46th.	....	....	5.00	7.00 to 10.00	....
RUTLEDGE—250—Lexington and 30th (women only):					
European.	1.00	2.00	1.50	2.50	....
American.	2.50	5.00	3.00	6.00	....
ST. DENIS—250—Broadway and 11th.	1.00	2.00	2.00	3.00	....
ST. MARGARET—130—129 W. 47th.	1.00	....	1.50	....	3.50 .....
ST. PAUL—225—50th St. and Columbus Ave.	1.00	2.00	2.00	3.00	....
ST. REGIS—340—Fifth Ave. and 55th.	4.00	5.00	5.00 to 6.00	6.00 to 10.00	....
SAN REMO—600—Central Pk. W. and 74th.	....	....	2.00	2.50	4.00 to 5.00
SEVILLE—475—Madison Ave. and 29th.	1.50	2.50	2.50	3.00	....
SHERMAN SQUARE—500—Broadway and 70th.	....	....	2.00 to 2.50	....	....
SOMERSET—225—150 W. 47th.	2.00	3.00	....	....	4.00 .....
UNION SQUARE—130—15th St. and 4th Ave.	1.50 to 2.00	3.00 to 4.00	....	....	4.00 to 7.00
VANDERBILT—600—34th St. and Park Ave.	....	....	3.00	5.00	....
VAN RENSSELAER—200—11th St. near 5th Ave:					
European.	....	....	1.50	2.00	2.50 to 3.00
American.	....	....	3.00	5.00	6.00 to 8.00
WALLICK—400—Broadway and 43d.	1.50 to 2.00	2.50 to 3.00	2.00 to 3.00	4.00 to 6.00	....
WEBSTER—160—40 W. 45th.	....	....	2.50	3.50	4.00 .....
WILLARD—130—252 W. 76th.	....	....	1.50	2.00	....
WOLCOTT—300—31st St. and Fifth Ave.	2.00	....	2.50	5.00	....
WOODSTOCK—365—43d St. near Broadway.	2.00	3.00	2.50	3.50	5.00 to 8.00
WOODWARD—400—Broadway and 55th.	1.50	....	2.00	3.00	4.00 .....
YORK—250—Seventh Ave. and 36th.	1.50 to 2.00	2.50 to 3.00	2.00 to 3.00	3.50 to 5.00	....

* For definite information concerning accommodations offered and rates, write to the hotels.

REGISTRATION

The Importance of Registering Early—A Few Suggestions Which Will Facilitate Registration

The Bureau of Registration will be located in the Grand Ball Room, Hotel Astor, Broadway, Forty-Fourth and Forty-Fifth Streets. A committee of local physicians will assist those desiring to register. A branch postoffice will be opened, and a bureau of information established in connection with the Registration Bureau.

Every one who registers will be required to fill out completely, except the blank space for the number, the spaces on both parts of the double registration cards, which will be found on the tables in front of the Registration Bureau. These entries should be written very plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*.

1. Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out registration card, together with their pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a copy of the official program and other printed matter of interest to those attending the annual session.

2. Those Fellows who have forgotten their pocket cards should present the filled in registration card at the window marked "Paid—No Card." The work of registration at this window will be conducted as rapidly as possible; but the necessity of finding the Fellow's name on the Fellowship roster will occupy time and will occasion inconvenience to those who neglect to bring their pocket cards with them.

3. The Fellow whose 1917 dues are unpaid should present his filled in registration card with the amount of his Fellowship dues ($5) at one of the windows marked "Cash." Here, too, there will be occasioned some delay; but the work of registering will be conducted as promptly as possible.



Hotel Claridge

4. Subscribers and others desiring to qualify as Fellows should present a filled in registration card, together with a formal application for Fellowship at the window marked "New Fellows." These applications for Fellowship can be obtained at Window No. 1 of the Registration Bureau or from the members of the Committee on Registration. In order to qualify as a Fellow, the applicant must be officially reported as a member of the constituent association of the state in which he resides, and in addition to filing this formal application, he must pay his annual Fellowship dues for the current year; if already a subscriber to THE JOURNAL, with his subscription paid for a term to or beyond Jan. 1, 1918, no additional payment is necessary. If subscription is not paid in full for the current year, the payment of a sum to extend it to Jan. 1, 1918, is required.



The registration of new Fellows will be greatly facilitated if they will provide themselves with certificates of membership issued by the secretary of their state association, certifying to their membership in the state and county branches of the organization.

It will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than May 25. Any applications received later than May 25 will be given prompt attention, but the Fellowship certificate and pocket card may not reach the applicant in time so that he can use this card in registering at the New York session, and he may be required to make a second payment of his Fellowship dues, which must be held until the records at headquarters can be consulted after the close of the session, when any excess payment will be adjusted.

If, however, a member of the Association neglects to qualify as a Fellow before reaching New York, he may be entered as a Fellow at the meeting, as suggested above.

POSTOFFICE

An Association Postoffice will be maintained at the Registration Bureau in the Grand Ball Room, Hotel Astor, Broadway, Forty-Fourth and Forty-Fifth Streets. Guests are requested to order mail addressed to them "Care American Medical Association, Hotel Astor, New York City," or to their hotels, as preferred.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be housed in the Belvedere, the summer roof garden of the Hotel Astor. This room, over 200 feet long, is located on the roof of the hotel and is constructed almost entirely of glass, having glass sides and roof. Being admirably located, it promises to be a favorite gathering place for the members during the session. Direct elevator service connects the Belvedere with the main lobby of the hotel and with the Ball Room, in which will be located the Registration Office and the Commercial Exhibit.

The Roentgen-ray exhibit will be in the form of projections from lantern slides. A special room for this purpose has been secured.

The exhibits give promise of being fully up to the standard of previous years. Among those offering exhibits this year are:

Association for the Prevention and Relief of Heart Disease, New York, an exhibit on heart work—charts, placards, folders, etc.

Dr. George A. Baitsell, New Haven, Conn., an exhibit on fibrous tissue in wound healing.

Bellevue Hospital, New York, museum exhibit.

Beth Israel Hospital, New York, an exhibit on pathology and bacteriology.

Hospital Social Service, New York, an exhibit on hospital social service.

Dr. Edward B. Krumbhaar, Philadelphia, an exhibit on electrocardiographic records; charts, specimens, etc., of experimental trypanosomiasis.

Dr. Mary R. Lawson, New London, Conn., exhibit on malarial parasites.

Dr. John H. Larkin, New York, rare and unusual pathologic lesions (mounted museum specimens).

Marion County (Ind.) Medical Society, bronze mural tablet memorial to John Stough Bobbs.

Mayo Clinic, Rochester, Minn.

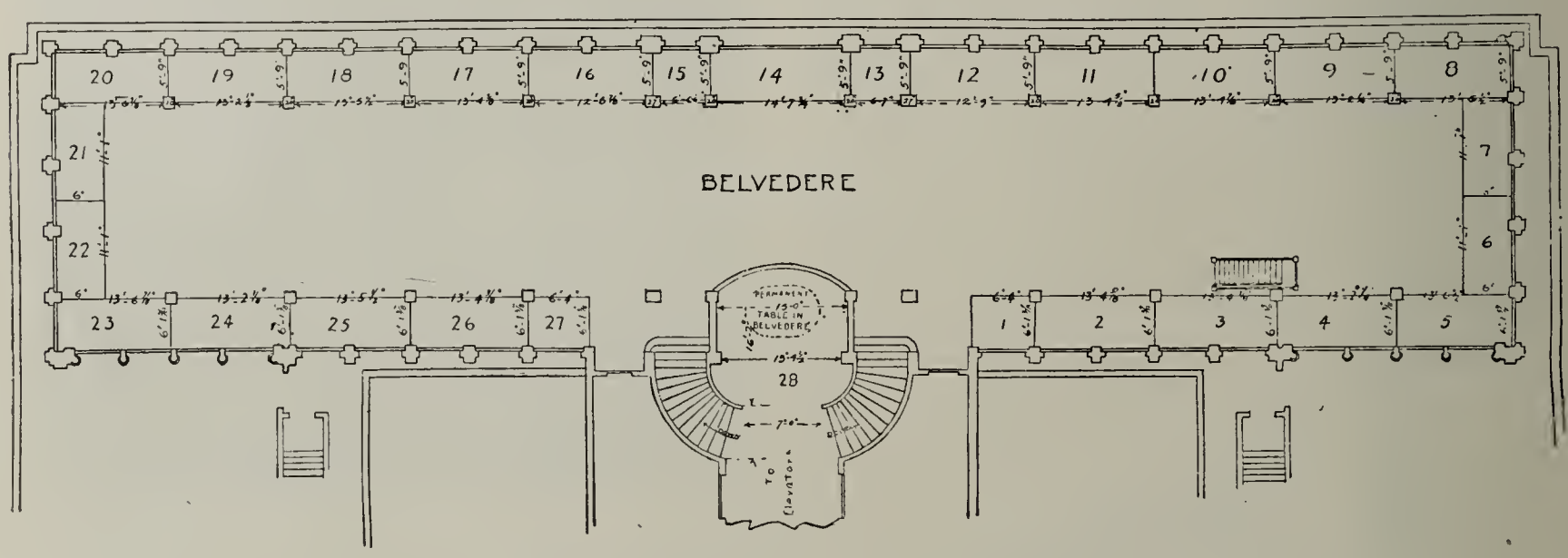
New York Health Department, Albany, N. Y., wall exhibits and models on child welfare, rural sanitation, tuberculosis, adult life diseases, and milk.

Dr. B. S. Oppenheimer, New York, exhibit on the cardiovascular system.

Dr. C. W. Perkins, New York, Roentgen-ray plates.

Dr. Herman B. Philips, New York, an exhibit on new apparatus for continuous drainage of empyemas.

Dr. Edward Reynolds, Boston, forty photomicrographs on sterility.



The Belvedere: Scene of the Scientific Exhibit.

Dr. Joseph C. Bloodgood, Baltimore, an exhibit on cancer.

Dr. James T. Case, Battle Creek, Mich., roentgenologic studies on colon physiology.

Dr. William M. L. Coplin, Philadelphia, a collection of hypoplastic kidneys.

Dr. A. W. Crane, Kalamazoo, Mich., an exhibit on the roentgenocardiograph.

Department of Anatomy, University and Bellevue Hospital, Medical College, New York, casts of human abdominal pelvic and thoracic viscera.

Dr. Robert L. Dickinson, Brooklyn, an exhibit of charts on hospital organization.

Dr. Edward Evans, La Crosse, Wis., bronze plaque for new operating room, St. Francis Hospital, La Crosse, Wis.

Dr. Henry W. Frauenthal, Hospital for Deformities and Joint Diseases, New York, exhibit of colored photographs, types of apparatus and demonstration of method of treatment in cases of infantile paralysis.

Dr. P. M. Hickey, Detroit, roentgenograms of the lower spine.

Dr. Arthur F. Holding, N. Y., lantern slides illustrating precancerous conditions before and after treatment, superficial cancerous conditions before and after treatment, and deep cancerous conditions before and after treatment.

Dr. J. Holinger, Chicago, microscopic exhibit on deformities of the ear.

Dr. J. Shelton Horsley, Richmond, Va., illustrations of original surgical procedures.

Dr. Paul Roth, Battle Creek, Mich., an exhibit on various methods of estimating alveolar carbon dioxid tension.

Dr. J. Morris Slemons, New Haven, Conn., an exhibit on placental pathology.

Dr. Torald Sollmann, Cleveland, an exhibit of paraffin bandages.

Dr. Edmond Souchon, New Orleans, a dissection of the muscles and arteries of the head and neck.

Dr. Alfred A. Strauss, Chicago, charts and specimens illustrating: 1. Pylorectomy by submucous fascial transplant method. 2. Reconstruction of the pylorus by fascial transplants after resection for ulcer.

Dr. R. J. Terry, St. Louis, an exhibit on heredity, development, hypophysis and cleidocranial dysostosis.

MEETINGS OF NONAFFILIATED ORGANIZATIONS

The following medical societies are listed to hold their annual conventions and congresses in New York preceding the Scientific Assembly of the American Medical Association: American Academy of Medicine, June 4-5; American Association of Anesthetists, June 2; American Association of Industrial Physicians and Surgeons, June 4; American Medico-Psychological Association, May 29-June 1; American Proctologic Society, June 4-5; American Radium Society, June 4; American Society of Tropical Medicine, June 4-5; American Therapeutic Society, June 1-2.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

THE PROGRAMS OF THE SECTIONS

Outline of the Scientic Proceedings — The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order which will be followed in the Official Program nor is the list complete. The Official Program will be a pamphlet similar to those issued in previous years, and will contain the final program of each section with abstracts of the papers, also lists of committees, programs of the General Meeting and of the meetings of the House of Delegates, lists of entertainments, map of New York and other information. To prevent misunderstandings and to protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each member on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN SUPPER ROOM, HOTEL BILTMORE

OFFICERS OF SECTION

Chairman—HENRY A. CRISTIAN, Boston.
Vice Chairman—DOUGLAS VANDERHOOF, Richmond, Va.
Secretary—JAMES S. McLESTER, Birmingham, Ala.
Executive Committee—CHARLES LYMAN GREENE, St. Paul; THOMAS McCRAE, Philadelphia; ROGER S. MORRIS, Cincinnati.
(Stenographer—Dr. E. FRANKLIN SMITH, Richmond Hill, L. I., N. Y.)

Wednesday, June 6—9 a. m.

1. Chairman's Address: Visceral Disturbances in Patients with Cutaneous Lesions of the Erythema Group.
   HENRY A. CHRISTIAN, Boston.
2. Clinical Manifestations of Gallbladder Disease. A Study of 1,000 Cases. FRANK SMITHIES, Chicago.
   Discussion to be opened by RICHARD C. CABOT, Boston, and DAVID RIESMAN, Philadelphia.
3. Dilated Duodenum, with Especial Reference to Chronic Duodenal Obstruction in Visceroptosis.
   DOUGLAS VANDERHOOF, Richmond, Va.
   Discussion to be opened by LEWIS A. CONNER, New York, and THOMAS R. BROWN, Baltimore.
4. Clinical Features of Prolonged and Severe Secondary Anemia. ALFRED STENGEL, Philadelphia.
5. Methods and Results in the Treatment of Pernicious Anemia. LEWELLYS F. BARKER, Baltimore.
   Discussion to be opened by HENRY A. CHRISTIAN, Boston, and GEORGE DOCK, St. Louis.
6. A Clinical and Experimental Study of a Lymphoid Splenomegaly With and Without Leukemia.
   KENNETH M. LYNCH, Charleston, S. C.
   Discussion to be opened by ALFRED STENGEL, Philadelphia, and WILLIAM G. MACCALLUM, New York.

Wednesday, June 6—2 p. m.

7. The Vegetative Nervous System in Pulmonary Tuberculosis. FRANCIS M. POTTENGER, Monrovia, Calif.
   Discussion to be opened by SMITH ELY JELLIFFE, New York, and FRANK SMITHIES, Chicago.
8. The Value of Prolonged Rest in the Treatment of Pulmonary Tuberculosis. JOSEPH H. PRATT, Boston.
   Discussion to be opened by LEWIS J. MOORMAN, Oklahoma City.
9. Report of Studies Concerning Acute Lobar Pneumonia.
   RUFUS I. COLE, New York.
   Discussion to be opened by LAWRENCE LITCHFIELD, Pittsburgh, and DAVID BOVAIRD, New York.
10. Studies on the Cause and Treatment of Bronchial Asthma.
    I. CHANDLER WALKER, Boston.
    Discussion to be opened by ROBERT H. BABCOCK, Chicago, and WARFIELD T. LONGCOPE, New York.
11. Botulism: A Clinical and Experimental Study.
    ERNEST C. DICKSON, San Francisco.

Thursday, June 7—9 a. m.

12. Cough Dilatation and Timing of Cough Dilatation: A Functional Heart Test.
    J. BIRNEY GUTHRIE, New Orleans.
13. Studies of the Heart's Functional Capacity.
    THEODORE B. BARRINGER, JR., New York.
    Discussion to be opened by T. STUART HART and BERNARD S. OPPENHEIMER, New York.
14. A Study of Arterial Sounds.
    STEWART R. ROBERTS, Atlanta, Ga.
    Discussion to be opened by WILLIAM S. THAYER, Baltimore, and GEORGE DOCK, St. Louis.
15. The Vital Capacity of the Lungs and Its Relation to the Clinical Condition in Heart Disease.
    CHARLES W. McCLURE and FRANCIS W. PEABODY, Boston.
    Discussion to be opened by JOSEPH H. PRATT, Boston, and CHARLES F. HOOVER, Cleveland.
16. The Percussion and Roentgen-Ray Findings After Injections of the Pericardium.
    ROGER S. MORRIS and ELLIS R. BADER, Cincinnati.
    Discussion to be opened by WILLIAM S. THAYER, Baltimore.
17. A Clinical Study of 200 Cases of Angina Pectoris.
    JAMES B. HERRICK, Chicago.
    Discussion to be opened by THEODORE C. JANEWAY, Baltimore, and JOSEPH L. MILLER, Chicago.
18. Electrocardiographic Changes Associated with Myocardial Involvement, with Special Reference to Prognosis.
    BERNARD S. OPPENHEIMER and MARCUS A. ROTHSCHILD, New York.
    Discussion to be opened by WILLIAM G. MACCALLUM and HORATIO B. WILLIAMS, New York.

Thursday, June 7—2 p. m.

Election of Officers

19. The Blood Lipoids in Diabetes.
    ELLIOTT P. JOSLIN, W. R. BLOOR and HORACE GRAY, Boston.
    Discussion to be opened by REGINALD FITZ, New York.
20. The Influence of the High Calory Diet on the Course of Typhoid Fever. WARREN COLEMAN, New York.
    Discussion to be opened by EUGENE F. DUBOIS, New York, and DUDLEY D. ROBERTS, Brooklyn.
21. A Study of Chronic Arthritis. FRANK BILLINGS, Chicago.
22. Gastric Crises of Spinal Syphilis: A Clinical and Laboratory Study of Four Cases.
    B. B. VINCENT LYON, Philadelphia.
    Discussion to be opened by JOSEPH SAILER and DAVID RIESMAN, Philadelphia.

Friday, June 8—9 a. m.

23. Bence-Jones Proteinuria: The Frequency of Its Occurrence, the Criteria of Its Presence, and Its Possible Relationship to Nephritis with Hypertension.
    SYDNEY R. MILLER and WALTER A. BAETJER, Baltimore.
    Discussion to be opened by L. F. BARKER, Baltimore.
24. The Dietetic Treatment of Nephritis, Controlled by the Chemical Examination of the Blood.
    ARTHUR F. CHACE and A. R. ROSE, New York.
    Discussion to be opened by HERMAN O. MOSENTHAL, Baltimore, and EUGENE F. DU BOIS, New York.
25. Nephritis from the Standpoint of Urea Excretion.
    FRANKLIN C. McLEAN, New York.
    Discussion to be opened by HENRY A. CHRISTIAN, Boston, and WARFIELD T. LONGCOPE, New York.
26. Nature and Treatment of Chronic Parenchymatous Nephritis (Nephrosis). ALBERT A. EPSTEIN, New York.
    Discussion to be opened by NATHAN E. BRILL and VICTOR C. MYERS, New York.
27. The Application of Indirect Colorimetry in the Clinic.
    WALTER M. BOOTHBY, Rochester, Minn.
    Discussion to be opened by E. F. DU BOIS, New York.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN GRAND BALL ROOM, WALDORF-ASTORIA

OFFICERS OF SECTION

Chairman—WILLIAM D. HAGGARD, Nashville, Tenn.
Vice Chairman—ARTHUR A. LAW, Minneapolis.
Secretary—EUGENE H. POOL, New York.
Executive Committee—CHARLES H. FRAZIER, Philadelphia; CHARLES H. PECK, New York; E. WYLLYS ANDREWS, Chicago.
(Stenographer—MRS. M. C. REPP, Philadelphia)

Wednesday, June 6—9 a. m.

1. Chairman's Address: Surgery of the Spleen.
WILLIAM D. HAGGARD, Nashville, Tenn.
2. The Problem of Unnecessary Operations and of Incompetent Surgeons. ARTHUR DEAN BEVAN, Chicago.
Discussion to be opened by J. M. T. FINNEY, Baltimore, and GEORGE E. BREWER, New York.
3. The Surgical Significance of Gastric Hemorrhage.
DONALD C. BALFOUR, Rochester, Minn.
Discussion to be opened by CHARLES L. SCUDDER, Boston.
4. Modification in the Technic of Major Gastric Surgery.
LEWIS L. MCARTHUR, Chicago.
Discussion to be opened by JOHN B. DEAVER, Philadelphia.
5. Intravisceral and Intra-Abdominal Pressure.
ROBERT C. COFFEY, Portland, Ore.
Discussion to be opened by EDWARD MARTIN, Philadelphia.
6. A New Operation for Floating Kidney.
WILLARD BARTLETT, St. Louis.
Discussion to be opened by HUBERT A. ROYSTER, Raleigh, N. C.

Wednesday, June 6—2 p. m.

7. Artificial Respiration. GEORGE E. FELL, Chicago.
Discussion to be opened by ALBERT J. OCHSNER, Chicago, and WALTER M. BOOTHBY, Boston.
8. Clinical and Experimental Data in Relation to Fat Transplantation. ALLEN B. KANAVEL, Chicago.
Discussion to be opened by ALEXIUS MCGLANNAN, Baltimore.
9. The Abortive Treatment of Infection.
WILLIAM S. O'N. SHERMAN, Pittsburgh.
Discussion to be opened by CHARLES L. GIBSON, New York, and GEORGE W. HAWLEY, Bridgeport, Conn.
10. The Evolution of Cancer of the Breast.
PARKER SYMS, New York.
Discussion to be opened by DANIEL N. EISENDRATH, Chicago, and HOMER GAGE, Worcester, Mass.
11. Absorbable Metal Clips for Buried Sutures and Ligatures, and Special Alloy for Rapid Absorption.
E. WYLLYS ANDREWS, Chicago.
Discussion to be opened by RUDOLPH MATAS, New Orleans.
12. The Closure of Cleft Palate: A Technic and the Reasons for It. HARRY M. SHERMAN, San Francisco.
Discussion to be opened by VILRAY P. BLAIR, St. Louis.

Thursday, June 7—9 a. m.

13. The Rectangular Flap Incision for Operations Within the Upper Abdomen. WILLY MEYER, New York.
Discussion to be opened by FRED T. MURPHY, St. Louis.
14. Advantages of the End-Result System to Surgical Science.
ERNEST A. CODMAN, Boston.
Discussion to be opened by ROBERT L. DICKINSON, Brooklyn.
15. The Diagnosis of Acute Pancreatitis, with Report of Thirty-Three Cases. WILLIAM LINDER, Brooklyn.
Discussion to be opened by JOSEPH RANSOHOFF, Cincinnati.
16. Surgery of Bones and Joints, with Especial Reference to the Open Operative Treatment of Fractures, and a Method of Arthroplasty in Ankylosis of the Elbow Joint (Lantern Demonstration).
HUGH MCKENNA, Chicago.
Discussion to be opened by PHILIP H. K. KREUSCHER, Chicago.
17. Results of Treatment of Osteomyelitis.
MALVERN B. CLOPTON, St. Louis.
Discussion to be opened by EDWARD H. NICHOLS, Boston.
18. Gunshot Fractures. J. RILUS EASTMAN, Indianapolis.
Discussion to be opened by EDGAR L. GILCREEST, Dallas, Texas.

Thursday, June 7—2 p. m.

Election of Officers

SYMPOSIUM ON THE THYROID GLAND

19. Choice of Method in Operations on the Pituitary Body.
CHARLES H. FRAZIER, Philadelphia.
20. Studies in Experimental Hyperthyroidism.
E. C. KENDALL, Rochester, Minn.
21. Graves' Disease. GEORGE W. CRILE, Cleveland.
22. Constitutional Disturbances Which Come with Chronic Goiter. CHARLES N. DOWD, New York.
Discussion on the Thyroid Gland to be opened by HARVEY CUSHING, Boston, and LEWELLYS F. BARKER and WILLIAM S. HALSTEAD, Baltimore.
23. Malignant Neoplasm of the Thyroid with Metastases in the Intestine and in Bone.
JOHN F. BINNIE, Kansas City, Mo.
Discussion to be opened by JAMES E. THOMPSON, Galveston, Texas.
24. Tumor of the Intercarotid Body.
FRED B. LUND, Boston.
Discussion to be opened by STANLEY STILLMAN, San Francisco.

Friday, June 8—9 a. m.

25. Sodium Citrate Blood Transfusion: A Comparison.
BERTRAM M. BERNHEIM, Baltimore.
Discussion to be opened by GEORGE I. MILLER, Brooklyn, and RICHARD LEWISOHN, New York.
26. The Resection of Lobes of the Lung.
SAMUEL ROBINSON, Rochester, Minn.
Discussion to be opened by HOWARD LILIENTHAL, New York.

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY

27. Anesthesia in the Curriculum and Clinic.
WILLIS D. GATCH, Indianapolis.
Discussion to be opened by ARTHUR DEAN BEVAN, Chicago.
28. Pathologic Pulmonary Changes from Endotracheal Insufflation Anesthesia in Experimental Lung Surgery (Lantern Demonstration).
CONRAD GEORG, JR., Ann Arbor, Mich.
Discussion to be opened by WILLY MEYER and CHARLES H. PECK, New York.
29. Shock During General Anesthesia.
FRANK C. MANN, Rochester, Minn.
Discussion to be opened by J. FRANK CORBETT, Minneapolis.
30. Toxic Factors of Some of the Common Anesthetic Substances. EVARTS A. GRAHAM, Mason City, Iowa.
Discussion to be opened by JAMES J. HOGAN, Vallejo, Calif.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

MEETS IN ASTOR GALLERY, WALDORF-ASTORIA

OFFICERS OF SECTION

Chairman—H. W. LONGYEAR, Detroit.
Vice Chairman—HOWARD C. TAYLOR, New York.
Secretary—BROOKE M. ANSPACH, Philadelphia.
Executive Committee—E. GUSTAV ZINKE, Cincinnati; THOMAS S. CULLEN, Baltimore; EDWARD REYNOLDS, Boston.
(Stenographer—MISS LIDIE C. ALEXANDER, Philadelphia)

Wednesday, June 6—9 a. m.

1. Chairman's Address: The Relations of the Gynecologist to the General Surgeon, Past and Present.
HOWARD W. LONGYEAR, Detroit.
2. Preparation of Anemic Patients for Operation.
STUART MCGUIRE, Richmond, Va.
Discussion to be opened by SIDNEY A. CHALFANT, Pittsburgh.
3. The Pathologic and Clinical Significance of Chronic Endocervicitis (Lantern Demonstration).
ARNOLD STURMDORF, New York.
Discussion to be opened by THOMAS S. CULLEN, Baltimore.
4. Why the Menstrual Function Should be Preserved in Double Suppurative Disease of the Tubes.
JOHN OSBORN POLAK, Brooklyn.
Discussion to be opened by GEORGE H. NOBLE, Atlanta, Ga.

JOINT MEETING WITH THE SECTION ON NERVOUS AND MENTAL DISEASES

5. Influence of Labor on the Brain Development of the Child.
ARTHUR STEIN, New York.
Discussion to be opened by FREDERICK PETERSON, New York; CHARLES K. MILLS, Philadelphia; EDWIN B. CRAGIN, New York, and EDWARD P. DAVIS, Philadelphia.

Wednesday, June 6—2 p. m.

6. The Value of Blood Pressure Estimations in the Practice of Obstetrics. J. MORRIS SLEMONS, New Haven, Conn.
   Discussion to be opened by F. ASHLEY FAUGHT, Philadelphia.
7. Has the New Born Child with Sutured Cord a Better Start in Life? Comparative Study of 500 Cases. FREDERICK J. TAUSSIG, St. Louis.
   Discussion to be opened by ROBERT L. DICKINSON, Brooklyn.
8. The Sacro-Iliac Joints in Obstetrics and Gynecology. JENNINGS C. LITZENBERG, Minneapolis.
   Discussion to be opened by JOEL E. GOLDTHWAIT, Boston.
9. Cesarean Section Scars: A Histologic Study of Four Specimens (Lantern Demonstration). ALFRED B. SPALDING, San Francisco.
   Discussion to be opened by JAMES A. HARRAR, New York, and NATHANIEL R. MASON, Boston.
10. Premature Separation of the Normally Implanted Placenta. ARTHUR H. MORSE, New Haven, Conn.
    Discussion to be opened by JAMES W. MARKOE, New York.
11. Ectopic Gestation (Lantern Demonstration). LOUIS J. LADINSKI, New York.
    Discussion to be opened by E. GUSTAV ZINKE, Cincinnati.

Thursday, June 7—9 a. m.

12. Prolapse of the Female Urethra (Lantern Demonstration). JOHN W. KEEFE, Providence, R. I.
    Discussion to be opened by EDWARD A. SCHUMANN, Philadelphia.
13. Further Notes on a Rare Type of Bladder Ulcer, with Report of Eighteen Cases.
    GUY L. HUNNER and GEORGE L. STICKNEY, Baltimore.
    Discussion to be opened by FLOYD E. KEENE, Philadelphia, and WILLIAM F. BRAASCH, Rochester, Minn.
14. Ureterotubal and Uretero-Uterine Anastomosis. AXEL F. W. WERELIUS, Chicago.
    Discussion to be opened by FRANKLIN H. MARTIN, Chicago, and EDWARD S. JUDD, Rochester, Minn.
15. Ovarian Organotherapy: A Preliminary Report. WILLIAM P. GRAVES, Boston.
    Discussion to be opened by ROBERT T. FRANK, New York.
16. Appendicitis and the Gynecologist. ROBERT T. MORRIS, New York.
    Discussion to be opened by LOUIS S. MCMURTRY, Louisville, Ky.
17. Technic and Scope of Local Anesthesia in Abdominal Surgery. ROBERT E. FARR, Minneapolis.
    Discussion to be opened by CHARLES F. NASSAU, Philadelphia, and URBAN MAES, New Orleans.

Thursday, June 7—2 p. m.

Election of Officers

18. Causes of Recurrence After Operations on the Bile Passages. DANIEL N. EISENDRATH, Chicago.
    Discussion to be opened by W. WAYNE BABCOCK, Philadelphia.
19. Cholecystostomy Versus Cholecystectomy. MILES F. PORTER, Fort Wayne, Ind.
    Discussion to be opened by JOHN G. CLARK, Philadelphia.
20. Acute Pancreatitis. JOHN B. DEAVER, Philadelphia.
    Discussion to be opened by RUSSELL S. FOWLER, Brooklyn.
21. Physiologic Colectomy. CHARLES A. L. REED, Cincinnati.
    Discussion to be opened by WILLARD BARTLETT, St. Louis.
22. Diverticulitis of the Large Intestine. WILLIAM J. MAYO, Rochester, Minn.
    Discussion to be opened by GEORGE D. STEWART, New York, and CHARLES H. FRAZIER, Philadelphia.
23. Personal Experience in the Surgical Treatment of Intestinal Stasis. J. SHELTON HORSLEY, Richmond, Va.
    Discussion to be opened by JOHN W. DRAPER, New York.

Friday, June 8—9 a. m.

24. Blood Studies and Other Preoperative Safeguards in Abdominal Surgery. LOUIS FRANK, Louisville, Ky.
    Discussion to be opened by EDWARD B. KRUMBHAAR, Philadelphia.
25. When Is Cancer Operable? J. WALTER VAUGHAN, Detroit.
    Discussion to be opened by DAVID RIESMAN, Philadelphia.
26. The End-Results of the Treatment of Inoperable Uterine Cancer by Heat. JAMES F. PERCY, Galesburg, Ill.
    Discussion to be opened by HERMAN J. BOLDT, New York.
27. The Present Status of Radium Therapy in Diseases of Women. HENRY SCHMITZ, Chicago.
    Discussion to be opened by CURTIS F. BURNAM, Baltimore.
28. Prolapsus Uteri and Its Treatment. ABRAHAM J. RONGY, New York.
    Discussion to be opened by ALEXIS V. MOSCHCOWITZ, New York.

SECTION ON OPHTHALMOLOGY

MEETS IN NORTH BALL ROOM, HOTEL ASTOR

OFFICERS OF SECTION

Chairman—WILLIAM ZENTMAYER, Philadelphia.

Vice Chairman—CASSIUS D. WESCOTT, Chicago.

Secretary—GEORGE S. DERBY, Boston.

Executive Committee—FRANK C. TODD, Minneapolis; EDWARD C. ELLETT, Memphis, Tenn.; WALTER R. PARKER, Detroit.

(Stenographer—Dr. JOSEPH B. CHAMPION, Chicago)

Members are reminded that the meetings of the section will be called to order promptly on the hour scheduled for opening.

The formal reading of the papers will be omitted, as reprints of the papers on the program have already been delivered to members of the section.

Each essayist will be given ten minutes in which to summarize the points in his paper and introduce the discussion, and five minutes in which to close the discussion.

The member appointed to open the discussion of any paper will be allowed ten minutes. Subsequent speakers will be limited to five minutes.

The papers and all discussions will be printed and bound, forming the Transactions of the Section on Ophthalmology for 1917. Copies of the Transactions may be obtained at $1 each, if subscriptions are sent to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 535 North Dearborn Street, Chicago, by July 1, as only enough copies are printed to cover subscriptions received up to the time of going to press.

Members of the section are requested to register in the section registration book at the entrance. The full name and complete postoffice address should be written plainly.

Wednesday, June 6—9 a. m.

1. Chairman's Address. WILLIAM ZENTMAYER, Philadelphia.
2. Some Observations Which Seem to Lend Support to a Long Discarded Theory of the Chief Function of the Oblique Muscles of the Eye. SAMUEL THEOBALD, Baltimore.
   Discussion to be opened by GILES C. SAVAGE, Nashville, Tenn.
3. Binocular Single Vision: Leaving Out the Consideration of the Color Perception and the Problems of Strabismus. EDMOND E. BLAAUW, Buffalo.
   Discussion to be opened by WALTER B. LANCASTER, Boston.
4. The Treatment of Hypopyon Keratitis. FREDERICK H. VERHOEFF, Boston.
   Discussion to be opened by WILLIAM C. POSEY, Philadelphia.
5. Further Study of the Effects of Heat on the Eye. WILLIAM E. SHAHAN, St. Louis.
   Discussion to be opened by EDGAR S. THOMSON, New York.
6. Crystalline Deposits in the Eye. F. PARK LEWIS, Buffalo.
   Discussion to be opened by BURTON CHANCE, Philadelphia.

Wednesday, June 6—2 p. m.

EXHIBITION OF NEW INSTRUMENTS AND APPLIANCES

7. The Anaphylactic Basis of Sympathetic Ophthalmia: An Experimental Study. ALAN C. WOODS, Philadelphia.
   Discussion to be opened by GEORGE E. DE SCHWEINITZ, Philadelphia.

8. Oxycephalia: Report of Three Cases, with Operation in One. ARTHUR J. BEDELL, Albany, N. Y.
   Discussion to be opened by HARRY FRIEDENWALD, Baltimore.
9. The Endonasal Operation on the Lacrimal Sac. WILLIAM B. CHAMBERLIN, Cleveland.
   Discussion to be opened by HARRIS P. MOSHER, Boston.
10. Neurologic Perimetry and a Method of Imitating Daylight with Electrical Illumination (Lantern Demonstration). CLIFFORD B. WALKER, Boston.
    Discussion to be opened by LUTHER C. PETER, Philadelphia.
11. Demonstration of Pathologic Changes in the Optic Nerve in Cases of Artificially Induced Intracranial Pressure. WALTER R. PARKER, Detroit.

Thursday, June 7—9 a. m.

Election of Officers

12. Conical Cornea or Anterior Myopia. EDWARD JACKSON, Denver.
    Discussion to be opened by SAMUEL D. RISLEY, Philadelphia.
13. A New Operative Method for the Relief of Advanced Cases of Keratoconus, with Report of Two Cases. MEYER WIENER, St. Louis.
    Discussion to be opened by EDWARD C. ELLETT, Memphis, Tenn.
14. Observations on Hereditary Syphilis in Patients with Interstitial Keratitis. ABNER POST, Boston.
    Discussion to be opened by JOHN A. FORDYCE, New York.
15. Interstitial Keratitis, with Special Reference to the End-Result. GEORGE S. DERBY, Boston.
    Discussion to be opened by ARNOLD KNAPP, New York.
16. Present Status of Corneal Transplantation and Experimental Data. SYDNEY WALKER, JR., Chicago.
    Discussion to be opened by JOHN E. WEEKS, New York.

Thursday, June 7—2 p. m.

17. Tendon Shortening. HENRY H. BRIGGS, Asheville, N. C.
    Discussion to be opened by WILL WALTER, Evanston, Ill.
18. Tendon Transplantation of the Eye Muscles. HARRY W. WOODRUFF, Joliet, Ill.
    Discussion to be opened by FRANK C. TODD, Minneapolis.
19. Lymphatic Nodular Keratoconjunctivitis (Phlyctenules). LEO J. GOLDBACH, Baltimore.
    Discussion to be opened by THOMAS B. HOLLOWAY, Philadelphia.
20. The Pathogenesis of Ophthalmia Eczematosa: A Preliminary Report. MICHAEL GOLDENBURG, Chicago.
    Discussion to be opened by RICHARD J. TIVNEN, Chicago.
21. An Analysis of 146 Consecutive Cases of Intracapsular Extraction of Senile Cataract.
    AARON S. GREEN and LOUIS D. GREEN, San Francisco.
    Discussion to be opened by HOWARD F. HANSELL, Philadelphia.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN EAST BALL ROOM, HOTEL ASTOR

OFFICERS OF SECTION

Chairman—FRANCIS P. EMERSON, Boston.
Vice Chairman—GREENFIELD SLUDER, St. Louis.
Secretary—L. W. DEAN, Iowa City, Iowa.
Executive Committee—BURT R. SHURLY, Detroit; NORVAL M. PIERCE, Chicago; HILL HASTINGS, Los Angeles.
(Stenographer—MISS F. E. DILLAN, Indianapolis)

Wednesday, June 6—9 a. m.

1. Chairman's Address. FRANCIS P. EMERSON, Boston.
2. The Etiology of Foreign Bodies in the Larynx, Trachea, Bronchi and Esophagus (Lantern Demonstration). CHEVALIER JACKSON, Philadelphia.
   Discussion to be opened by HARRIS P. MOSHER, Boston.
3. Peroral Endoscopy in the Diagnosis and Treatment of Diseased Conditions of the Respiratory and Upper Digestive Tracts. HUBERT ARROWSMITH, Brooklyn.
   Discussion to be opened by SAMUEL IGLAUER, Cincinnati.
4. Diseases of the Tongue (Lantern Demonstration). ROBERT LEVY, Denver.
   Discussion to be opened by WILLIAM E. SAUER, St. Louis.
5. The Surgery of the Tongue (Lantern Demonstration). JOSEPH C. BECK, Chicago.
   Discussion to be opened by LEONARD FREEMAN, Denver.

Wednesday, June 6—2 p. m.

6. Indications for the Mastoid Operation in Acute Otitis Media. EDWARD B. DENCH, New York.
   Discussion to be opened by JOHN F. BARNHILL, Indianapolis.
7. Pathologic Conditions of the Nose, Epipharynx and Pharynx as Etiologic Factors in Aural Disease. NORVAL H. PIERCE, Chicago.
   Discussion to be opened by GEORGE W. MACKENZIE, Philadelphia.
8. Indications for the Radical Mastoid Operation. CULLEN F. WELTY, San Francisco.
   Discussion to be opened by JACQUES HOLINGER, Chicago.
9. Hemilaryngectomy and Total Laryngectomy (Lantern Demonstration). JOHN E. MACKENTY, New York.
   Discussion to be opened by D. CROSBY GREENE, Boston.
10. Treatment of Acute Pulmonary Abscess. CHARLES W. RICHARDSON, Washington, D. C.
    Discussion to be opened by GEORGE F. COTT, Buffalo.
11. Sudden and Profound Loss of Hearing: Its Significance. OTTO J. STEIN, Chicago.
    Discussion to be opened by D. HAROLD WALKER, Boston.

Thursday, June 7—9 a. m.

Reports of Section Committees

12. A Surgical Consideration of the Upper Paranasal Cells. GREENFIELD SLUDER, St. Louis.
    Discussion to be opened by H. HOLBROOK CURTIS, New York.
13. Vertigo as a Symptom of Primary Disease of the Labyrinth. GEORGE E. SHAMBAUGH, Chicago.
    Discussion to be opened by ARTHUR B. DUEL, New York.
14. Aural Vertigo Occurring in Suppurative Disease of the Ear. PHILIP D. KERRISON, New York.
    Discussion to be opened by HANAU W. LOEB, St. Louis.
15. Vertigo in Intracranial Disease. THEODORE H. WEISENBURG, Philadelphia.
    Discussion to be opened by WELLS P. EAGLETON, Newark.
16. Diagnosis of Vertigo, From Whatever Cause, by Ear Tests (Lantern Demonstration). ISAAC H. JONES, Philadelphia.
    Discussion to be opened by ISIDORE FRIESNER, New York.

Thursday, June 7—2 p. m.

Election of Officers

17. The Science of Musical Sounds. DAYTON C. MILLER, Cleveland.
18. The Hearing Test From a Practical Standpoint. GEORGE L. RICHARDS, Fall River, Mass.
    Discussion to be opened by WILLIAM B. CHAMBERLIN, Cleveland.
19. Otolaryngology at War Hospitals. J. GORDON WILSON, Chicago.
    Discussion to be opened by HARRIS P. MOSHER, Boston.
20. Tuberculosis of the Upper Respiratory Tract, with Remarks on Pathology and Treatment. BURT R. SHURLY, Detroit.
    Discussion to be opened by THOMAS E. CARMODY, Denver.

Friday, June 8—9 a. m.

21. The End Results in the Treatment of Ozena by Means of Vaccine (Lantern Demonstration). HENRY W. HORN, San Francisco.
    Discussion to be opened by J. G. DWYER, New York, and THOMAS J. HARRIS, New York.
22. The Diagnosis and Treatment of Sinusitis in Infants. ROSS H. SKILLERN, Philadelphia.
    Discussion to be opened by ALBERT H. BEIFELD, Iowa City, Iowa.
23. Simplicity of Technic in Submucous Resection of the Septum (Lantern Demonstration). LEWIS FISHER, Philadelphia.
    Discussion to be opened by EUGENE R. LEWIS, Dubuque, Iowa.

24. Disturbances of Voice Following Tonsillectomy: Their Causes and Prevention (Lantern Demonstration). ELMER L. KENYON, Chicago.
Discussion to be opened by J. A. STUCKY, Lexington, Ky.
25. The Diagnosis of Tuberculous Laryngitis (Lantern Demstration). JULIUS DWORETZKY, Otisville, N. Y.
Discussion to be opened by FRANK R. SPENCER, Boulder, Colo.

SECTION ON DISEASES OF CHILDREN

MEETS IN WINTER GARDEN, HOTEL MC ALPIN

OFFICERS OF SECTION

Chairman—J. P. SEDGWICK, Minneapolis.
Vice Chairman—FRANK C. NEFF, Kansas City, Mo.
Secretary—F. P. GENGENBACH, Denver.
Executive Committee—FRANK S. CHURCHILL, Chicago; LAWRENCE T. ROYSTER, Norfolk, Va.; T. C. MCCLEAVE, Oakland, Calif.
(Stenographer—DR. HELEN J. COWIE, Philadelphia)

Wednesday, June 6—9 a. m.

1. Chairman's Address: The Institution, Reestablishment and Maintenance of Breast Feeding. JULIUS P. SEDGWICK, Minneapolis.
2. The Technic of Wet Nurse Management in Institutions. ISAAC A. ABT, Chicago.
3. Problems Connected with the Production and Collection of Human Milk. BERT R. HOOBLER, Detroit.
4. The Use of Lactic Bacilli Milk. HARRY M. MCCLANAHAN, Omaha.
5. The Familial Tendency to Fat Incapacity in Infancy and Childhood. THOMAS S. SOUTHWORTH, New York.

Wednesday, June 8—2 p. m.

6. Observations on the Presence of the Bacillus Abortus in Certified Milk. K. F. MEYER and E. C. FLEISCHNER, San Francisco.
7. Rumination in the First Year of Life. CLIFFORD G. GRULEE, Chicago.
8. The Effect of Body Posture on the Position and Emptying Time of the Stomach. LAWRENCE R. DEBUYS and ADOLPH HENRIQUES, New Orleans.
9. Recent Literature Pertaining to Vitamins: Their Application in Infant Feeding. LOUIS FISCHER, New York.
10. A Study of Diarrheal Conditions Found in California, Especially San Francisco, and a Comparison of Such Conditions in California and on the Atlantic Seacoast. WILLIAM P. LUCAS, San Francisco.
11. Chronic Intestinal Indigestion. JOHN HOWLAND, Baltimore.

Thursday, June 7—9 a. m.

12. Intubation of Larynx. HENRY J. CARTIN, Johnstown, Pa.
13. The Weight of Clothing in the First Five Years of Life. J. P. CROZER GRIFFITH, Philadelphia.
14. Edebohls' Operation in Nephritis in Childhood. JOHN LOVETT MORSE, Boston.
15. Diagnosis of the Age of the Fetus by Roentgenograms. JULIUS H. HESS, Chicago.
16. Phenolsulphonephthalein Elimination in Infants and Children. ALBERT GRAEME MITCHELL and J. CLAXTON GITTINGS, Philadelphia.
17. The Prophylactic Use of Pertussis Vaccine, Controlled by the Complement Fixation Test. EDGAR J. HUENEKENS, Minneapolis.

Thursday, June 7—2 p. m.

Election of Officers

18. A Series of Trophoneuroses Probably Due to Infection. ALBERT H. BEIFELD, Iowa City, Iowa.
19. Study of Urinary Infections in Children. RICHARD M. SMITH, Boston.
20. Experimental Pyelitis in the Rabbit. HENRY F. HELMHOLZ, Evanston, Ill.
21. Desensitization in the Treatment of Infantile Eczema. THOMAS B. COOLEY, Detroit.
22. The Allen Treatment of Diabetes in Children. CHARLES E. HANSEL, South Bend, Ind.
23. The Method of Determining the Exact Dose of Tuberculin for the Individual Child with Pulmonary Tuberculosis, Whether that Dose Be the Initial or any Subsequent Dose. MYER SOLIS-COHEN, Philadelphia.

Friday, June 8—9 a. m.

JOINT MEETING WITH THE SECTION ON NERVOUS AND MENTAL DISEASES AND THE SECTION ON ORTHOPEDIC SURGERY

SYMPOSIUM ON POLIOMYELITIS

24. Early Diagnosis and Specific Treatment of Poliomyelitis. GEORGE DRAPER, New York.
25. Treatment of Infantile Paralysis, with Special Reference to Study of New York State Cases. ROBERT W. LOVETT, Boston.
26. Practical Aspects of the Treatment of Anterior Poliomyelitis. ARMITAGE WHITMAN, New York.
27. Contagiousness of Acute Poliomyelitis. CHARLES HERRMAN, New York.
28. Results of Present Epidemic of Infantile Paralysis. HENRY L. K. SHAW, Albany, N. Y.
29. The Hematogenous Invasion of the Cerebrospinal Axis in Poliomyelitis. LASALLE ARCHAMBAULT, Albany, N. Y.
30. Recent Additions to Our Knowledge of Poliomyelitis. FREDERICK TILNEY, New York.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN THE HOTEL MANHATTAN

OFFICERS OF SECTION

Chairman—ALBION W. HEWLETT, San Francisco.
Vice Chairman—ARTHUR D. HIRSCHFELDER, Minneapolis.
Secretary—CARY EGGLESTON, New York.
Executive Committee—RAY L. WILBUR, San Francisco; J. F. ANDERSON, New Brunswick, N. J.; R. A. HATCHER, New York.
(Stenographer—DR. WARREN STIRLING, Philadelphia)

Wednesday, June 6—9 a. m.

1. Chairman's Address. A. W. HEWLETT, San Francisco.
2. Crucial Test of Therapeutic Evidence. TORALD SOLLMANN, Cleveland.
3. The Teaching of Pharmacology. WILLIAM DEB. MACNIDER, Chapel Hill, N. C.
4. A Simple Apparatus for Administration of Oxygen Under Pressure, with Remarks on the Efficiency of the Procedure (Lantern Demonstration). SAMUEL J. MELTZER, New York.
5. Acidosis in Morphinism. JAMES E. TALLEY, Philadelphia.
6. The Action of Alcohol on the Isolated Mammalian Heart. CHARLES C. LIEB, New York.

Wednesday, June 6—2 p. m.

7. A Discussion of Certain Measures for the Treatment of Pulmonary Edema in Pneumonia. WALTER A. BASTEDO, New York.

SYMPOSIUM ON RADIOACTIVE THERAPEUTIC MEASURES

8. The Truth About the Therapeutic Value of Radioactive Methods. ARTHUR FENWICK HOLDING and WILLIAM BAYARD LONG, New York.
9. The Possibilities and Limitations of Roentgenography in Malignant Diseases. GEORGE E. PFAHLER, Philadelphia.
10. Review of Cases of Sarcoma of the Throat and Sinuses Treated by Radium and Roentgen Rays. HENRY K. PANCOAST, Philadelphia.
11. New Growths of the Mediastinum, with Especial Reference to Their Treatment with Radium (Lantern Demonstration). CURTIS F. BURNAM, Baltimore.
12. Heliotherapy in the Treatment of Tuberculosis. ABRAHAM G. SHORTLE, Albuquerque, N. M.

Thursday, June 7—9 a. m.

Election of Officers

13. Observations on the Excretion of Dyes. RICHARD WEIL and RUSSELL L. CECIL, New York.
14. Innovations in Intravenous Medication. WALTON FOREST DUTTON, Tulsa, Okla.

SYMPOSIUM ON VACCINE THERAPY

15. The Nonspecificity of Vaccine Therapy.
JOSEPH L. MILLER, Chicago.
16. Bacterial Vaccine Therapy.
JAMES P. LEAKE, Washington, D. C.
17. Prophylactic Use of Vaccines in the Great War.
NEWTON E. WAYSON, Washington, D. C.

Thursday, June 7—2 p. m.

18. Further Studies on the Development of Edema in Mustard Oil Conjunctivitis.
ARTHUR D. HIRSCHFELDER, Minneapolis.
19. Ethyl Hydrocuprein (Optochin) in the Treatment of Acute Lobar Pneumonia.
HENRY F. MOORE and ALAN M. CHESNEY, New York.
20. A Study of the Eggleston Method of Administering Digitalis.
S. MARX WHITE and R. EDWIN MORRIS, Minneapolis.
21. Influence of Large Doses of Digitalis and Digitoxin on the Blood Pressures in Man.
CARY EGGLESTON, New York.
22. Tyramin as an Adjunct to Morphin in Labor.
HENRY G. BARBOUR, New Haven, Conn.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN BLUE ROOM, HOTEL MC ALPIN

OFFICERS OF SECTION

Chairman—JAMES EWING, New York.
Vice Chairman—C. W. GREEN, Columbia, Mo.
Secretary—ISABELLA C. HERB, Chicago.
Executive Committee—WILLIAM OPHULS, San Francisco; A. J. CARLSON, Chicago; F. P. GAY, Berkeley, Calif.
(Stenographer—J. G. BUHLER, New York)

Wednesday, June 6—9 a. m.

1. Chairman's Address. JAMES EWING, New York.
2. The Manner in Which Ossification Occurs in Different Pathologic Processes.
DALLAS B. PHEMISTER, Chicago.
Discussion to be opened by LEON T. LEWALD, New York.
3. Formation of Thrombosis in Veins (Experimental).
ANGUS MCLEAN, Detroit.
Discussion to be opened by RAYMOND C. ANDRIES, Detroit.
4. Pigmentation of the Hind Gut: Its Clinical Significance.
W. LANDRAM MCFARLAND, New York.
Discussion to be opened by L. M. LYNCH and JOHN W. DRAPER, New York.
5. The Colloidal Gold Chlorid Test: the Nature of the Solution and Its Application to Diseases of the Central Nervous System.
J. H. BLACK and R. B. MCBRIDE, Dallas, Tex.
Discussion to be opened by SIDNEY R. MILLER, Baltimore.
6. The Nature of the Syphilitic Antigen.
CARL C. WARDEN, Ann Arbor, Mich.

Wednesday, June 6—2 p. m.

7. A More Delicate Wassermann Reaction Depending on the Use of Larger Quantities of Blood Serum.
P. T. BOHAN and L. A. LYNCH, Kansas City, Mo.
8. A Comparison of the Chemical Findings in Blood and Spinal Fluid, with Special Reference to Urea Nitrogen, Uric Acid, Creatinin, and Sugar.
R. B. H. GRADWOHL, St. Louis.
Discussion to be opened by W. MCKIM MARRIOTT, Boston.
9. The Importance of Diet as a Factor in the Production of Pathologic Changes.
WILLIAM SALANT, Washington, D. C.
Discussion to be opened by ROBERT HATCHER, New York.
10. Intravenous Injections of Aceto-Acetic Acid and l-Beta-Hydroxybutyric Acid at Known Rates.
RUSSELL M. WILDER, Chicago.
11. Some Causes of the Pathology in Diabetes Mellitus.
ALBERT J. HODGSON, Waukesha, Wis.
12. The Relation Between Bile and Phenol Production in the Intestine. HARRY DUBIN, Philadelphia.

Thursday, June 7—9 a. m.

13. The Pathologic Physiology of the Heart as Revealed by the Polygraph and the Electrocardiograph.
LOUIS F. BISHOP, New York.
Discussion to be opened by THOMAS S. LEE, Washington, D. C.
14. A Critique of Banti's Disease.
ELI MOSCHCOWITZ, New York.
15. Immunologic Studies in Poliomyelitis.
EDWARD C. ROSENOW, Rochester, Minn.
16. Ether Therapy in Surgical Infections and Its Effect on Immunity. JOHN SALIBA, Elizabeth City, N. C.
17. Experimental Lesions in the Cervical Sympathetic Ganglia and Thyroids of Goats.
LOUIS B. WILSON, Rochester, Minn.
18. The Etiology and Pathology of Rocky Mountain Spotted Fever. S. B. WOLBACH, Boston.

Thursday, June 7—2 p. m.

Election of Officers

19. The Occurrence of Tubercle Bacilli in the Breast Milk of Tuberculous Women.
FREDERICK COONLEY, New York.
20. Clinical Pathology and Morbid Anatomy of Experimental Trypanosome Anemia.
E. B. KRUMBHAAR and R. M. PEARCE, Philadelphia.
21. An Apparatus for the Study of the Dissociation of Oxyhemoglobin. W. G. MACCALLUM, New York.
22. The Morphologic Appearance of Cancer Clinically Cured by Means of Radium and Roentgen Rays.
ISAAC LEVIN and B. JOSEPH, New York.
Discussion to be opened by HENRY SCHMITZ, Chicago.
23. Study of the Streptothrix Isolated in Two Cases of Rat-Bite Fever. WILLIAM LITTERER, Nashville, Tenn.

Friday, June 8—9 a. m.

JOINT MEETING WITH THE SECTION ON SURGERY, GENERAL AND ABDOMINAL, GRAND BALL ROOM, WALDORF-ASTORIA

24. Anesthesia in the Curriculum and Clinic.
WILLIS D. GATCH, Indianapolis.
Discussion to be opened by ARTHUR DEAN BEVAN, Chicago.
25. Pathologic Pulmonary Changes from Endotracheal Insufflation Anesthesia in Experimental Lung Surgery (Lantern Demonstration).
CONRAD GEORG, JR., Ann Arbor, Mich.
Discussion to be opened by WILLY MEYER and CHARLES H. PECK, New York.
26. Shock During General Anesthesia.
FRANK C. MANN, Rochester, Minn.
Discussion to be opened by J. FRANK CORBETT, Minneapolis.
27. Toxic Factors of Some of the Common Anesthetic Substances. EVARTS A. GRAHAM, Mason City, Iowa.
Discussion to be opened by JAMES J. HOGAN, Vallejo, Calif.
28. Defective Angiogenesis as a Factor in the Production of Primary Renal Aplasia, Hypoplasia and Dysplasia.
W. M. L. COPLIN, Philadelphia.
29. Cerebrospinal Fluid and the Colloidal Gold Chlorid Test.
LLOYD D. FELTON, Baltimore.

SECTION ON STOMATOLOGY

MEETS IN YACHT ROOM, HOTEL ASTOR

OFFICERS OF SECTION

Chairman—ARTHUR D. BLACK, Chicago.
Vice Chairman—HENRY S. DUNNING, New York.
Secretary—EUGENE S. TALBOT, Chicago.
Executive Committee—VIRGIL LOEB, St. Louis; WILLIAM C. FISCHER, New York; FREDERICK B. MOOREHEAD, Chicago.
(Stenographer—WILLIAM SMART, New York)

Wednesday, June 6—9 a. m.

1. Chairman's Address: Roentgenographic and Microscopic Studies of the Tissues Involved in Chronic Mouth Infections. ARTHUR D. BLACK, Chicago.
2. Chronic Diseases of the Mouth of Interest to Both Physician and Dentist (Lantern Demonstration).
KURT H. THOMA, Boston.
3. Cysts of the Dental System.
KATHERINE W. DEWEY, Chicago

4. A Study of the Infectious Granular Tissue Found at the Apexes of Pulpless Teeth Commonly Called Chronic or Blind Abscesses. HERBERT A. POTTS, Chicago.
5. The Retention of Devitalized Teeth Without Danger of Focal Infection. MEYER L. RHEIN, New York.
Discussion to be opened by HARRY GERMAIN, Boston.

Wednesday, June 6—2 p. m.

Election of Officers

6. Epithelioma or Cancer of the Oral Cavity.
L. DUNCAN BULKLEY, New York.
7. Treatment of Cancer of the Mouth by Electrical Cautery, with or without Operative Measures.
JOHN W. BRANSFIELD and GEORGE M. DORRANCE, Philadelphia.
Discussion to be opened by ALBERT J. OCHSNER, Chicago. and JOSEPH C. BLOODGOOD, Baltimore.
8. Injuries of the Temporomandibular Articulation: Their Diagnosis and Treatment.
HENRY SAGE DUNNING, New York.
9. Tuberculosis of the Tongue.
JOHN W. MEANS and JONATHAN FORMAN, Columbus, Ohio.
10. Preliminary Report of Investigations as to the Frequency of Metastatic Eye Infections from Primary Dental Foci.
JOSEPH M. LEVY, New York.

Thursday, June 7—2 p. m.

11. Bone Surgery as Applied to the Jaws, with Special Reference to Bone Regeneration.
MORRIS I. SCHAMBERG, New York.
12. A Composite Osteoplastic Closure of Clefts of the Hard Palate. JOHN B. ROBERTS, Philadelphia.
13. "Soup Bone" Implants for the Correction of Defects of the Skull and Face.
W. WAYNE BABCOCK, Philadelphia.
Discussion to be opened by ALLEN B. KANAVEL, Chicago, FREDERICK B. MOOREHEAD, Chicago, GEORGE V. I. BROWN, Milwaukee, Wis., and THOMAS L. GILMER, Chicago.
14. A New Operation for the Immediate Surgical Separation of the Superior Maxillary Bones to Widen the Nares for the Improvement of Respiratory and Other Conditions (Lantern Demonstration).
GEORGE V. I. BROWN, Milwaukee, Wis.
Discussion to be opened by JOSEPH S. EVANS, JR., Madison, Wis., GLENFORD L. BELLIS, Wauwatosa, Wis., OTTO H. FOERSTER, Milwaukee, Wis., and D. F. MACMILLAN, Chicago.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ROOF GARDEN, HOTEL MC ALPIN

OFFICERS OF SECTION

Chairman—BERNARD SACHS, New York.
Vice Chairman—CHARLES W. HITCHCOCK, Detroit.
Secretary—A. S. HAMILTON, Minneapolis.
Executive Committee—HOWELL T. PERSHING, Denver; W. W. GRAVES, St. Louis; FRANCIS X. DERCUM, Philadelphia.
(Stenographer—MISS V. E. BATES, New York)

Wednesday, June 6—9 a. m.

1. Chairman's Address: The Truth About Intraspinous Injections in the Treatment of Syphilis of the Nervous System. BERNARD SACHS, New York.
2. Progress in Psychiatric Teaching.
ADOLF MEYER, Baltimore.
3. State Organization for Mental Hygiene.
OWEN COPP, Philadelphia.

JOINT MEETING WITH THE SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY, ASTOR GALLERY, WALDORF-ASTORIA

4. Influence of Labor on the Brain Development of the Child. ARTHUR STEIN, New York.
Discussion to be opened by FREDERICK PETERSON, New York; CHARLES K. MILLS, Philadelphia; EDWIN B. CRAGIN, New York, and EDWARD P. DAVIS, Philadelphia.

Wednesday, June 6—2 p. m.

5 Hysterical Lethargy.
DAVID I. WOLFSTEIN, Cincinnati.
6. The Neurasthenic at the Threshold.
FRANCIS R. FRY, St. Louis
7. The Psychoneuroses: How Shall We Look on Them Today? THEODORE DILLER, Pittsburgh.
8. The Medicolegal Problems of the Traumatic Neuroses.
EDWARD E. MAYER, Pittsburgh.
9. Clinical and Pathologic Study of Fifty Cases of Paresis.
LAWSON G. LOWREY, Boston.
10. Psychoses Other than Paretic Dementia in Syphilitic Individuals. ALFRED GORDON, Philadelphia.

Thursday, June 7—9 a. m.

11. The Early Recognition of Multiple Sclerosis, with Report of Twelve Cases. LEO M. CRAFTS, Minneapolis.
12. Charcot-Marie Tooth Type of Progressive Muscular Atrophy. GEORGE WILSON, Philadelphia.
13. Metabolism of Muscular Dystrophy.
SIMON P. GOODHART, New York.
14. Report of a Case of Syringomyelia with Operation: The Difference Between it and Amyotrophic Lateral Sclerosis. EDWARD D. FISHER, New York.
15. A Lack of Correspondence Between Operative Findings and Symptoms in a Series of Neurosurgical Cases.
SIDNEY I. SCHWAB and ERNEST SACHS, St. Louis.
16. Familial Head Nystagmus in Four Generations, Associated with Ocular Nystagmus.
NATHANIEL S. YAWGER, Philadelphia.

Thursday, June 7—2 p. m.

Election of Officers

17. Cerebrospinal Fluid Pressure.
ANDREW L. SKOOG, Kansas City, Mo.
18. Organic Changes in the Central Nervous System Due to Probable Focal Infections.
GEORGE W. HALL, Chicago.
19. Sciatica and Its Treatment.
ISRAEL STRAUSS, New York.
20. Pituitary Disease: Study of 100 Cases.
ISADOR ABRAHAMSON and HYMAN CLIMENKO, New York.
21. The Antipoliomyelitis Hesse Serum.
MARCUS NEUSTAEDTER and E. BANZHAF, New York.
22. Persistent Treatment of Epilepsy.
HOWELL T. PERSHING, Denver.
23. Dystonia. JOHN H. W. RHEIN, Philadelphia.

Friday, June 8—9 a. m.

JOINT MEETING WITH THE SECTION ON DISEASES OF CHILDREN AND THE SECTION ON ORTHOPEDIC SURGERY, WINTER GARDEN, HOTEL MC ALPIN

SYMPOSIUM ON POLIOMYELITIS

24. Early Diagnosis and Specific Treatment of Poliomyelitis.
GEORGE DRAPER, New York.
25. Treatment of Infantile Paralysis, with Special Reference to Study of New York State Cases.
ROBERT W. LOVETT, Boston.
26. Practical Aspects of the Treatment of Anterior Poliomyelitis. ARMITAGE WHITMAN, New York.
27. Contagiousness of Acute Poliomyelitis.
CHARLES HERRMAN, New York.
28. Results of Present Epidemic of Infantile Paralysis.
HENRY L. K. SHAW, Albany, N. Y.
29. The Hematogenous Invasion of the Cerebrospinal Axis in Poliomyelitis.
LASALLE ARCHAMBAULT, Albany, N. Y.
30. Recent Additions to Our Knowledge of Poliomyelitis.
FREDERICK TILNEY, New York.

SECTION ON DERMATOLOGY

MEETS IN ACADEMY OF MEDICINE, DU BOIS HALL

OFFICERS OF SECTION

Chairman—HENRY R. VARNEY, Detroit.
Vice Chairman—FRANK E. SIMPSON, Chicago.
Secretary—HENRY H. HAZEN, Washington, D. C.
Executive Committee—RICHARD L. SUTTON, Kansas City, Mo.; HOWARD FOX, New York; HOWARD MORROW, San Francisco.
(Stenographer—JAMES C. MARRIOTT, New York)

Wednesday, June 6—9 a. m.

1. Chairman's Address: The Hospital Opportunities and Responsibilities for the Syphilitic.
HENRY R. VARNEY, Detroit.

SYMPOSIUM ON THE ECONOMIC IMPORTANCE AND TEACHING OF SYPHILIS

2. The Economic Importance of Syphilis.
Major Henry J. Nichols, Fort Bliss, Texas, and Major Mathew A. Reasoner, Washington, D. C.
3. The Teaching of Syphilis. John A. Fordyce, New York.
4. The Teaching of Syphilis. C. Morton Smith, Boston.
5. The Teaching of Syphilis.
Walter J. Heimann, New York.

Discussion on Syphilis to be opened by William T. Corlett, Cleveland; Harry G. Irvine, Minneapolis, and Udo J. Wile, Ann Arbor, Mich.

6. A Study of the Manner in Which Mercury is Absorbed When Administered by Inunction.
Jay Frank Schamberg, John A. Kolmer and George W. Raiziss, Philadelphia.

Wednesday, June 6—2 p. m.

Election of Officers

SYMPOSIUM ON NEOPLASMS

7. Mycosis Fungoides: A Study of Seven Cases.
J. Frank Fraser, New York.
8. The Skin Changes in Hodgkin's Disease.
Harold N. Cole, Cleveland.
9. Lymphadenosis Cutis Universalis, Associated with Generalized Erythrodermia and Atrophy of the Skin.
Fred Wise, New York.
10. An Analysis of Forty-One Cases of Skin Cancer.
Samuel E. Sweitzer, Minneapolis.
11. Primary Nonpigmented Sarcoma of the Skin.
Joseph Zeisler and Erwin Paul Zeisler, Chicago.

Discussion on Neoplasms to be opened by Richard L. Sutton, Kansas City, Mo., and Henry H. Hazen, Washington, D. C.

12. Clinical Considerations on Epidermolysis Bullosa.
A. Ravogli, Cincinnati.

Thursday, June 7—9 a. m.

13. The Treatment of Impetigo Contagiosa.
Howard Morrow, San Francisco.

Discussion to be opened by Michael L. Ravitch, Louisville, Ky.

14. Ringed Hairs: A Study.
Frank Crozer Knowles, Philadelphia.
15. Papulonecrotic Pernio of the Auricle.
Arthur J. Markley, Denver.
16. Argyria Localis Due to Organic Silver Preparations.
George Manghill Olson, Minneapolis.
17. Primrose Dermatitis: Its Relationship to Anaphylaxis.
C. Augustus Simpson, Washington, D. C.
18. Perleche. John E. Lane, New Haven, Conn.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

MEETS IN THE MUSIC ROOM, HOTEL BILTMORE

OFFICERS OF SECTION

Chairman—Otto P. Geier, Cincinnati.

Vice Chairman—Ernest C. Levy, Richmond, Va.

Secretary—A. M. Harvey, Chicago.

Executive Committee—M. P. Ravenel, Columbia, Mo.; C. Hampson Jones, Baltimore; William C. Rucker, Washington, D. C.

(Stenographer—George B. Cock, Philadelphia)

Wednesday, June 6—9 a. m.

1. Chairman's Address: Adequate Medical Service of the Future. Otto P. Geier, Cincinnati.

Discussion to be opened by Frederick R. Green, Chicago, and Lee K. Frankel, New York.

2. The New Public Health.
W. S. Rankin, Raleigh, N. C.

Discussion to be opened by W. C. Woodward, Washington, D. C., and Henry Bracken, St. Paul.

3. The Diagnostic Clinic as a Factor in Higher Standards of Medical Practice. David L. Edsall, Boston.

Discussion to be opened by Ernest C. Levy, Richmond, Va., Rodger S. Morris, Cincinnati, and Robert Pollock, San Diego, Calif.

4. The Industrial Dispensary as a Contribution to Public Health. Sidney M. McCurdy, Youngstown, Ohio.

Discussion to be opened by Harry E. Mock, Chicago; Milton J. Rosenau, Boston, and George M. Kober, Washington, D. C.

5. The All-Day School Dispensary in the Prevention of Disease. John Newell Hurty, Indianapolis.

Discussion to be opened by L. Emmett Holt, New York, and Taliaferro Clark, Washington, D. C.

Wednesday, June 6—2 p. m.

6. The Need for Compulsory Health Insurance.
Prof. Irving Fisher, New Haven, Conn.

Discussion to be opened by Ralph S. Cone, Westwood, N. J., and S. S. Goldwater, New York.

7. Facts and Fallacies of Compulsory Sickness Insurance.
Mr. Frederick L. Hoffman, Newark, N. J.

Discussion to be opened by Eden V. Delphey, New York, and Wilber E. Post, Chicago.

8. The Industrial Aspect.
Mr. M. W. Alexander, West Lynn, Mass.

Discussion to be opened by I. M. Rubinow, New York; Walter Cannon, Boston, and Alice Hamilton, Chicago.

9. Organized Labor's Position.
Mr. Grant Hamilton, Washington, D. C.

Discussion to be opened by Mr. Miles M. Dawson and Samuel Joseph Kopetzky, New York.

10. The Medical Aspect.
Alexander Lambert, New York.

Discussion to be opened by W. D. Chapman, Silvis, Ill.

Thursday, June 7—9 a. m.

Election of Officers

11. Compulsory Military Service as a Factor in Public Health.
Major General Leonard Wood, Washington, D. C.

Discussion to be opened by Guy L. Kiefer, Detroit, and W. C. Rucker, Washington, D. C.

12. Preparations for Public Health During War.
Franklin H. Martin, Chicago.

Discussion to be opened by H. E. Dearholt, Milwaukee, Wis.

13. The Protection of the Health of the Worker in War.
W. Irving Clark, Jr., Worcester, Mass.

Discussion to be opened by T. R. Crowder, Chicago, and G. W. Schereschewsky, Pittsburgh.

14. The Sanitary Success Attained During the Mobilization Along the Mexican Border in 1916.
W. P. Chamberlain, Fort Banks, Mass.

Discussion to be opened by C. St. Clair Drake, Springfield, Ill.

15. The Medical Student as a Medicomilitary Cadet.
H. C. Coe, New York.

Discussion to be opened by Francis E. Fronczak, Buffalo.

16. Epidemiologic Study of a Measles Outbreak in the Border Army. E. L. Munson, San Antonio, Tex.

Discussion to be opened by B. Franklin Royer, Harrisburg, Pa.

Thursday, June 7—2 p. m.

17. Some Aspects of the Public Health in China.
W. W. Peter, Shanghai, China.

Discussion to be opened by W. A. Evans, Chicago.

18. Community Health and Tuberculosis Demonstration.
A. B. Armstrong, Framingham, Mass.

Discussion to be opened by S. Adolphus Knopf, New York.

19. Prophylactic Therapy of Rickets in a Negro Community.
A. F. Hess, New York.

Discussion to be opened by J. H. Mason Knox, Baltimore.

20. A Discussion of the Cause of the Occasional Failure of Typhoid Vaccine to Immunize.
John A. Robison, Chicago.
21. Personal Observations as to Trench Prophylaxis.
R. W. Corwin, Pueblo, Colo.

Discussion to be opened by W. O. Sherman, Pittsburgh.

22. The Place of Infant Welfare in an Institution of Hygiene.
J. H. Mason Knox, Baltimore.

SECTION ON GENITO-URINARY DISEASES

MEETS IN GREEN ROOM, WALDORF-ASTORIA

OFFICERS OF SECTION

Chairman—HUGH CABOT, Boston.
Vice Chairman—CARL WHEELER, Lexington, Ky.
Secretary—WILLIAM F. BRAASCH, Rochester, Minn.
Executive Committee—ARTHUR L. CHUTE, Boston; GRANVILLE MACGOWAN, Los Angeles; LOUIS E. SCHMIDT, Chicago.
(Stenographer—DR. WILLIAM G. YOUNG, Washington, D. C.)

Wednesday, June 6—2 p. m.

1. Treatment of Chancroids.
   FREDERICK W. ROBBINS and FRANK C. SEABURY, Detroit.
   Discussion to be opened by NOAH E. ARONSTAM, Detroit.
2. Clinical Considerations of Verumontanum Diseases Based on Histopathology. ANTON G. RYTINA, Baltimore.
   Discussion to be opened by ALEXANDER RANDALL, Philadelphia.
3. External Urethrotomy and Seminal Vesiculotomy Combined in a Single Operative Procedure.
   EUGENE FULLER, New York.
   Discussion to be opened by HUGH H. YOUNG, Baltimore.
4. Certain Forms of Vesical Abscess of Extravesical Origin.
   LOUIS E. SCHMIDT, Chicago.
5. The Significance of Tubercle Bacilli in the Urine.
   WILLIAM M. SPITZER, WILLIAM W. WILLIAMS and WARD T. BURDICK, Denver.
   Discussion to be opened by THOMAS W. HASTINGS, New York.
6. Genito-Urinary Moving Pictures.
   EDGAR G. BALLENGER, Atlanta, Ga.

Thursday, June 7—9 a. m.

7. Bladder Disturbances Due to Nerve Lesions.
   GEORGE G. SMITH, Boston.
   Discussion to be opened by JOHN R. CAULK, St. Louis, and WILLIAM C. QUINBY, Boston.
8. Vesical Diverticula: Operation in Two Cases, with Remarks on Technic. BRANSFORD LEWIS, St. Louis.
   Discussion to be opened by WILLIAM E. LOWER, Cleveland.
9. Syphilis of the Bladder.
   HARRY A. FOWLER, Washington, D. C.
   Discussion to be opened by EDWARD L. KEYES, JR., New York.
10. A Study of the Results of Treatment of Various Types of Bladder Tumors. JOHN T. GERAGHTY, Baltimore.
    Discussion to be opened by WILLIAM F. BRAASCH, Rochester, Minn.
11. Cystectomy as a Method of Treatment in Certain Types of Malignant Tumors of the Bladder.
    WILLIAM E. LOWER, Cleveland.
    Discussion to be opened by J. BENTLEY SQUIER, New York.
12. Radium Treatment of Bladder and Prostatic Carcinoma.
    BENJAMIN S. BARRINGER, New York.
    Discussion to be opened by EDWARD L. KEYES, JR., New York.

Thursday, June 7—2 p. m.

Election of Officers

SYMPOSIUM ON ROENTGENOGRAPHIC AND CLINICAL DIAGNOSIS OF LITHIASIS IN THE URINARY TRACT

13. Improved Technic for Radical Excision of Carcinoma of Prostate and Seminal Vesicles.
    HUGH H. YOUNG, Baltimore.
14. Review of a Series of Roentgenographic Examinations of the Urinary Tract.
    EUGENE W. CALDWELL, New York.
15. The Differential Diagnosis of Ureteral Calculi from Concretions in the Appendix and Other Lesions Associated with Roentgen Shadows.
    LEON T. LEWALD, New York.
16. Roentgen Diagnosis of Renal Calculi.
    ALEXANDER B. MOORE, Rochester, Minn.
17. Roentgenographic Diagnosis of Lithiasis in the Urinary Tract. PERCY E. BROWN, Boston.
18. The Clinical Diagnosis of Lithiasis of the Upper Urinary Tract. EDWARD L. YOUNG, JR., Boston.
19. Clinical Diagnosis of Lithiasis.
    HENRY G. BUGBEE, New York.
    Discussion on Roentgenographic Diagnosis of Lithiasis to be opened by FREDERICK H. BAETJER, Baltimore; HENRY K. PANCOAST, Philadelphia; J. BENTLEY SQUIER, New York, and WILLIAM F. BRAASCH, Rochester, Minn.

Friday, June 8—9 a. m.

20. The Intravenous Phlorizin Test.
    MARTIN KROTOSZYNER and WILLIAM E. STEVENS, San Francisco.
    Discussion to be opened by ROBERT H. GREENE, New York.
21. Comparative Results of a Number of Functional Kidney Tests on a Series of Patients.
    BENJAMIN A. THOMAS and JOSEPH C. BIRDSALL, Philadelphia.
    Discussion to be opened by STEPHEN E. TRACY, Philadelphia.
22. The Value of Making a Routine Leukocyte Count on the Urine in Infections of the Higher Urinary Tract (Lantern Demonstration).
    HERMAN L. KRETSCHMER, Chicago.
    Discussion to be opened by LOUIS E. SCHMIDT, Chicago.
23. Surgical Diseases of the Urinary Tract in Children.
    ABRAHAM HYMAN, New York.
    Discussion to be opened by LEO BUERGER, New York.
24. The Relationship of Pain to Renal Calculus.
    FERDINAND C. WALSH, San Antonio, Texas.
    Discussion to be opened by J. BENTLEY SQUIER, New York.
25. Polycystic Kidney.
    CHARLES E. BARNETT, Fort Wayne, Ind.
    Discussion to be opened by ROBERT C. BRYAN, Richmond, Va.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN ASSEMBLY HALL, WALDORF-ASTORIA

OFFICERS OF SECTION

Chairman—E. W. RYERSON, Chicago.
Vice Chairman—ROBERT B. OSGOOD, Boston.
Secretary—EMIL S. GEIST, Minneapolis.
Executive Committee—LEONARD W. ELY, San Francisco; NATHANIEL ALLISON, St. Louis; RUSSELL A. HIBBS, New York. (Stenographer—MISS LULU GAY, Philadelphia)

Wednesday, June 6—9 a. m.

1. Chairman's Address The Care of Cripples as a Problem for Each Individual State.
   EDWIN W. RYERSON, Chicago.
2. Treated and Untreated Osteochondritis of the Hip.
   WALLACE BLANCHARD, Chicago.
   Discussion to be opened by AUGUSTUS THORNDIKE, Boston, and JAMES T. RUGH, Philadelphia.
3. Neurotization of Paralyzed Muscle: a Clinical and Laboratory Study (Lantern Demonstration).
   JOHN JOSEPH NUTT, New York.
   Discussion to be opened by ALEXANDER FRASER, New York, and ARTHUR STEINDLER, Iowa City, Iowa.
4. The Lame and Stiff Shoulder.
   CARL H. BUCHOLZ, Boston.
   Discussion to be opened by ROBERT OSGOOD, Boston, and WALTER TRUSLOW, Brooklyn.
5. Arthritis and Foreign Protein.
   HENRY B. THOMAS, Chicago.
   Discussion to be opened by JOSEPH E. MILLER and WALTER G. STERN, Cleveland.
6. Fractures. HORACE R. ALLEN, Indianapolis.
   Discussion to be opened by MAURICE I. ROSENTHAL, Fort Wayne, Ind., and FREDERIC J. COTTON, Boston.

Wednesday, June 6—2 p. m.

7. Study of a Group of 110 Cases of Poliomyelitis, from the Acute Attack to the Present Time.
   CHARLES OGILVY, New York.
   Discussion to be opened by HENRY LING TAYLOR and CHARLTON WALLACE, New York.
8. The Orthopedic Treatment of Acute and Convalescent Poliomyelitis. E. D. EBRIGHT, Coney Island, N. Y.
   Discussion to be opened by WALTER TRUSLOW, Brooklyn, and HENRY B. THOMAS, Chicago.

9. The Treatment of Anterior Poliomyelitis at Fordham Hospital. SAMUEL W. BOORSTEIN, New York.
Discussion to be opened by JOHN L. PORTER, Chicago, and WILLIS C. CAMPBELL, Memphis, Tenn.
10. The Bone Pin Arthrodesis in the Treatment of Flatfoot, Paralytic Valgus, etc.
ROBERT E. SOULE, Newark, N. J.
Discussion to be opened by GWILYM G. DAVIS, Philadelphia, and HIRAM W. ORR, Lincoln, Neb.
11. The Treatment of Spinal Deformities Caused by Infantile Paralysis. RUSSELL A. HIBBS, New York.
Discussion to be opened by FRED J. FASSETT, Seattle, and MAYNARD C. HARDING, San Diego, Calif.
12. Correction of Skeletal Defects of Lower Extremities Resulting from Poliomyelitis (Lantern Demonstration).
MICHAEL HOKE, Atlanta, Ga.

Thursday, June 7—9 a. m.

13. The Treatment of Scoliosis.
FRANK E. PECKHAM, Providence, R. I.
Discussion to be opened by ALBERT H. FREIBERG, Cincinnati, and EDVILLE G. ABBOTT, Portland, Me.
14. The Operative Treatment of Tuberculosis of the Knee Joint in Adults. ROBERT B. OSGOOD, Boston.
Discussion to be opened by MELVIN S. HENDERSON, Rochester, Minn., and FRED H. ALBEE, New York.
15. Tuberculosis of the Bones and Joints: a Pathologic and Clinical Study. NATHANIEL ALLISON, St. Louis.
Discussion to be opened by DALLAS B. PHEMISTER, Chicago, and ROBERT B. OSGOOD, Boston.
16. Operative Orthopedics. ROYAL WHITMAN, New York.
Discussion to be opened by SAMUEL KLEINBERG, New York, and EDWIN W. RYERSON, Chicago.
17. Technic of the Carrel Method of Treating Infections of the Bones and Joints (Moving Pictures).
GEORGE W. HAWLEY, Bridgeport, Conn.

Thursday, June 7—2 p. m.

Election of Officers

18. A Further Report of the First Sixty-Five Cases of Cranial Decompression for Selected Cases of Spastic Paralysis Due to Hemorrhage.
WILLIAM SHARPE and BENJAMIN P. FARRELL, New York.
19. The Results of the Treatment of Obstetric Paralysis.
JAMES W. SEVER, Boston.
Discussion to be opened by JOHN DUNLOP, Washington, D. C., and WILLIAM S. BAER, Baltimore.
20. Pain in the Arm: Subdeltoid (Subacromial) Bursitis (Lantern Demonstration).
WALTER M. BRICKNER, New York.
Discussion to be opened by HENRY LING TAYLOR and REGINALD H. SAYRE, New York.
21. Simplified Technic of Laminectomy.
FREDERICK J. GAENSLEN, Milwaukee, Wis.
Discussion to be opened by EDWIN W. RYERSON, Chicago, and FREDERICK C. KIDNER, Detroit.
22. An Operation for Congenital Equinovarus Deformity.
FRANK R. OBER, Boston.
23. Juxta-Articular Bone Lesions of the Hip.
HENRY LING TAYLOR and GEORGE BARRIE, New York.
Discussion to be opened by CHARLES F. PAINTER and ELLIOTT G. BRACKETT, Boston.

Friday, June 8—9 a. m.

JOINT MEETING WITH THE SECTION ON NERVOUS AND MENTAL DISEASES AND THE SECTION ON DISEASES OF CHILDREN, WINTER GARDEN, HOTEL MC ALPIN

SYMPOSIUM ON POLIOMYELITIS

24. Early Diagnosis and Specific Treatment of Poliomyelitis.
GEORGE DRAPER, New York.
25. Treatment of Infantile Paralysis, with Special Reference to Study of New York State Cases.
ROBERT W. LOVETT, Boston.
26. Practical Aspects of the Treatment of Anterior Poliomyelitis. ARMITAGE WHITMAN, New York.
27. Contagiousness of Acute Poliomyelitis.
CHARLES HERRMAN, New York.
28. Results of Present Epidemic of Infantile Paralysis.
HENRY L. K. SHAW, Albany, N. Y.
29. The Hematogenous Invasion of the Cerebrospinal Axis in Poliomyelitis.
LASALLE ARCHAMBAULT, Albany, N. Y.
30. Recent Additions to Our Knowledge of Poliomyelitis.
FREDERICK TILNEY, New York.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN GREEN ROOM, HOTEL MC ALPIN

OFFICERS OF SECTION

Chairman—DWIGHT H. MURRAY, Syracuse, N. Y.
Vice Chairman—ANTHONY BASSLER, New York.
Secretary—LOUIS J. HIRSCHMAN, Detroit.
Executive Committee—WILLIAM M. BEACH, Pittsburgh; WILLIAM VAN V. HAYES, New York; CHARLES G. STOCKTON, Buffalo.
(Stenographer, MISS MILDRED L. BLUMENTHAL, New York)

Wednesday, June 6—9 a. m.

1. Chairman's Address: DWIGHT H. MURRAY, Syracuse, N. Y.
2. Achylia. MARTIN E. REHFUS, Philadelphia.
Discussion to opened by CHARLES D. AARON, Detroit; ALBERT F. R. ANDRESEN, Brooklyn; MAX EINHORN, New York, and ALLEN A. JONES, Buffalo.
3. Surgical Treatment of Enterocolonic Chronic Diarrheas.
SAMUEL G. GANT, New York.
Discussion to be opened by JOHN F. BINNIE, Kansas City, Mo.; JOHN M. T. FINNEY, Baltimore, and HUGO O. PANTZER, Indianapolis.
4. Chronic Diarrheas Due to Enterocolonic Conditions: The Medical Standpoint. JULIUS FRIEDENWALD, Baltimore.
Discussion to be opened by LEO H. NEUMAN, Albany, N. Y.; BERTRAM W. SIPPY, Chicago, and CHARLES D. SPIVAK, Denver.
5. Rectal and Sigmoidal Conditions in Chronic Diarrhea.
JOHN L. JELKS, Memphis, Tenn.
Discussion to be opened by THOMAS C. HILL, Boston; FRED T. MURPHY, St. Louis, and JAMES A. MACMILLAN, Detroit.
6. Statistical and Clinical Review of 450 Cases of Cancer of the Rectum and Colon. JEROME M. LYNCH, New York.
Discussion to be opened by GEORGE B. EVANS, Dayton, Ohio, and FRANK C. YEOMANS, New York.

Wednesday, June 6—2 p. m.

Election of Officers

7. The Symptomatology of the Nervous System in Chronic Intestinal Toxemia. G. REESE SATTERLEE, New York.
Discussion to be opened by SEALE HARRIS, Birmingham, Ala., and CURRAN POPE, Louisville, Ky.
8. Roentgen Observations on the Motor Phenomena of the Normal and Pathologic Colon (Lantern Demonstration). JAMES T. CASE, Battle Creek, Mich.
Discussion to be opened by WALTER C. ALVAREZ, San Francisco, and WILLIAM H. STEWART, New York.
9. Mucosal Type of Gastric and Duodenal Ulcer (Lantern Demonstration). LEWIS GREGORY COLE, New York.
Discussion to be opened by PRESTON M. HICKEY, Detroit, and RUSSELL D. CARMAN, Rochester, Minn.
10. A Further Report of the Use of Quinin and Urea in the Treatment of Hemorrhoids.
EMMETT H. TERRELL, Richmond, Va.
Discussion to be opened by COLLIER F. MARTIN, Philadelphia.
11. Anal and Rectal Fistula (Lantern Demonstration).
J. RAWSON PENNINGTON, Chicago.
Discussion to be opened by WILLIAM M. BEACH, Pittsburgh.

Thursday, June 7—9 a. m.

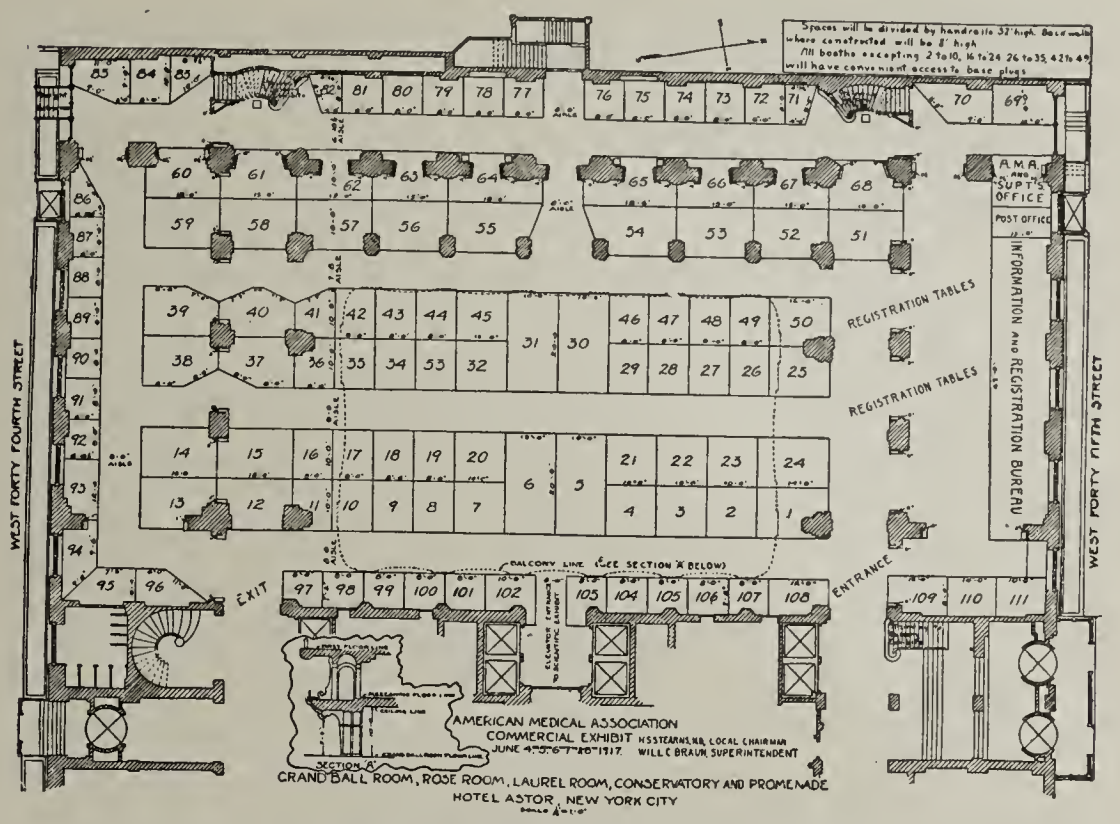
12. Gastric Conditions in Chronic Constipation.
WILLIAM G. MORGAN, Washington, D. C
Discussion to be opened by JOHN W. BELL, Minneapolis, PROF. A. J. CARLSON, Chicago, and I. HARRIS LEVY, Syracuse, N. Y.
13. Autointoxication in Chronic Constipation.
HORACE W. SOPER, St. Louis.
Discussion to be opened by HENRY ILLOWAY, New York, and DUDLEY D. ROBERTS, Brooklyn.
14. Enterocolonic Conditions in Chronic Constipation.
GRANVILLE S. HANES, Louisville, Ky.
Discussion to be opened by WALTER A. BASTEDO, New York; JOSEPH C. BLOODGOOD, Baltimore, and EMMETT H. TERRELL, Richmond, Va.
15. Rectal Conditions in Chronic Constipation.
ALOIS B. GRAHAM, Indianapolis.
Discussion to be opened by LEWIS H. ADLER, JR., Philadelphia, and SAMUEL T. EARLE, Baltimore.
16. Dynamic and Adynamic Intestinal Obstruction.
JOHN W. DRAPER, New York.
Discussion to be opened by ANGUS MCLEAN, Detroit.

List of Exhibitors

	Space
Abbott Laboratories, The, Chicago	25
Albuquerque, N. M., Cham. Com.	137 (Mez Fl.)
Allen Chapman Co., Boston	So. ½ sp. 62
Allison Co., W. D., Indianapolis	94-95
Aloe Co., A. S., St. Louis, Mo.	21
Amb. Pneu. Splint Mfg. Co., Chicago	99
A. M. A. (Propaganda)	125-126-127-128 (M. Fl.)
Anatomik Footwear Co., New York City	88
Armour & Co., Chicago	13
Bard, Charles R., New York City	18
Barnum Van Orden Co., New York City	52
Barton Mfg. Co., The, New York City	92
Bausch & Lomb Opt. Co., Rochester, N. Y.	15
B. B. Culture Laboratory, Yonkers, N. Y.	42
Becton, Dickinson & Co., Rutherford, N. J.	129 (Mez. Floor)
Berger Bros. Co., The, New Haven, Conn.	34
Betz Co., Frank S., Hammond, Ind.	30-31
Blakiston's Son & Co., P., Philadelphia	108
Borcherdt Malt Extract Co., Chicago	100
Borden's Condensed Milk Co.	23
Brady & Co., Geo. W., Chicago	2
Burdick Cabinet Co., Milton, Wis.	101
Campbell Electric Co., Lynn, Mass.	79-80
Carnes Artificial Limb Co., Kansas City, Mo.	45
Castle Co., Wilmot, Rochester, N. Y.	102
Chicago Surgical & Electrical Co., Chicago	91
Clark & Co., A. C., Grand Crossing, Chicago	96
Davis Co., F. A., Philadelphia	47
De Vilbiss Mfg. Co., Toledo, Ohio	16
Earnshaw Knitting Co., Chicago	90
Eastman Kodak Co., Rochester, N. Y.	60
Foregger Co., The, Inc., New York City	68
Funk & Wagnalls, N. Y. City.	118 (Mez. Floor)
General Chemical Co., N. Y. City.	117 (Mez. Fl.)
General Electric Co., Schenectady, N. Y.	43-44
General Optical Co., Inc., New York City	17
Graham & Berwyn Inc.	130 (Mez. Floor)
Grain Products Co., St. Louis, Mo.	85
Green & Bauer, Inc., Hartford, Conn.	8
Halverson Co., The, Portland, Ore.	111½
Hanovia Chemical Co., Newark, N. J.	65
Hardy & Co., F. A., Chicago	14
Hoeber, Paul B., New York City	55
Hollister-Ashland Laboratories, The, Chicago	46
Horlick's Malted Milk Co., Racine, Wis.	69-70
Hynson, Westcott & Dunning, Baltimore	63-64
Jaeckh Mfg. Co., Cincinnati	78
Johnson, Mead, & Co., Evansville, Ind.	26
Kaffee Hag Corporation, New York City	59
Kelley-Koett Mfg. Co., Covington, Ky.	11-12
Kny-Scheerer Co., New York	58-61
Kops Bros., N. Y. City	140 (Mez. Floor)
Lea & Febiger, Philadelphia	51
Leitz, Ernst, Inc., New York City	3
Life Saving Devices, Inc., Chicago	28-29
Linen Underwear Co., Greenwich, N. Y.	66
Lippincott Co., J. B., Philadelphia	109-110
Lister Bros., N. Y. City	84
Lowenthal & Hosick, Louisville, Ky.	86
Machlett & Son, E., New York City	77
Maltine Co., The, New York City	38
May, Berthe, N. Y. City.	139 (Mez. Floor)
McIntosh Battery & Optical Co., Chicago.	35-36
Mellin's Food Co., Boston	71-72-73
Meyer Co., The William, Chicago	74-75
Meyrowitz, E. B., Inc., New York City	7-20
Mosby Co., C. V., St. Louis	50
Mulford Co., H. K., Philadelphia	32-33
National Pathological Laboratories, Chicago	111
Pierce, Harvey R. Co., Phila.	134 (Mez. Floor)
Pulvola Chem. Co., Jersey City, N. J.	83
Radium Chem. Co., Pittsburgh, Pa.	9
Rebman Co., New York City	22
Respiratory App. Co., Chicago	131 (Mez. Floor)
R. & E. Mfg. Co., Cleveland	89
Safety Anaesthesia App. Concern, Chicago	76
Saunders Co., W. B., Philadelphia	1-24
Schering & Glatz, New York City	57
Scientific Apparatus Co., New York City	10
Siebrandt, J. R., Kansas City, Mo.	W 5′ of sp. 93
Simplex Acct. Syst. Co., Buffalo.	½ of sp. 62
Sorenson, C. M., New York City	41
Southworth Co., The, Troy, N. Y.	67
Squihb and Sons, E. R., New York City	5-6
Standard X-Ray Co., Chicago	121 (Mez. Floor)
Surg. Narcosis Sup. Co., N. Y.	135 (Mez. Fl.)
Tagliabue Mfg. Co., C. J., Brooklyn	97
Taylor Instrument Cos., Rochester, N. Y.	37-40
Teter Mfg. Co., The, Cleveland	27
Thompson, Plaster Co., Leesburg, Va.	56
Toledo Technical Appl. Co., Toledo, O.	19
Victor Electric Corp'n, Chicago	53-54
Vulcan Coil Co., Los Angeles, Calif.	81-82
Wander Co., The, Chicago	107
Wappler Electric Co., N. Y.	103-104-105
Waukesha Hth. Prod. Co., Waukesha, Wis.	98
Weder Mfg. Co., Philadelphia	106
Weissfeld Bros., New York City.	E 7′ of sp. 93
Welch Grape Juice Co., Westfield, N. Y.	39
Wilson & Wilson, Boston	87
Woolf, Michael, New York City	4
Wood & Co., Wm., New York City	48-49
Wright Wire Co., Worcester, Mass.	132 (Mez. Floor)
Year Book Pub. Co., Chicago.	132 (Mez. Fl.)

THE COMMERCIAL EXHIBIT AT NEW YORK

A Display of What the Practicing Physician Needs in His Professional Work



PREVIEW OF THE COMMERCIAL EXHIBIT

The Commercial Exhibit this year will include the displays of 100 well-known firms. The Hotel Astor, in which it will be held, is centrally located and of convenient access; its spacious and elaborate Grand Ball Room constitutes a most favorable place for this representative exhibit by purveyors to the medical profession.

Visiting physicians will, no doubt, be especially interested in the variety of scientific commodities assembled for inspection. The exhibition will be of distinct educational value; in fact, it promises, as always, to be one of the most animated departments of the Annual Session.

What can be more beneficial practically to the conventionist than to make a close-at-hand inspection and to witness demonstrations of the recent developments in apparatus, instruments and the sundry devices used in the practice of medicine and surgery; to review the latest books on important topics; to examine the various groups of pharmaceutic and biologic products and, best of all, to come in contact with the men who supply the profession with the necessary accouterments for successful work?

Let no Fellow fail to visit the commercial exhibits. Your presence and interest will encourage the exhibitor and reward him in part for his painstaking effort and expense in preparing his display for your inspection. Don't hesitate

to approach him and ask him for information. Don't be reticent with your questions, doubts or opinions. He will be delighted to know you. We urge you to do your part to inject into this feature of the Session an element of good fellowship and lively interest.

Following is a brief outline of the features of various displays given in their respective classifications:

Books

Nine publishers will display practically all of the more recent works on medicine and surgery. P. Blakiston's Son & Co., Space 108, will have ready for examination "Regional Surgery" in three volumes by J. Fairbairn Binnie, and "Operative Surgery" by forty-four prominent surgeons, in addition to several other new editions of well-known works. J. B. Lippincott Company, Spaces 109 and 110, will display as usual their large and complete line of medical, pharmaceutical and nursing text books and works of reference, Piersol's "Anatomy," the tenth edition of White and Martin's "Genito-Urinary Surgery and Venereal Diseases," "The Ear in General Medicine" by Isaac H. Jones, and many other books of equal worth. Lea & Febiger, Space 51, will offer their usual display of new books and new editions of former works. Special attention is called to their "Modern Urology" by American authors, edited by Hugh Cabot, M.D., and "Diseases of the Thyroid and Thymus Glands" by Andre Crotti, M.D. Among the new editions will figure Jelliffe and White's "Diseases of the Nervous System," Joslin's "Diabetes Mellitus" and numerous others. The C. V. Mosby Company, Space 50, will feature, among other writings, Pottenger's "Clinical Tuberculosis," Brown's "Asthma," Jackson's "Experimental Pharmacology," Bartlett-McKittrick's "After Care of Surgical Cases," and the completed set of Loeb's "Operative Surgery of the Nose, Throat and Ear." In addition to these they will offer for inspection their line of standard monographs and textbooks. Rebman Company, Space 22, will attract many with their display of special works on medicine and surgery. They will offer a fine bit of service by listing visitors' names for subsequent mailing of catalogues. The weary and oft laden delegate will be quick to appreciate this thoughtfulness. W. B. Saunders Company, Spaces 1 and 24, will show as usual an attractive line of new and important books, such as the current volume of "The Mayo Clinic," Carman and Miller's "Roentgen Diagnosis of Diseases of the Alimentary Canal," Volume 4 of Musser and Kelly's "Practical Treatment," etc. They will also show new editions of former popular productions and will present visitors with advance sheets on books in course of preparation. Messrs. William Wood & Co., Spaces 48 and 49, propose to give conventionists a treat by showing timely publications on military medicine and surgery. Among these will be the revised edition of Mason's "Handbook for the Sanitary Troops," Havard's "Military Hygiene," Lagarde's "Gunshot Injuries," etc. This line of books is a step toward preparedness from the standpoint of the alert physician and surgeon.



Pharmaceuticals, Chemicals and Biologic Products

A representation of well-known pharmaceutical houses with a multitude of standard high grade products will greet the visitor this year. Much can be said of the commendable way in which these firms have striven to supply the profession with goods of quality and dependability. Their combined efforts in this direction are, we believe, universally appreciated, and merit the support of the profession whose interests they are eager to serve. Armour & Co., Space 13, will show the organotherapeutic agents, such as pituitary liquid, a physiologically standardized solution of pituitary substance free from chemical preservatives. Standardization of enzymes, ferments and all glandular products are routine duties of the Armour Laboratory. The Abbott Laboratories, Space 25, will display products which are useful in military and civil practice, such as Dakin's new synthetic "Chlorazene," and also such products as Abbott's Typhoid Prophylactic, Slee's Smallpox Vaccine, Diphtheria Antitoxin and other biologics. B. B. Culture Laboratory, Space 42, will explain the methods and advantages of B. B. Culture, a liquid suspension of *B. Bulgaricus*. Other features of the exhibit will include microscopic demonstration and stenographic service free to physicians. Hynson, Westcott & Dunning, Spaces 63 and 64, will exhibit, among other interesting therapeutic and diagnostic products, apparatus for determining the alkali reserve of the blood, according to the method devised by Dr. W. McKim Marriott. Outfits for determining the carbon dioxid tension of alveolar air and the hydrogen-ion concentration of blood will also be shown. H. K. Mulford Company, Spaces 32 and 33, will show the production of Antipneumococcic Serum Polyvalent Mulford by suitable charts; a complete portrayal of the method of furnishing Mercurialized Serum Mulford for intraspinal and intramuscular injection will also form an interesting feature of this exhibit. They will also show moving pictures of the methods of applying Carrel-Dakin's solution in surgical cases. Pulvola Chemical Company, Inc., Space 83, will feature a dry impalpable, white ichthyol as combined with Dolomol; also Pulvola "the Doctor's Baby Powder" and Pulvola Foot Powder. Their unique demonstration of "the Tale the Two Tumblers Tell," is a revelation on toilet powders and "dry ointments." Schering & Glatz, Space 57, will show several products now manufactured by them in the United States. Prominent among them will be Iocamfen, a new type of free iodin preparation which is of special interest in first-aid and emergency surgery. The Radium Chemical Company, Space 9, with the aid of a dark room will demonstrate and explain to those interested the alpha, beta and gamma rays. They will display the several types of radium applicators now in use by the dermatologist, the gynecologist and the surgeon, as well as the screens used with the different types of applicators. E. R. Squibb & Sons, Spaces 5 and 6, will have assembled for the visitors' inspection their usual line of standardized preparations. This firm has been a purveyor to the chemical needs of the profession for over fifty-eight years.

Apparatus, Instruments and Furniture

The wide variety of apparatus, instruments, office and hospital furniture, new and improved equipment and appliances of all descriptions will constitute a delightful treat to the visiting practitioner interested in knowing about the newer devices that will help him to increase his efficiency or enable him to do more work in less time than with the equipment he is using.

Conventionists interested in up-to-date office, reception room, and hospital furniture and equipment will gravitate toward the booth of W. D. Allison Company, Spaces 94 and 95. We feel that once there, they will enjoy reviewing the innovations and improvements in this line. The Chicago Surgical & Electrical Company, Space 91, will demonstrate constant temperature apparatus, and expect to have on hand a supply of amebas, kept alive on a warm stage, for those who would be interested to watch them under the microscope. Prominent among the progressive and well-known firms will be the DeVilbiss Manufacturing Company, Space 16. Their display will consist of Prescription and Office Atomizers, Nebulizers and Powder Blowers; also special Atomizer and Electric Heater Sets. They have never failed to draw favorable attention at the annual meetings of the past, and there is reason to believe that this year's exhibit will not be lacking in interesting features. The Halverson Company, Space 111½, will show models of electric sterilizers with and without signal lamps. It will be worth the physician's time to inspect them. The exhibit of the Kny-Scheerer Corporation, Spaces 58 and 61, will include some of the latest designs in operating tables, particularly a model which can be raised or lowered to suit the stature of the surgeon, eliminating tiresome stooping. Other features will be the Hawley table, and late developments in sterilizers. A sterilizer detector, which indicates conditions in the interior of the sterilizer during sterilization will also be shown. Life Saving Devices Company, Spaces 28 and 29, will demonstrate the Lungmotor, a resuscitating device, and also their Infant Lungmotor designed for obstetric work only, their Breathing Apparatus and Improved Stretchers. The R. & E. Manufacturing Company, Space 89, will feature Dr. Beachler's Pocket Sphygmomanometer, a well-known blood pressure apparatus which permits of the filtration of air coming in contact with the mercury column, thus preventing oxidation. This instrument records pressure by either the palpation or auscultatory method. C. J. Tagliabue Manufacturing Company, Space 97, will exhibit two types of sphygmomanometers: their Tag-Aneroid type and the Tag-Schneider Mereurial type. They will also show their Real Record Syringes, which are finding favor among surgeons for intravenous injection and other important surgical purposes. The Taylor Instrument Companies, Spaces 37 and 40, will feature their hygrometer in its various forms including the pocket hygrometer for physicians, a complete line of urinalysis glassware, the Tycos self-verifying sphygmomanometer, demonstrated by attendants thoroughly conversant with blood pressure technie; hemocytometer pipets, hospital thermometers, etc. They will also show a new book entitled "Blood Pressure Simplified." Weder Manufacturing Company, Space 106, will show eye, ear, nose and throat instruments. Ophthalmologists, laryngologists and otologists will find themselves at home at this booth among the number of improved instruments for their work.

Foods

The producers of foods who will be represented in the hall have contributed a great deal toward the solution of the dietetic problems which years ago puzzled the average physician. Aside from seeing the newer preparations, the visitor at these booths will gather information which can be used to advantage in every day practice.

Borcherdt Malt Extract Company, Booth 100, will demonstrate and explain the qualities of Borcherdt's Malt Soup-Extract made from 100 per cent. barley malt. The Grain Products Company, Space 85, will distribute Bran-eata Biscuits as samples and explain their value as an adjuvant in the relief of constipation. Don't fail to get your trial package. Horlick's Malted Milk Company, Spaces 69 and 70, will conduct an "original" exhibit consisting of the Original Malted Milk, the Original Malted Milk Lunch Tablets, Horlick's Food and Horlick's Diastoid. Malted Milk will be served hot or cold, and in the form of ice cream. Mead Johnson & Co., Space 26, will exhibit Mead's Dextri-Maltose, a nonproprietary malt sugar, a highly assimilable easily tolerated form of carbohydrate for use in infant feeding. They will exhibit also Mead's Dry Malt Soup Stock which can be used the same as liquid malt soup. Kaffee Hag Corporation will arrange an exhibit in Space 59 showing the evolution of coffee from the blossom to the roasted coffee from which 95 per cent. of the caffein is removed. They will also show a very desirable method of brewing coffee, and will serve Kaffee Hag, both iced and hot, with cream. Lister Brothers, Space 84, will interest you in Lister's Diabetic Flour. This flour is made into palatable muffins, bread, cookies, etc. An expert dietitian will explain and demonstrate their preparation. The Maltine Company, Space 38, will make an attractive and instructive display of its various preparations and of the raw products that enter into their composition. Especial attention will be directed to Maltine Malt Soup Extract. Mellin's Food Company will be present at Spaces 71, 72 and 73. A special feature of their exhibit will be a display of the raw materials that enter into the making of Mellin's Food. Representatives will explain in detail their method of milk modification.

The Dr. A. Wander Société Anonyme of Berne, Switzerland, Space 107, will conduct its first exhibit at an A. M. A. Session this year. Their dietetic food "Ovaltine," a malt milk and egg food beverage, will be displayed. A number of unique features are promised. Waukesha Health Products Company, Space 98, will demonstrate their Diabetic Foods, Hepco Products. Hepco Products include Hepco Flour, the original Soya Bean Meal, Hydro Process. Hepco Dodgers, a diabetic bread in cracker form, and Hepco Grits are also manufactured by this company. The Welch Grape Juice Company at Booth 39 will, as usual, serve Welch's Grape Juice to the visiting physicians.

Roentgenographic Apparatus and Accessories

The Eastman Kodak Company, Space 60, will show what can be done with Seed X-Ray Plates, Eastman X-Ray Films and Dental X-Ray Films. Experts will explain how the plates are made and how to prevent photographic troubles. Sundries for the complete equipment of the dark room will also be displayed; a new camera for making reductions of Roentgen-ray plates to 5 by 7 or lantern slide size will be exhibited. The General Electric Company, Spaces 43 and 44, will exhibit roentgenograms taken with different types of Coolidge x-ray tubes. In addition there will be shown several types of Coolidge tubes and the different steps in the manufacture of the tube will be explained. Do not forget to examine the plate exhibit at the booth of the William Meyer Company, Spaces 74 and 75. All the negatives shown are taken with the Meyer Interrupterless Transformer. Roentgenographers who do their own developing will be given a convenient dark room device when registering at this booth. The exhibit of the Victor Electric Corporation will occupy approximately 300 square feet, Exhibit Spaces 53 and 54, in which they will demonstrate the new Model Snook Interrupterless X-Ray Transformer; also selections of standard apparatus which in the aggregate will make up a complete Roentgen and electromedical department. Vulcan Coil Company, Spaces 81 and 82, will exhibit samples of the Vulcan Coil comprising models from the small portable types to larger cabinet machines and also some accessory apparatus, such as tube holder brackets. Their special feature will be sectional apparatus, so designed that the Roentgen-ray machine is used as a base unit, and treatment units may be added as required. The Wappler Electric Company, Exhibit Spaces 103, 104 and 105, will include among other apparatus the "Bellevue" model Roentgen-ray machine. A feature of this machine is its glass-covered switchboard. A shock-proof switchboard is also included in the little "Empire" radiographic interrupterless machine, which, placed side by side with its giant brother, the "Bellevue," will give the observer a clear idea of the many machines differing in type as well as size that are manufactured by this company. A full line of the "A. C. M. I." cystoscopes and urethroscopes, the May ophthalmoscope, and other apparatus of interest will be additional features.

Eye, Ear, Nose and Throat Appliances and Microscopes

The Bausch & Lomb Optical Company, Space 15, will feature their new binocular microscope which they claim is a real advance in microscope construction. The new ophthalmologic department of this company will introduce a modern test frame with test lenses, the latter designated in vertex refraction. Ophthalmologists will no doubt appreciate this exhibit, which offers them a perspective into the fine points of the manufacture of their professional necessities. General Optical Company, Space 17, will exhibit its regular line of high grade optical goods. The visiting ophthalmologists will be delighted with the character of this display. This firm announces its policy as one of progressiveness, true service and high standards. F. A. Hardy & Co., Space 14, expect to show a "knot pusher" used in tonsil work, two new style lid clamps, an electrically lighted mouth gag and tongue depressor, a corneal dissector, three new style submucous knives devised by Dr. Otto Freer, and the regular Hardy controlled specialties, the Gradle Tonometer, the Gradle Trephine, and the Tydings Snare. In addition they will have a full line of ophthalmologic instruments and eye, ear, nose and throat surgical instruments. The exhibition of E. Leitz, Inc., Booth 3, will comprise a variety of apparatus manufactured by this firm in this country. (Most of their instruments were formerly imported.) The following are just a few of the apparatus manufactured and sold by this company: Duboscq-Leitz Colorimeter, Nephelometer Attachment, Hellige-Leitz Colorimeter, Kuttner-Leitz Colorimeter, Meyer-Leitz Colorimeter, "Radio" Lamp for microscope illumination, Diagnostic Microtomes, "Elei" Centrifuges, and the "Elei" Wassermann-Bath. They will also have a line of American made Blood Counting Apparatus. E. B. Meyrowitz, Inc., Spaces 7 and 20, will exhibit eye, ear, nose and throat instruments, including a number of unusual items of scientific interest. Among these might be mentioned the giant magnet for extracting pieces of steel from the eye, special magnifiers, like the Berger Loupe to assist in the removal of foreign bodies, electrical ophthalmoscopes, auriscopes, and a remarkably complete electrotherapeutic apparatus. Of special interest will be that part of the exhibit of tests and apparatus for testing vision and color sense. This will interest army and navy officers, and physicians in civil life who examine for railroads, steamships and large industrial plants. Michael Woolf, Space 4, will show the new Automatic Cylinder Attachment which now forms an important part of the Ski-Optometer. In addition to the Ski-Optometer they will exhibit their new Headband Retinoscope as well as their new Ophthalmic Bracket and other optical specialties.

Anesthesia Apparatus and Accessories

A. C. Clark & Co., Space 96, will demonstrate their nitrous oxid-oxygen hospital apparatus equipped with automatic regulators, vapor warmer, rebreathing bag and ether attachment; also the Baby Clark outfit for obstetric and minor surgical purposes; fountain spittoons for office, hospital and sanatorium service, etc. The Foregger Company, Inc., Space 68, will demonstrate by means of the "Gwathmey" Gas Oxygen and Ether Apparatus the simplification of gas oxygen anesthesia by the adoption of the sight feed and control valve system to the large size gas and oxygen cylinders. The "Gwathmey" outfits will no doubt interest every conventionist. The Safety Anaesthesia Apparatus Concern, Space 76, will show the Safety-Gas-Oxygen Apparatus. This apparatus administers a mixture washed, moistened and warmed to a temperature of about blood heat maintaining the correct ratio of oxygen in the mixture. The Scientific Apparatus Company, Space 10, will explain the advantages of the Connell Gas Oxygen Apparatus. With this apparatus you can know the quantity of gas you are delivering and can adjust the required dosage several minutes ahead of the clinical reaction, a feature which makes for safety to the patient and economy of gas flow. The Teter Manufacturing Company, Space 27, will exhibit their new sight-feed regulated pressure gas-oxygen outfit designed for use by hospitals, anesthetists and obstetricians. This outfit shows the nitrous oxid and oxygen flowing through jets in tubes immersed in water.

Artificial Limbs, Corsets and Supportive Appliances

The Barnum-Van Orden Company, Booth 52, will give a demonstration of mechanical support applied to physiologic requirements in conditions of relaxed abdominal musculature and visceroptosis; pathologic cases with histories, roentgenograms and illustrations will be presented. Sacro-iliac supports, maternity corsets, postpartum binders, correct posture corsets and postoperative supports constructed to aid in strengthening the abdominal musculature will also be shown. The Berger Brothers Company, Space 34, will show Spencer corsets and supports for the relief of sacro-iliac strain, visceral ptosis, floating kidney, intestinal stasis and ventral or umbilical hernia; also postoperative supports, maternity supports, etc. The exhibition of the Carnes Artificial Arm, Booth 45, will be made interesting by men actually wearing the Carnes arm, showing the practical use to which it can be put, such as using telephone, carrying suitcase, writing, sharpening lead pencils and various other things which are accomplished by its use. Kops Brothers, Space 140 (mezzanine floor), will demonstrate the "Nemo" Wonderlift Corsets. It is claimed that the "Nemo" combines ultrafashion with the necessary hygienic, supportive features.

Electromedical Apparatus

Burdick Cabinet Company, Booth 101, will feature its line of Electric Light Bath Cabinets. This concern has spent years in engineering effort to place the light bath on a scientific basis. Thompson-Plaster Company, Space 56, will exhibit its combination electrical cabinets, including their 1917 model H. H. New features and improvements have been incorporated and now in a space occupied by one cabinet a physician has at his command an electrical equipment capable of doing a number of things from vibration to Roentgen-ray work without shifting the position of physician or patient.

Miscellaneous

The Barton Manufacturing Company, Space 92, will exhibit anatomic rubber stamps for use on history charts and cards, with a practical demonstration of how rubber stamps are made. They will also show stationery embossers with which one can emboss one's own stationery. The National Pathological Laboratory, Space 111, will show interesting slides of pathologic tissue, and also gross specimens. Attending physicians are requested to call at this booth for information regarding the manner in which this institution does its work. Simplex Account System Company, Inc., Space 62, will exhibit the Simplex System of Accounting and Case Recording in cabinets of different designs; also the Simplex Fireproof Safe System—a step forward in record keeping for the busy practitioner. As suggestions along this line are always appreciated, this exhibit should prove of decided interest.

The foregoing descriptive references do not by any means represent every exhibit, as can readily be seen by referring to the alphabetical list of exhibitors on page 1375. The firms mentioned have been able to supply advance information as to what they expected to show—others unfortunately have not.

Fellows who attend the session should make it a point to go to the exhibit hall daily, as it will be practically impossible in one or two visits to inspect everything and receive the maximum benefit from the demonstrations that will be given.

You are urged to feel absolutely free to examine everything without thinking that you are expected to buy. The men who will be in charge of the booths are competent in their respective lines, and their main object will be to give you intelligent information and satisfactory demonstrations of whatever commodity they are showing. They will be delighted to cooperate with you to employ new suggestions and to interchange opinions as to the worthiness of the articles demonstrated. In this way mutual benefit will result both to you and to the firms represented.

It is the aim of the American Medical Association to make the commercial exhibits of educational value. They are "commercial" only to the extent that the articles shown can be bought and that the manufacturer profits by increased patronage after his article has made a correct impression on the physician from a "scientific" standpoint.

Dr. H. S. Stearns, 32 E. Sixty-Fourth Street, New York, is the local chairman of the commercial exhibits; Will C. Braun, 535 North Dearborn Street, Chicago, is the superintendent.

NEW YORK CLINICAL SESSIONS

ADMISSION TICKETS to the Clinics, Demonstrations and Exhibits incorporated in the Clinical Sessions program will be issued *only* to members and guests who register and make application at the American Medical Association Headquarters.

GUESTS other than physicians and dentists will not be admitted to the Medical and Surgical clinics.

SPECIAL BADGES and BUTTONS will be issued to guests (other than physicians and dentists) of the Clinical Sessions and of the American Medical Association who wish to attend the demonstrations, moving pictures and exhibits or inspect the different nursing, medical, municipal and public health institutions arranged for in the program by the Committee on Preventive Medicine and Public Health and the Committees on Allied Topics, including Trained Nursing and Training Schools, District Nursing System, Hospital Social Service, and Planning and Financing of Municipal and Non-Municipal Hospitals.

FELLOWS OF THE AMERICAN MEDICAL ASSOCIATION may apply in advance by mail for tickets of admission to the Clinical Sessions. In writing for the three sessions (Monday afternoon, Tuesday morning and Tuesday afternoon) give first, second and third choice, as seating capacity of amphitheaters is limited. Tickets of admission will be delivered after registration at the American Medical Association Headquarters.

GENERAL CLINICAL SESSIONS COMMITTEE[1]

Wendell C. Phillips, Chairman
Samuel G. Gant, Sec. — **D. Campbell, Asst. Sec.**
Alexander Lambert — **Floyd M. Crandall**

GENERAL MEDICINE

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SAMUEL A. BROWN — SIDNEY STEINER
LEWIS A. CONNER — J. M. VAN COTT

MONDAY AFTERNOON, JUNE 4

BELLEVUE HOSPITAL—2. First Medical Division, Wards A-3, A-4, and B-4 Clinic, Dr. Van Horne Norrie and assistants; Tuberculosis Division, Wards 1-2 and 1-4, Dr. James Alexander Miller; Third Medical Division, Wards A-6 and B-6, Division Members: Fourth Medical Division, Wards A-2, B-2 and B-3, Dr. Charles E. Nammack. Demonstration: Electrocardiograph: its value in diagnosis, Dr. Alexander Lambert.

BROOKLYN HOSPITAL (Amphitheatre)—2:30. Concepts, nephritis, Dr. J. M. Van Cott; Relation skin lesions to protein sensitizations, Dr. Nathan T. Beers; Chronic appendicitis; its rôle in abdominal symptomatology, Dr. Richard W. Westbrook.

BUSHWICK HOSPITAL, Brooklyn—2. Clinic.

CITY HOSPITAL, Blackwell's Island—2. Clinic: Dr. E. P. Shelby; Clinic: Dr. C. E. Quimby.

CUMBERLAND STREET HOSPITAL, Brooklyn—2:30. Clinic, Dr. E. Rodney Fiske.

EASTERN DISTRICT HOSPITAL—2. Clinic, Dr. George Kessler.

FORDHAM HOSPITAL—3. Bedside clinic, Dr. A. F. Brugman.

GERMAN HOSPITAL AND DISPENSARY—2:30. Medical clinic, Drs. A. Caille, Otto Schwerdtfeger, Max Einhorn.

LEBANON HOSPITAL—2. Ward demonstrations, Attending Physicians and Adjuncts.

METHODIST EPISCOPAL HOSPITAL, Brooklyn—3:15. Radiographic diagnosis, thorax; lantern slides and case histories, Lambert-Patterson treatment bichlorid poisoning; cases; High caloric and low caloric feeding in typhoid fever, Drs. Glentworth R. Butler, Frank B. Cross, Henry G. Webster; Ward cases, Aspects of 1800 poliomyelitis cases, Drs. Hartwig Kandt, Eugene S. Dalton.

MONTEFIORE HOME AND HOSPITAL—2. Introductory; Construction and organization of hospital for chronic diseases, Dr. S. Wachsmann. Medical Service: Clinic, Dr. Louis Hauswirth; Functional tests in nephritis, Dr. A. I. Ringer; Electrocardiography; heart sounds; orthodiascopy, Dr. George Fahr. Laboratory: Ward demonstration, metabolism, Dr. N. W. Janney; Specimens chronic disease, Dr. B. S. Kline. Demonstration: X-ray findings, Dr. Thomas Scholz.

MOUNT SINAI HOSPITAL—2:30. Ward clinic, Dr. E. Libman; Demonstration: artificial pneumothorax (Wards F and L), Dr. Alfred Meyer; Clinic, Dr. Morris Manges.

N. Y. CITY CHILDREN'S HOSPITALS AND SCHOOLS, Randall's Island—4. Clinic, Drs. Thomas S. Southworth, William R. May, William J. Mersereau and staff.

POLYCLINIC HOSPITAL—2. General Medical Amphitheatre: Thoracic aneurysm, Dr. W. H. Katzenbach; Esophageal diseases; strictures, lantern slides, Dr. W. V. V. Hayes; Diagnosis, appendicitis, Dr. A. Bassler; Endocrinous disturbances, Dr. M. Packard; Diagnosis, illustrated by motion pictures, including Wassermann test, intravenous medication, spinal puncture and chest aspiration, Dr. O. Wightman; Clinic, Dr. G. A. Friedman; Strychnin in toxic and functionally inhibited states, Dr. E. S. Bishop.

POST GRADUATE HOSPITAL—1:30. Amphitheatre D: Human sensitization to foreign proteins; demonstrations, Dr. Robert A. Cooke; Amphitheatre D: Enteroptosis and subnutrition; their relationship and treatment, Dr. Max Einhorn; Third Floor Laboratory: Exhibition cases and cardiac clinic, Dr. Robert H. Halsey.

ST. CATHERINE'S HOSPITAL, Brooklyn—2. Clinic, Drs. W. T. Allen, L. H. Fleck.

ST. JOHN'S LONG ISLAND CITY HOSPITAL—2:30. Clinic and demonstration in wards and laboratory; Nephritis: Diagnosis; clinical types; Renal function (laboratory demonstration): Retention waste products in blood; Excretion waste products in urine; Salt and water elimination; Elimination foreign substances; Prognosis and therapeutics based on functional studies; Pathologic demonstration; Drs. Carl Boettiger, Joseph H. Bainton.

ST. LUKE'S HOSPITAL—2. Ward clinic: cerebrospinal syphilis, Pick's disease, Radium treatment leukemia, Dr. S. W. Lambert and assistants; Ward clinics, Dr. Austin W. Hollis and assistants.

ST. PETER'S HOSPITAL, Brooklyn—2. Clinic, Dr. T. A. McGoldrick.

TUESDAY MORNING, JUNE 5

BELLEVUE HOSPITAL—10. Tuberculosis Division: Wards I-2 and I-4, Cases, Dr. James A. Miller; Second Medical Division, Ward A-1, Exhibition foods for high calory diet, Dr. Warren Coleman; Exhibition metabolism ward, Russell Sage Institute of Pathology, Dr. E. F. Du Bois; Third Medical Division, Amphitheatre, Clinic, Dr. Herman M. Biggs.

BUSHWICK HOSPITAL, Brooklyn—10. Clinic.

CENTRAL AND NEUROLOGICAL HOSPITAL, Blackwell's Island—9. Clinic: phases cardiac vascular diseases in the aged, Dr. Selian Neuhof.

GOUVERNEUR HOSPITAL—10:30. Pneumonia types, Dr. C. N. B. Camac; Methods testing kidney function, Dr. C. N. B. Camac.

KINGS COUNTY HOSPITAL, Brooklyn—9. Nephritis, Drs. G. R. Hall, J. M. Van Cott, B. F. Corwin.

Post Graduate Hospital—9. Amphitheatre D: Human sensitization to foreign proteins; demonstrations, Dr. Robert A. Cooke; Heart disease clinic, Dr. Robert Abrahams; Nephritis diet-treatment, Dr. Arthur F. Chace.

PRESBYTERIAN HOSPITAL—10. Ward rounds, Drs. W. T. Longcope, David Bovaird, T. S. Hart, H. T. Swift.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH—11. Treatment acute lobar pneumonia, Drs. Rufus Cole, Henry T. Chickering; Treatment diabetes mellitus, Drs. Friederick M. Allen, Reginald Fitz; Mode action and use: digitalis in heart disease and acute infections, Dr. Alfred E. Cohn.

ST. MARY HOSPITAL, Brooklyn—9. Clinic, Drs. J. S. Waterman, J. MacEvitt, J. Leiter.

TUESDAY AFTERNOON, JUNE 5

BELLEVUE HOSPITAL—1. First Medical Division, Wards A-3, A-4 and B-4, Cases, Dr. Van Horne Norrie and assistants; Tuberculosis Division, Wards I-2 and I-4, Dr. James A. Miller; Second Medical Division, Ward A-1, Exhibition, foods for high calory diet, Dr. Warren Coleman; Exhibition metabolism ward, Russell Sage Institute of Pathology, Dr. E. F. Du Bois; Third Medical Division, Wards A-6 and B-6, Cases, Members of Division; Fourth Medical Division, Wards A-2, B-2 and B-3, Cases, Dr. Charles E. Nammack; Economic value dispensary direction ambulant cardiac cases, Dr. Hubert Guile.

BROOKLYN HOSPITAL—2:30. Recognition chronic gallbladder; a. Clinical types; b. Radiographic demonstration pathologic gallbladder, Dr. Dudley Roberts; Recognition and treatment acid intoxications, Dr. Glentworth R. Butler.

BUSHWICK HOSPITAL, Brooklyn—2. Clinic.

CITY HOSPITAL, Blackwell's Island—4. Clinic, Dr. W. A. Bastedo.

CUMBERLAND STREET HOSPITAL, Brooklyn—2:30. Clinic, Dr. E. Rodney Fiske.

FORDHAM HOSPITAL—3. Clinic, Dr. G. Reese Satterlee.

GERMAN HOSPITAL AND DISPENSARY, N. Y.—Clinic, Drs. Caillé, Otto Schwerdtfeger, Max Einhorn.

GERMAN HOSPITAL OF BROOKLYN—2. Endocrinologic diagnosis, Dr. J. Gutman.

HUDSON STREET HOSPITAL (Operating Room)—3. Clinic, cerebrospinal syphilis simulating epilepsy, Drs. Hughes Dayton, Peter Irving.

KINGS COUNTY HOSPITAL, Brooklyn—2. Clinic, Dr. Tasker Howard.

LEBANON HOSPITAL—2. Ward demonstration, Medical Attending Physicians and Adjuncts.

MONTEFIORE HOME AND HOSPITAL—2. Introductory: Physical therapy, thermo, electro, hydro and mechanotherapy, Dr. S. Wachsmann; Medical Service: Vasomotor and trophic disorders, e. g., scleroderma, dermatoneuromyositis, acrocyanosis, etc., Drs. B. S. Oppenheimer, Herbert Wiener; Gastroduodenal technic, Dr. George L. Laporte; Tuberculosis Service: Cases nontuberculosis hemorrhages, Dr. M. Fishberg; 1. Chemotherapy, tuberculosis; 2. Complement fixation, tuberculosis, Drs. Leo. Kessel, H. R. Miller; Pulmonary osteo-arthropathy, tuberculosis, Dr. Leo Kessel.

MOUNT SINAI HOSPITAL—2. Clinic, Dr. E. Libman; Clinic, Ward K, Dr. Nathan E. Brill.

NEW YORK HOSPITAL—2:30. Cardiac diagnosis, Dr. L. A. Conner, Demonstration: cardiac efficiency, Dr. T. B. Barringer; Demonstration: artificial pneumothorax, Dr. William R. Williams.

POST GRADUATE HOSPITAL—12. Amphitheatre D: Mental deficiency problem, Dr. Max G. Schlapp; Early diagnosis incipient pulmonary tuberculosis: Clinic, Dr. Fred J. Barrett; Colitis, Dr. Ludwig Kast; Cases heart disease, with roentgenograms, polygrams and electrocardiograms, Dr. Robert H. Halsey; Medical and surgical aspects duodenal ulcer, Drs. Max Einhorn. Willy Meyer.

PRESBYTERIAN HOSPITAL—2. Clinicopathologic conference, Drs. W. T. Longcope, W. G. MacCallum.

ST. CATHERINE'S HOSPITAL, Brooklyn—2. Clinic, Drs. J. Fuhs, J. Samenfeld.

ST. JOHN'S LONG ISLAND CITY HOSPITAL—2:30. See program, St. John's Long Island City Hospital, 2:30 p. m., Monday.

ST. JOSEPH'S HOSPITAL—2:30. Chest cases with fluoroscope and stereoscope; treatment with artificial pneumothorax, Dr. Henry L. Shively.

ST. LUKE'S HOSPITAL—3:30. Ward clinic: cerebrospinal syphilis, Pick's disease, Radium treatment leukemia, Dr. S. W. Lambert and assistants; Ward clinic, Dr. Austin W. Hollis and assistants.

ST. MARY HOSPITAL, Brooklyn—9. Clinics (bedside), Drs. J. S. Waterman, J. MacEvitt, J. Leiter.

(To be continued next week)

1. The complete program will be available in due season, and will be mailed to those who request it, sending to the committee a stamped addressed envelope.

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THE SUPPLEMENTARY DIETARY RELATIONSHIPS AMONG OUR NATURAL FOODSTUFFS *

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MADISON, WIS.

In order that I may illustrate the supplementary dietary relationship among certain of our naturally occurring foodstuffs, it is essential first that I offer convincing evidence that we are now in a position to devise experimental procedure which is adequate to reveal such relationships. Secondly, it must be shown that we possess sufficiently complete knowledge of the essential factors which operate in making a diet for a growing animal to enable us to interpret correctly the results of feeding experiments. This can be done perhaps best by briefly reviewing the work of the past decade which has been most significant in advancing our knowledge of the chemical complexes which are indispensable to the growing mammal.

Previous to 1909 a number of attempts had been made to nourish animals on diets composed of purified protein, carbohydrates, fats and inorganic salts, usually with a small admixture of cellulose. Such attempts were attended with failure. In every instance the cause of the failure was entirely unknown. The speculations regarding the cause dwelt principally on the dependence of the mammal on a supply of some organically combined forms of phosphorus, as phosphoprotein, lecithin and nucleic acid; its requirement of iron in some special organic form, and with the need of purin bases performed in the diet.[1] The first experimental work which proved fertile in advancing our knowledge regarding the factors which are essential in an adequate diet was that of Stepp.[2] He attempted to estimate the importance of lipoids in nutrition, and found that bread prepared with milk was after extraction with ether and alcohol no longer capable of maintaining life in mice. The total material extracted by the solvents, when put back into the diet, made the food efficient once more. Stepp was unable to obtain this result by the addition of any known lipoid. The latter result is significant in the light of later developments.

In 1911 Osborne and Mendel[3] reported remarkable results in experiments involving growth in young rats which were fed a mixture of purified protein, carbohydrate, fat, and 28 per cent. of what they termed "protein free milk," a preparation made by removing the casein of skim milk with acid and the albumin so far as possible by coagulation with heat. The "protein free" whey was evaporated to dryness. "Protein free milk" was found to induce normal growth when supplemented with purified food ingredients, and its discoverers were inclined to attribute its virtues to a nice adjustment of the inorganic constituents of the diet, although they appreciated the possible importance of unknown constituents. Two years previously Hart, Steenbock, Humphrey and I[4] had reported most marked improvement in the capacity of cows fed on a ration restricted to the products of the wheat plant, to produce viable young, by suitable supplementing of the food mixture with certain inorganic salts, and this seemed at the time to be an adequate explanation of the good effects of feeding "protein free milk."

There were observations at this time available in the literature of pathology which were of great value in suggesting profitable lines of procedure to those who were engaged in studying the problems of normal nutrition during growth. In 1897 Eykmann[5] had reported his observations on the production of experimental polyneuritis in fowls, analogous to human beriberi, restricting them to a diet of polished rice. He further showed that undecorticated rice could induce a cure of fowls in this condition.

Fraser and Stanton[6] in 1907 had employed alcoholic extracts of rice polishings for the relief of experimental polyneuritis. In 1911 Funk[7] took up the study of the problem and showed that pressed yeast, hydrolyzed with 20 per cent. sulphuric acid for twenty-four hours, still retained its property of curing polyneuritis when administered to birds. This observation disposed of the view, which had been much discussed, that some organic phosphorus compound was the curative agent. All such compounds are reduced to their simplest cleavage products by such vigorous treatment. Funk and simultaneously Suzuki[8] and his co-workers in Japan showed that the substance which relieves polyneuritis is precipitated by phosphotungstic acid and is therefore an organic base.

It would be obvious to any one who made careful inspection of the literature up to the end of 1911 that further efforts directed toward the nutrition of animals with purified food substances must be attended with failure. As early as 1906, Hopkins[9] had reported

* Read before the Harvey Society of New York, Jan. 13, 1917.

1. The earlier experiments in this field are summarized by the author in the American Journal of Physiology, 1909, **25**, 120.
2. Stepp, W.: Biochem. Ztschr., 1909, **22**, 452; Ztschr. f. Biol., 1912, **57**, 135; ibid., 1912-1913, **59**, 366.
3. Osborne, T. B., and Mendel, L. B.: Publications of the Carnegie Institution of Washington, Bull. 156, Pt. 2, 1911.
4. Hart, E. B.; McCollum, E. V.; Steenbock, H., and Humphrey, G. C.: Research Bull. 17, Wisconsin Expt. Sta., 1911.
5. Eykmann, C.: Arch. f. Hyg., 1906, **58**, 150; Arch. path. Anat., 1897, **148**, 523.
6. Fraser, H., and Stanton, A. T.: Lancet, London, March 12, 1910, p. 733; The Etiology of Beri Beri, Study 12 from the Institute for Medical Research, Federated Malay States, 1911.
7. Funk, C.: Lancet, London, 1911, **2**, 1266.
8. Suzuki, S.; Shimamura, T., and Odake, S.: Biochem. Ztschr., 1912, **43**, 89.
9. Hopkins, F. G.: Jour. Physiol., 1912, **44**, 425.

his observation that the addition of small amounts of milk to food mixtures consisting otherwise of purified protein, fats, carbohydrate and salt exerted a favorable influence on nutrition which was out of all proportion to the calorific value of the added milk, and he expressed the belief that there existed certain "accessory food substances" indispensable from the diet. These observations convinced me of the importance of further examination of the lipoid moiety of the diet. In 1912 Miss Davis and I observed the remarkable stimulating action on growth of purified butter fat and of the ether extract of egg yolk, when these were added to a mixture of supposedly purified food substances. Lard and olive oil possessed no such properties.[10]

The situation was still not clear. In June, 1912, Osborne and Mendel[11] described experiments in which normal growth curves were secured with rats over a period of sixty days, on a ration consisting of pure protein, starch and "protein free milk," all the constituents being free from substances soluble in ether, and practically free from lipoids of any character.

One phase of the difficulty was cleared up by our observation that when lipoids of suitable character were present in the food mixture, we secured growth when 20 per cent. of the diet consisted of nearly nitrogen free lactose (Merck or Kahlbaum); but were unable to do so when the latter was replaced by starch.[12] Obviously an impurity in the lactose furnished a second unknown dietary factor without which growth could not proceed. The inclusion of lactose with the omission of the fats of milk or egg yolk was, however, attended with failure to secure sustained growth. This was difficult to understand in the light of Osborne and Mendel's temporary success in inducing growth by the employment of ether extracted "protein free milk." The explanation is now available. Simmonds, Steenbock and I[13] have found that the fat-soluble dietary essential is appreciably soluble in water, and that repeated washing of butter fat with distilled water removes from it the substance which is responsible for its peculiar effect in the diet. The water solution of the nonlipoid constituents of milk, therefore, contain this substance, indeed, in considerable amount. Recent experiments lead us to believe that approximately half of the fat-soluble dietary essential is present in the fat and half in the nonfat portion of the milk. It is, therefore, approximately thirty times as soluble in butter fat as in water. "Protein free milk" contains, therefore, both the water and alcohol-soluble dietary essential which is found in many natural foodstuffs and which is the active agent in the cure of polyneuritis, and a small amount of the fat-soluble essential as well.

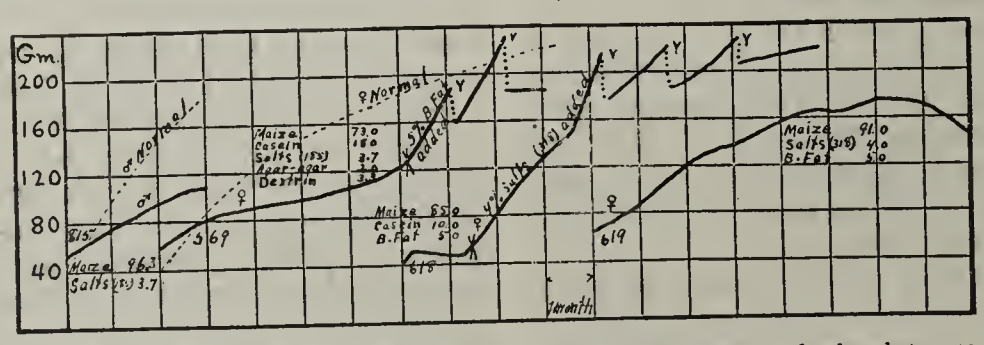


Chart 1.—Results of feeding animals on maize with purified food substances. In this and the following charts, *Y* marks the birth of young.

Observations such as I have described led Miss Davis and me[12] in 1915 to propose the working hypothesis that an adequate diet during growth must furnish, in addition to the well recognized constituents of the diet — protein, carbohydrate, fats and inorganic constituents of adequate character and amounts — two as yet unidentified dietary factors. One is soluble in water and alcohol and apparently never associated with the lipoids, when these are isolated from natural foodstuffs, the other soluble in fats. The latter is extracted from milk, egg yolk, kidney and probably other animal tissues by ether, but is not removed by this solvent from either the seeds or the leaves of plants.[14] The former is universally present in foodstuffs of vegetable and animal origin, but is absent or nearly so from crystalline sugar, starch and fats, and is present in but small amount in polished rice and probably in those foods derived from the endosperm of seeds by milling processes. Where the reaction of the medium is alkaline, strong heating of foods probably leads to its destruction.

Stepp failed to interpret his observations correctly because hot alcohol takes out both of these dietary factors, and when he put back the extract with the extracted residue, both were restored.

Osborne and Mendel could not correctly interpret the cause of their success with "protein free milk" combined with purified foodstuffs because they were adding both these unknown substances, although the amount of the fat-soluble one was inadequate to serve throughout the life of the animal.

I am frequently confronted with the questions: What of the several "vitamins" which have been so eagerly seized on of late to explain such pathologic manifestations as beriberi, scurvy, pellagra and rickets? Do not these several well recognized syndromes, the etiology of each of which is generally believed to be more or less directly referable to inadequate diet, connote the existence of as many "vitamins," each specific in the protection it affords against a type of abnormal metabolism? I am almost convinced that there are but two individual substances, the solubilities and distribution of which I have just described, which constitute the only essential dietary ingredients with whose chemical natures we are not fairly familiar. The possibility remains, of course, that one or both of what I have termed the fat-soluble A and water-soluble B each represent more than a single substance. I shall speak further on this point later.

Employing this working hypothesis, we have examined the nature of the dietary deficiencies of several of the more important natural foodstuffs. The procedure in each case was as follows: The individual foodstuff, maize,[15] for example, we fed (*a*) as the sole source of nutriment; this leads to complete failure of young animals to grow, and death usually supervenes within two months; to another group (*b*) we fed maize plus butter fat to furnish the unidentified dietary factor A; (*c*) maize plus a liberal amount of a complete protein, casein; (*d*) maize plus a salt mix-

10. McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1913, **15**, 167; ibid., 1915, **23**, 231.
11. Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1912, **12**, 81.
12. McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1915, **23**, 231.
13. McCollum, E. V.; Simmonds, N., and Steenbock, H.: Proc. Am. Soc. Biol. Chemists, December, 1916; Jour. Biol. Chem., March, 1916.
14. McCollum, E. V.; Simmonds, N., and Pitz, W.: Am. Jour. Physiol., 1916, **41**, 333, 361.
15. McCollum, E. V.; Simmonds, N., and Pitz, W.: Jour. Biol. Chem., 1916, **28**, 153.

ture so constituted as to supplement the inorganic content of maize and give the animal an inorganic supply similar to that which is supplied by milk, a food on which good nutrition with growth is attained. As will appear later, maize contains a liberal amount of the water-soluble B. In all these experiments the behavior of the animals was substantially the same. There was little growth in any case. Of the three additions described, the proper adjustment of the inorganic content is the most beneficial (Rat 815, Chart 1).

Obviously more than a single dietary factor is at fault in determining the failure of young rats to grow on maize. We conducted a series of experiments in which maize was fed with two purified food additions: (*e*) maize, salts and casein; (*f*) maize, salts and butter fat; (*g*) maize, butter fat and casein. The results of feeding such diets are shown by the curves in Chart 1. Rat 569 made somewhat less than half the normal rate of growth over a period of five months when both the protein and inorganic content of maize were supplemented. The addition of butter fat at this time caused extremely rapid growth, and during the following three months two litters of young were born, one, the second, being successfully reared. Rat 619, which received maize, salts and butter fat, grew slower than the normal rate and showed decline after the age of 6 months. She never produced young. Rat 618, which was given maize, casein and butter fat, did not grow at all during a period of six weeks. Four per cent. of a suitable salt mixture was then added, with the result that growth was promptly resumed and the animal reached the full adult size at the normal rate and produced three litters of young, all of which were successfully weaned. These records are each representative of a group of rats.

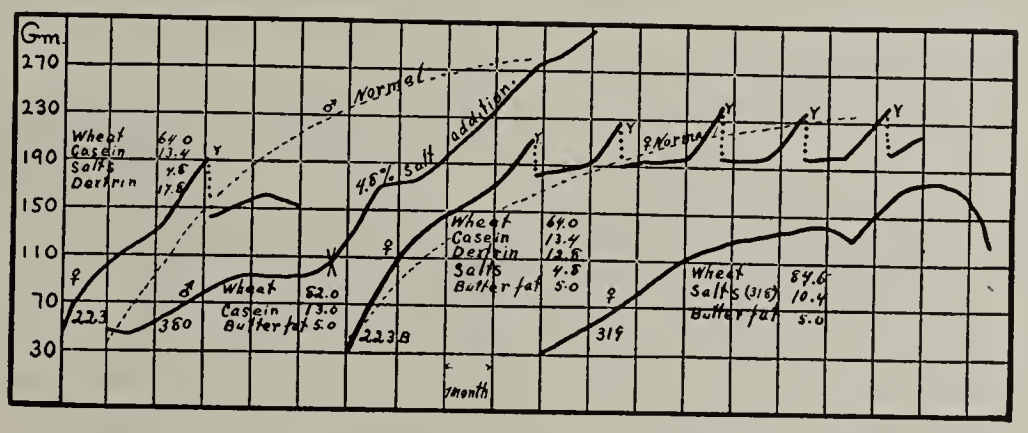


Chart 2.—Results of feeding animals on wheat with purified food additions.

TABLE 1.—COMPOSITION OF SALT MIXTURES

Salt mixture used with Rats 223, 223B and 380 (Fig. 2).	
Sodium chlorid ($NaCl$)	0.668
Dipotassium phosphate (K_2HPO_4)	0.337
Monocalcium phosphate ($CaH_4(PO_4)_2.H_2O$)	0.284
Magnesium sulphate (anhydrous) ($MgSO_4$)	0.018
Magnesium citrate ($Mg_3(C_6H_5O_7).14H_2O$)	0.068
Sodium citrate (anhydrous)	0.037
Ferrous lactate	0.119
Potassium citrate	0.799
Calcium lactate	2.533
Salt mixture 185 (Figs. 1, 4, 6, 8, 10)	
Sodium chlorid ($NaCl$)	0.173
Magnesium sulphate (anhydrous) ($MgSO_4$)	0.266
Monosodium phosphate ($NaH_2PO_4.H_2O$)	0.347
Dipotassium phosphate (K_2HPO_4)	0.954
Monocalcium phosphate ($CaH_4(PO_4)_2.H_2O$)	0.540
Ferrous citrate	0.118
Calcium lactate	1.300
Salt mixture 500 (Figs. 3, 6, 8)	
Sodium chlorid ($NaCl$)	0.5148
Calcium chlorid ($CaCl_2$)	0.2569
Dipotassium phosphate (K_2HPO_4)	0.3113
Potassium citrate	0.5562
Calcium lactate	2.878
Salt mixture 318 (Figs. 1, 2, 6)	
Sodium chlorid ($NaCl$)	1.400
Dipotassium phosphate (K_2HPO_4)	2.531
Potassium citrate	0.710
Calcium sulphate ($CaSO_4.2H_2O$)	0.578
Calcium lactate	7.058

Chart 2 illustrates the behavior of rats with respect to growth and reproduction when fed wheat with two purified food additions,[16] casein and salts, Rat 223; casein and butter fat, Rat 380, and butter fat and salts, Rat 319. Rats in Lot 223 in some instances grew rapidly to full adult size, but all were short lived. At the age of 6 months they were all emaciated and showed edema of the eyelids with hemorrhage of the conjunctiva. In Rat 380, which received wheat, casein and butter fat, growth was very slow. After being stunted during five months, on the addition of a suitable salt mixture the animal experienced a wonderful acceleration of growth and complete recovery from a condition of partial baldness, accompanied by a roughness of the skin and tail. Animals in this group have frequently suffered from a purulent bronchitis.

The stunted growth, lack of fertility and early decline which follows the feeding of wheat with salt and butter fat additions is illustrated by Rat 319. When, however, wheat is supplemented with three purified additions, casein, salts and butter fat, it becomes capable of supporting growth, reproduction and rearing of the young in a manner which closely approaches the optimum, as is shown by the curve of Rat 223 B.

Wheat and maize are therefore closely similar in their dietary properties. Each requires an improvement in its protein moiety, a suitable supplementing of its inorganic content and an added supply of the dietary factor which I have designated the fat soluble A. Each contains an abundance of the second unidentified dietary essential, the water soluble B, since without any addition of this substance, excellent nutrition can be secured.

Let us consider for a moment the dietary properties of the oat kernel[17] as revealed by feeding it supplemented with single or multiple additions of purified foodstuffs. It becomes apparent from an inspection of Chart 3 that the same general relations hold as we have seen in the case of the maize and wheat kernel. The curves are each representative of the performance of a group of not less than four rats. Here, however, the addition of casein, salts and butter fat does not lead to normal nutrition. We have not yet been able to supplement oats with purified food ingredients and attain optimum results, when the oat kernel constituted from 70 to 80 per cent. of the food mixture. Gelatin combined with oat proteins forms a much better protein mixture than do casein and oat proteins. This will be made apparent by an inspection of Chart 6, Rat 647. (Compare Charts 6 and 3.) We have not yet determined the cause, but it is evident that a high intake of oats over a long period causes injury to the rat. This is true also for the cow, and I believe also for swine.

The results of testing combinations of two or more kinds of seeds as a restricted diet has proved extremely interesting. The curves of four representative rats

16. Hart, E. B., and McCollum, E. V.: Jour. Biol. Chem., 1914, **19**, 373. McCollum and Davis: Ibid., 1915, **21**, 615. Hart, E. B.; Miller, W. S., and McCollum, E. V.: Ibid., 1916, **25**, 239.

17. McCollum, E. V.; Simmonds, N., and Pitz, W.: Unpublished data.

receiving diets made up on this plan are shown in Chart 4.[17] It proved a great surprise that we were not able to make combinations of the seeds of plants in any way which forms a ration capable of inducing normal growth in the rat, and an extensive experience has all tended to confirm our belief that this is true for swine and probably for other mammals as well. It is possible, however, with rations restricted to seeds, to secure nutrition of at least a fairly satisfactory character with pigeons[14] and possibly also with chickens. Chart 4 shows clearly the dietary factor which forms the most important cause in inhibiting the growth of the rat on these diets. It is the character and amount

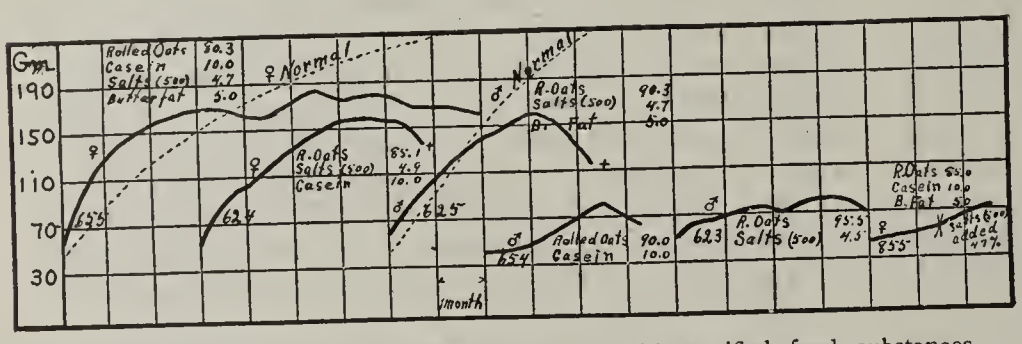


Chart 3.—Results of feeding animals on oats with purified food substances.

of the inorganic portion of the food mixture. When this is properly adjusted by means of salt additions, growth can proceed on certain mixtures. After prolonged suspension on Ration 713, the addition of salts led to growth. Equally pronounced failures with rations of this type containing beans or peas are abundant in our records.

In marked contrast to our failure to secure satisfactory nutrition with any of the many combinations of from two to five kinds of seeds stand the nearly normal growth of rats which are limited from an early age to a monotonous mixture of a seed and a leaf. We have tested most thoroughly combinations of the alfalfa leaf with several seeds, since it can be secured as a meal and as a flour, the former being much employed in animal production. The products which we have employed were very fine meal consisting principally of the leaves, but containing visible pieces of stem, and also a flour which was practically entirely derived from leaves. Both products came from immature plants dried in the sun.

Chart 5 illustrates the fact that rats can take from the age of 35 days a mixture of 60 per cent. of any one of at least three seeds, oats, wheat and maize,[17] with 40 per cent. of alfalfa leaves, and grow to a size closely approximating the normal, and produce young. The same proportions between polished rice and alfalfa,[14] peas and alfalfa,[16] and cottonseed flour and alfalfa[17] yield less satisfactory results, but with these growth is far superior to what we have ever observed with the seeds alone in any combinations or proportions, when fed to rats whose water supply was distilled, and therefore salt free.

On Ration 685, oats and alfalfa,[17] fourteen out of the seventeen young were reared. The one litter of five produced by Rat 687 all died soon after birth. Four of the seven young in the litter from Rat 686 were reared. No young have been reared on the polished rice and alfalfa mixture (Rat 478).

Two factors contribute toward making these combinations of seed and leaf superior to seeds alone. First, the inorganic content of the leaf is much greater and is of an entirely different character from that of the seed. In Table 2 are given the average analyses of alfalfa hay, cabbage, wheat, oat and corn kernel, potato and milk.

It is fortunate, indeed, that the inorganic content of the seed and the leaf supplement each other in a manner which meets the demands of mammalian physiology. The second way in which the leaf supplements the grain is in respect to the as yet unidentified dietary factor, fat-soluble A. This substance is present in the alfalfa leaf to the extent of at least five times the amount in the maize kernel, so that any diet containing 30 per cent. or more of this leaf is not enhanced by the inclusion of butter fat. Cabbage and clover leaves also are rich in this dietary essential, but our experience with these is less extensive. There is to be expected, of course, a supplementary relationship among the proteins of a mixture of two or more foodstuffs. It could hardly happen that the proteins from several sources would be particularly low in their content of the same amino acids. That the limiting amino acid is not the same in several of the more important seeds is made evident by the curves shown in Chart 6. Rats 652 and 493 received a similar food mixture, except that the former had 10 per cent. of gelatin supplementing wheat proteins in place of an equivalent amount of dextrin. The gelatin-containing

TABLE 2.—AVERAGE ANALYSES OF VARIOUS FOODS IN ONE HUNDRED PARTS OF DRY SUBSTANCES*

	Total Ash	K	Na	Ca	Mg	Cl	P	S
Alfalfa..	7.380	1.641	0.097	2.146	0.223	0.298	0.338	0.172
Cabbage	10.850	2.510	0.805	1.663	0.234	0.853	0.853	0.372
Wheat...	2.080	0.504	0.026	0.041	0.141	0.058	0.408	0.009
Oat.....	1.830	0.361	0.058	0.097	0.086	0.098	0.385	0.005
Corn.....	1.450	0.359	0.012	0.023	0.136	0.013	0.289	0.005
Potato..	3.79	1.890	0.083	0.072	0.113	0.131	0.279	0.099
Milk.....	5.67	1.160	0.344	0.909	0.088	0.791	0.650	0.057

* From Forbes, Bull. 207, Ohio Expt. Station.

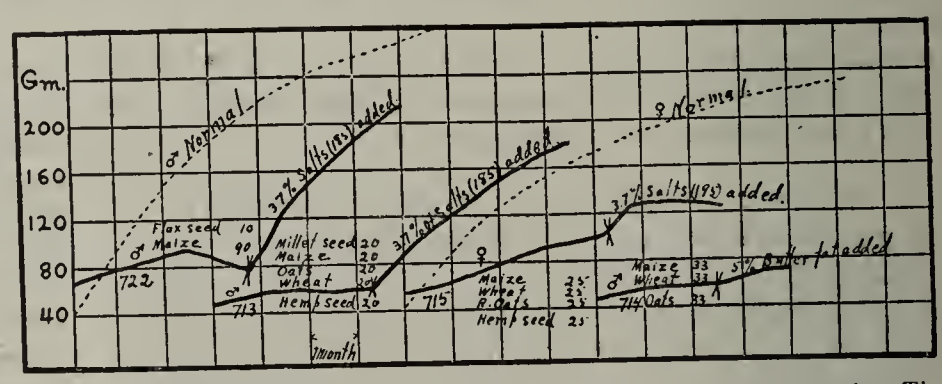


Chart 4.—Failure of rats to grow when restricted to a diet of seeds. The limiting factors are the inorganic content and the fat soluble A.

diet promoted growth at a rate greater than the normal expectation, as compared with a rate about half normal in the gelatin-free control.[18]

The second pair of curves, Rats 756 and 785, received rations alike in all respects, except that in the former the protein content (19.9 per cent.) was derived solely from a mixture of peas and gelatin[17] and the latter from a mixture of navy beans and gelatin.[17] In neither do the rations promote appreciable growth, although the entire group receiving beans grew noticeably better than did those getting peas. Gelatin does not supplement efficiently the proteins of either the pea or bean. In the second period in each

18. McCollum, E. V.; Simmonds, N., and Pitz, W.: Jour. Biol. Chem., 1917, **28**, 483.

case casein was substituted for the gelatin with the result that growth began at once at a fairly good rate. The proteins of the pea or the bean, when taken as the sole source of nitrogen, are of very low biologic value.[17]

An inspection of the curves of Rats 647 and 646 shows that gelatin has a very favorable supplementary relation to the oat proteins.[18] Gelatin when combined with the proteins of the maize kernel does not enhance the value of the latter.[18]

In 1914 we repeated the efforts of Slonaker[19] to find the effects of a strictly vegetarian diet of wide variety, on the growth of the rat. We offered nineteen different foods of vegetable origin, giving the animals five or six at a time and changing their bill of fare at intervals of a few days. The list of foods included grains, leaves of plants, nuts, corn and wheat germ, peas and flaxseed meal. None ever grew beyond half the adult size.[14] We duplicated in all essentials the results which Slonaker had observed. Having gained some insight into the peculiar dietary properties of certain natural foods, I predicted two years ago that a mixture of maize 50, alfalfa leaves 30 and heated peas 20 would adequately nourish a young rat during growth. A trial proved that this strictly vegetarian food mixture induced satisfactory nutrition during growth, and supported repeated reproduction and rearing of a fairly large percentage of young.[14] Chart 7 shows the curves from left to right of mother, daughter and granddaughter. A litter of great grandchildren were successfully weaned and appeared entirely normal when we discontinued the experiment. I should like to emphasize the importance of a proper adjustment of the well recognized dietary factors by pointing out that no young would be reared if this diet were changed to include less than 20 or more than 45 per cent. of alfalfa, the maize replacing or being replaced by alfalfa in the adjustments.

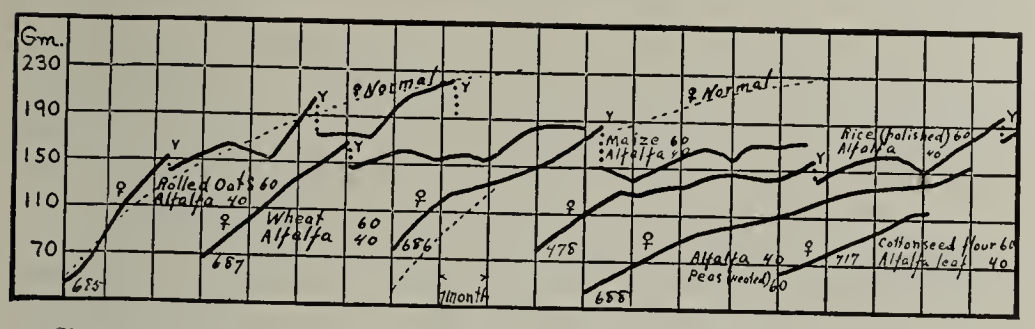


Chart 5.—Good growth promoting ration which a combination of one leaf and one seed may produce.

In Chart 8 are shown representative curves showing the failure of the proteins of either peas or navy beans to supplement very efficiently the proteins of the maize kernel,[17] Rats 779 and 780. In either of these rations the peas or beans could be replaced by dextrin, and a curve of nearly the same shape would be secured. Both pea and bean proteins improve the proteins of the wheat kernel,[17] Rats 783 and 784, for these curves are much better than would be secured if the legume seed were replaced by carbohydrate (Chart 1, Rat 619; Chart 2, Rat 319). The most remarkable result of studying these combinations is seen in the very different results of supplementing oat proteins with bean proteins as contrasted with peas. Pea proteins are wasted when combined with those of the oat, while the proteins of the navy bean and oat mutually make good each other's deficiencies,[17] Rats 782 and 781. It follows, therefore, that the proteins of the pea and the bean are very dissimlar in respect to their yields of certain amino acids, and that the same amino acid is not the limiting factor in each.

In Chart 9 are presented curves obtained with a series of diets designed to show the relative richness of the fat-soluble A in several natural foodstuffs. The diet, aside from its content of natural food, consisted of such a mixture of purified food materials as would support growth, when both the unidentified dietary factors, the fat-soluble A and water-soluble B, are added. The rôle of the natural food in these rations was to supply these two factors.[17] These curves make it clear that about 30 per cent. of alfalfa leaf is the minimum amount which will supply the fat soluble A in amount sufficient to induce complete growth and induce the production of a few young. The young were not reared on this ration. In Charts 1, 2 and 3, curves were shown which illustrate that even 70 per cent. of corn, wheat or oat kernel do not furnish enough of the dietary A to support complete growth and repeated reproduction and well-being over the full span of life.

It is of particular interest, therefore, to compare the effects of flaxseed and millet seed as sources of the fat soluble A. Both of these are richer in this substance than are the cereal grains, and millet seed proves to be unique among the seeds we have examined as a good source of this dietary factor. When 25 per cent. of millet seed was combined with purified foodstuffs, growth was completed and one rat has produced two litters of young. After eight months on this diet

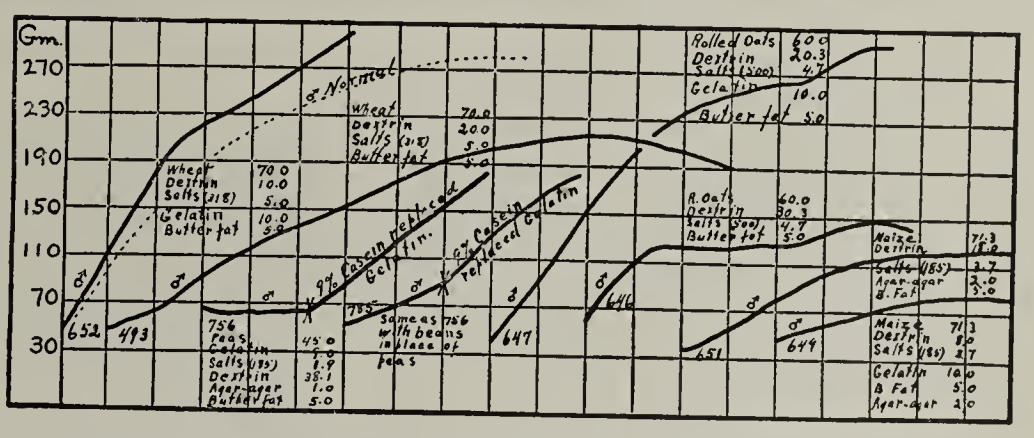


Chart 6.—Value of gelatin in supplementing the deficiencies of the wheat and oat kernel, but not those of maize, beans or peas.

she appears to be in perfect nutrition. The slow but long continued growth on these rations, whose content of both unidentified dietary factors was solely derived from such small amounts of hemp seed, flaxseed and millet seed, shows that these stand intermediate between the cereal grains on the one hand and the plant leaf on the other as sources of the fat-soluble A.[17]

We have carried out a series of experiments designed to show the minimum amount of several seeds which are necessary to supply enough of the water-soluble dietary essential for the completion of growth and the production of young. Chart 10 illustrates the results of this inquiry. The diet in all cases consisted of a purified food mixture, to which was

19. Slonaker, J. R.: Leland Stanford Junior Univ. Pub. Univ., Series 1912.

added 5 per cent. of butter fat to insure an adequate supply of the fat-soluble A. The sole requirement of the portion of natural food incorporated in the food mixture was to furnish the water-soluble B.

While 15 per cent. of either maize or oat kernel fails to induce growth at the maximum rate; 15 per cent. of wheat not only enables the animals to complete their growth, but also induces sufficiently good nutrition to lead to repeated reproduction. However, no young can be reared on either of the two lowest wheat rations here described. The factor which is responsible for this failure is the low content of the water-soluble B (Chart 2, Rat 223 B). Peas and beans likewise are shown to be rich in this dietary essential, or beans, alfalfa, etc. We have tested a list of foods which includes four grains (wheat, oat, maize and millet), two legume seeds (peas and beans), three varieties of leaf (clover, alfalfa and cabbage), and three oil seeds (hemp, flax and cottonseed), and find that in all these about 15 to 20 per cent. is all that is essential, with a mixture of purified foodstuffs and butter fat, to promote growth at the normal rate. While this does not establish the conclusion, we may reasonably expect that if the dietary factor B consisted of two or more chemical substances essential for normal metabolism, we should discover in some of these natural foodstuffs a shortage of one as compared with the other, in greater degree than is actually the case.

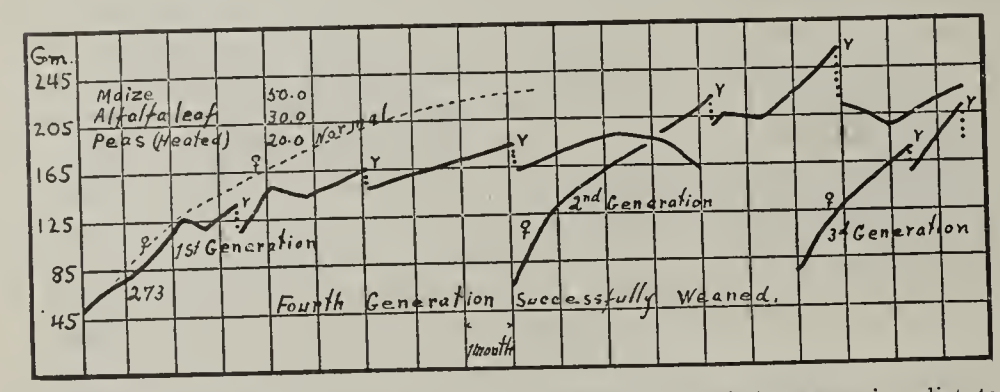


Chart 7.—Results of feeding a properly constituted, strictly vegetarian diet to the rat.

The second line of evidence which supports the idea that we are here dealing with a single chemical substance rather than several is to me still more convincing: A mixture of purified food substances becomes capable of inducing vigorous growth when 3 per cent. of wheat germ supplies the factor B and 5 per cent. of butter fat the factor A. Now the wheat embryo can be completely extracted with ether without losing its potency in the least degree. The ether extracted residue we have extracted for eighteen hours in a continuous extractor with hot benzene in one instance and with hot acetone in another. The extracts obtained with benzene or acetone will not induce growth when combined with the purified food mixture containing butter fat, even when the extract equivalent to 28 per cent. of wheat germ is added. In either case, however, 3 per cent. of the ether-benzene or ether-acetone extracted residue is still as effective as ever. Now rats which are at all depleted with respect to the factor B do not recover when only 2 per cent. of wheat germ is present in the ration. They do recover from a condition of extreme weakness, and partial paralysis on our ration with the extracted germ to the extent of but 3 per cent. While large doses of the material extracted from wheat germ by hot benzene or acetone contain enough of the factor B to cure a pigeon of polyneuritis, the amount of the curative substance extracted by these solvents is almost negligibly small.

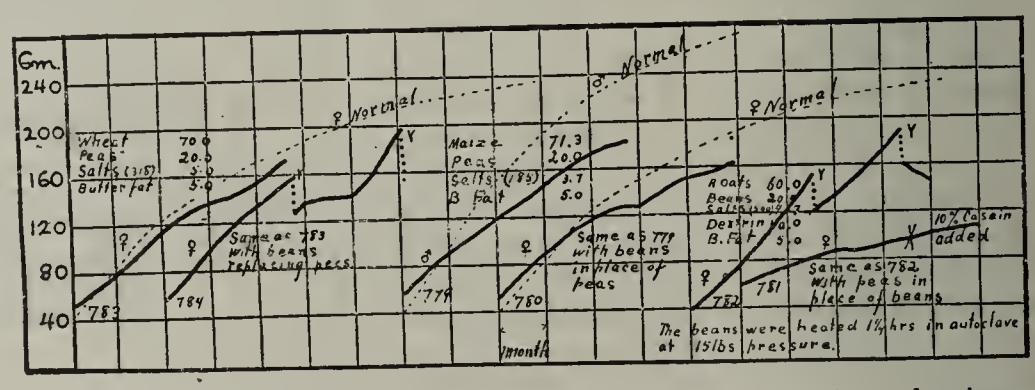


Chart 8.—The supplementing of the proteins of wheat but not those of maize or oats by the proteins of the pea. The supplementing of the proteins of wheat and oats, but not those of maize, by bean proteins.

but they are both poor in the fat-soluble one.[17] The fact that Rats 744 and 743 did not respond promptly with renewed growth on the addition of an alcoholic extract of wheat germ containing additional water-soluble unknown is without significance. After a long period of stunting, response to improved diet is not always immediate. Diets deficient in one factor only and for this reason leading to suspension of growth do not all lower the vitality of the animals in the same degree. The extent of the debility determines whether they can respond promptly with growth when the diet is improved.

I desire next to attempt to offer an interpretation of certain experimental and clinical evidence which may seem to be out of harmony with the simple working hypothesis regarding the essential factors which are concerned in making a diet adequate, and with which I have attempted to explain the cause of the failure of animals to be adequately nourished on a considerable number of diets from various sources. I refer especially to the theory of Funk, which has found wide acceptance, that no less than four syndromes recognized as distinct pathologic states, namely, beriberi, scurvy, pellagra and rickets, are all referable to inadequacy of the diet, and that each is the result of the lack of an adequate amount of a particular chemical substance in the food. To these Funk gave the general name "vitamins." In seeking the cause of the inadequacy of certain diets I have dispensed with all but two unidentified substances.

There are two lines of evidence which offer strong support of the validity of the assumption that in the case of the factor which I have called the water-soluble B we are dealing with a single substance rather than with two or more. The first is based on the results of feeding such rations as are described in Chart 10 in which all of this factor is supplied by as little as 15 per cent. of wheat, or 25 per cent. of peas

The point I would emphasize as of significance in these results is the very small probability that if there were present two or more chemical substances indispensable for the maintenance of physiologic well-being, both or all should be practically completely insoluble in both these solvents as well as ether, and that both or all should be readily soluble in water and in alcohol. It would seem a remarkable coincidence if several compounds should show such complete uni-

formity in their solubilities, stability toward heat and so close a parallel in the proportions in which they occur in the seeds and leaves of widely different orders of plants. When contrasted with the great variation in the content of the fat-soluble essential in different seeds, and the richness of the leaf as compared with the seed in its content of this substance, it becomes the more improbable that in plant tissues generally there should exist a definite proportion between the remaining essential substances, whatever their number.

I am conscious of the question which will be asked concerning the cause of scurvy and of beriberi. Are not these both dietary deficiency diseases? During

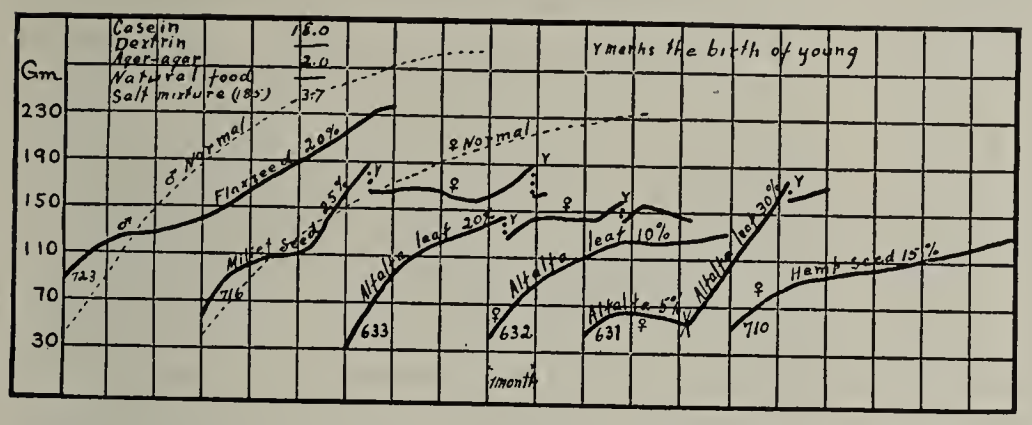


Chart 9.—Purified foodstuffs with small natural food additions; no butter fat.

the past two years Mr. Pitz and I[20] have repeated all the more important work reported by others on the production by diet of experimental scurvy in the guinea-pig. We have confirmed the observations of Jackson and Moore to the effect that with a diet of oats and milk *ad libitum,* scurvy ordinarily results. Rolled oats induce the onset of the symptoms sooner than unhulled oats. Only those diets which produce feces of a character readily eliminated will relieve or prevent the disease. Milk to the extent of 10 per cent. of the solids of the diet supplies all the unidentified dietary factors necessary for growth in the rat or swine and probably for other mammals as well. We are convinced that the guinea-pig suffers from scurvy on a diet of oats and milk because of the constipating character of the diet. Oats produce pasty feces, and the guinea-pig, being unfortunate in the anatomy of its digestive tracts, is quickly debilitated by its inability to empty the large and delicate cecum. This harmonizes with our observation that orange juice, the panacea for scurvy in the human infant, gives protection to the guinea-pig, but is not so efficient as to enable this species to take an oat and milk diet and grow continuously over a long period. We have furthermore been able to effect a complete cure of guinea-pigs on a milk and oat diet after they could no longer walk, and showed badly swollen joints and the hemorrhage of the gums, by liberally dosing them with liquid petrolatum. Cavies so relieved have been as active and healthy as if on a diet of green grass, and have resumed growth and have continued to grow steadily, though at a rate slower than the normal during three months following the attack of scurvy, while confined to the same milk and oat diet which gave them the disease. The petroleum oil treatment was of course persevered in throughout this period. I question whether any one would postulate the existence in petroleum oil of a "vitamin" specific as a protection against scurvy.

I venture to suggest that the failure of Holst[21] and his co-workers to prevent or relieve scurvy in guinea-pigs by feeding dried cabbage finds its explanation in the failure of the latter to take up water in the intestine and again act as a succulent vegetable.

On the basis of anatomic lesions and for other reasons, Hess[22] has recently suggested that scurvy and beriberi show more points of similarity than have been recognized by clinicians, and was inclined to consider the two as essentially the same pathologic condition. His efforts toward curing scurvy with wheat germ and with yeast were unsuccessful, whereas orange juice was potent as a curative agent, and he was forced to conclude that the two conditions were distinct. I will offer the suggestion that the latter view is correct. Scurvy in the guinea-pig is the result of the retention of feces. I do not know whether or not the same is true of human scurvy. Neither do I know the cause of the hemorrhage of the joints and gums, whether they are the result of the absorption of a toxic substance of bacterial origin, which injures the blood vessels, or whether they are due to the invasion of the tissues by an organism, through an injured cecal wall. The recent observation by Jackson and Moore of a streptococcus in the congested joints is suggestive in this connection.

I am inclined to attribute the protective power of orange juice as an antiscorbutic to its content of certain salts of citric acid, rather than to the presence of an unidentified organic substance of the class of the so-called vitamins. Its efficiency for the guinea-pig appears to be somewhat less than for the human being. This may well find its explanation in the much more delicate and inefficient structure of the digestive tract of the cavy as compared with that of man, so that less efficient protective agents may serve for the latter than

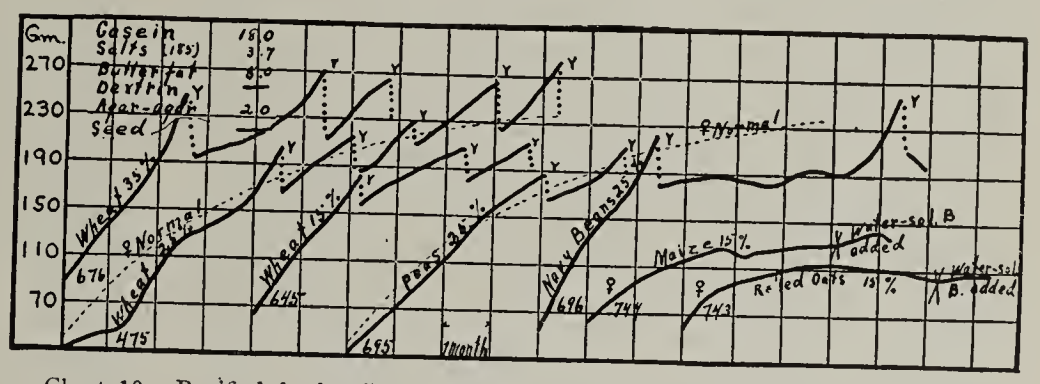


Chart 10.—Purified foodstuffs with small natural food additions, with butter fat.

for the former. While guinea-pigs are protected against scurvy by orange juice, we have not seen them grow to any appreciable extent on a diet of oats and milk fortified with orange juice. If the results of experiments of three months' duration are to be trusted, orange juice appears no more efficient than petroleum oil in protecting guinea-pigs against scurvy when the animals are kept on a diet of oats and milk.

That beriberi is a disease of dietary origin there is no doubt. That it can be relieved in the fowl by the

20. McCollum, E. V., and Pitz, W.: Unpublished data.

21. Holst and Frohlich: Ztschr. f. Hyg. u. Infektionskrankh., 1912, **72**, 1.

22. Hess, A. F., and Fish, Mildred: Infantile Scurvy: the Blood, the Blood Vessels and the Diet, Am. Jour. Dis. of Child., December, 1914, p. 385. Hess, A. F.: Infantile Scurvy: THE JOURNAL A. M. A., Sept. 18, 1915, p. 1003; Proc. Soc. Exper. Biol. and Med., 1915, **13**, 50; ibid., 1916, p. 145; Am. Jour. Dis. Child., August, 1916, p. 152.

extracts which contain the dietary factor B is equally certain. Much less definite statements can be made regarding the other diseases, rickets and pellagra, which Funk has attributed to lack of specific substances in the diet. The evidence, as I understand it, seems to point strongly toward diet as at least an important contributing factor. Assuming that they as well as beriberi are of nutritional origin, I venture to state that they are the result of unsatisfactory adjustments among the well recognized constitutents of the diet rather than to the lack of specific chemical substances. I have shown how diets may be so designed as to induce faulty nutrition as the result of the shortage of each of the two unidentified dietary factors A and B; of the inadequacy of the protein content, because of an unsatisfactory yield of amino acids and as the result of an unsatisfactory composition or inadequate amount of the inorganic content of the food mixture. I may add to these a fifth, namely, malnutrition as the result of the presence of toxic substances in the natural foodstuffs, particularly cottonseed and wheat products, and perhaps also a sixth cause due to mechanical injury to the digestive tract caused by foods (for example, oats) producing feces of unfavorable character, and by constant distention of the alimentary tract as the result of excessive fermentation of foods, such as beans and peas, which contain a large amount of hemicelluloses.

I have attempted to show, so far as experimental data are available, the specific dietary properties of our natural foods, and how these may be so combined as to make good each other's deficiencies and shortcomings. In presenting these data it has also been emphasized how great is the need of more knowledge in this field. It is indeed remarkable how difficult it is to secure combinations of natural foods which will serve as monotonous diets over a long period and promote in an entirely satisfactory way the well-being of an animal. The consumption of a varied diet makes in some degree for safety, but will by no means insure safety. It remains to be seen whether or not the animals which we have brought to a condition of nutritive disaster by a series of diets, each of which was faulty in respect to but a single dietary factor, as inorganic salts or protein, or the unknown A or B, will reveal to the histologist and pathologist lesions analogous to those seen in the states of human malnutrition presumably of dietary origin. The inadequate diets of man are probably never highly satisfactory with respect to all factors but one. Rather they are in some degree unsatisfactory with respect to two or three dietary factors simultaneously, and the probability that they will be so increases greatly as the food supply tends to be limited to the seeds of plants, and such manufactured products as are derived from the endosperm of seeds. The time will doubtless come within a few years when specific advice can safely be given as to the best way to plan a variety of human dietaries; but a consciousness of the paucity of our knowledge concerning the peculiar supplementary relationships among our natural foodstuffs forbids more than a general statement as to the safest policy now.

A diet in which the seeds of plants form the principal part will be made more safe by the judicious use of milk and of the leaves and probably also of the tubers of plants. These have peculiar dietary properties which the best chemical talent of today fails to recognize, but which are readily demonstrable by biologic tests.

APPLICATION OF THE COMPLEMENT-FIXATION TEST TO TUBERCULOSIS

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During recent years much experimentation has been carried out in determining the value of complement-fixation reactions for the diagnosis of tuberculosis.

Results obtained by different workers show considerable variation. When, however, it is remembered that the value of the test is entirely dependent on the specific action of the antigen and that the antigens used by the many investigators have been prepared by widely divergent methods, it is to be expected that the results should be somewhat dissimilar. At best, we are but feeling our way toward a common understanding of the relation which our laboratory findings bear to the disease itself, and the test will eventually be established as of practical value only by a thorough comparison of all careful investigations rather than by the consideration of the work of any one person.

Several experimenters have obtained results of much promise, but on account of cross fixations with syphilitic serums or because of positive reactions in a certain percentage of nontuberculous cases, the test has not seemed sufficiently reliable to warrant its ready adoption as a routine test in diagnostic laboratories.

Miller and Zinsser[1] of Columbia University, New York, claim an accuracy of nearly 100 per cent. for complement fixation in the detection of active tuberculosis. They used an antigen made up of ground tubercle bacilli in physiologic sodium chlorid solution.

Preparation of this antigen is thus described:

"Twenty mg. of the moist tubercle bacillus mass are weighed out, placed in a conical 15 c.c. centrifuge tube, and to it are added 90 mg. of table salt. With a glass rod, filed to roughness at the end, this paste is ground by hand for about one hour. Distilled water is then added to isotonicity, that is, 10 c.c. to the quantities described above. This is the antigen. Just before using, it is shaken up and the heavier particles are allowed to settle in the course of a few minutes. Except for the removal of these larger elements, the suspension is used as a whole without centrifugation and without filtration."

It seemed to us that it would be of much interest and value to run a series of tests with the Miller antigen since the Miller figures, if confirmed by other investigators, place the test on as accurate a basis as can be claimed for the Wassermann reaction.

Through the courtesy of Dr. Carl C. MacCorison, superintendent of the North Reading State Sanatorium, and of Dr. F. X. Mahoney, health commissioner of Boston, arrangements were made for the

1. Miller and Zinsser: Proc. Soc. Exper. Biol. and Med., 1916, 13, 134-138.

furnishing of specimens together with brief, but carefully drawn, histories of the cases from the sanatorium, and for the opportunity of running the tests in the health department laboratory.

In addition to the "Miller antigen," S. A. Petroff's Antigens 1, 2 and 3 were also carefully tested in some of these cases.[2] In our hands, however, these antigens did not give as good results as did Miller's antigen. This was especially true of Petroff's Antigen 1 on account of its rapid deterioration. Petroff's Antigens 2 and 3 gave results consistent with those obtained by Miller's antigen, but were measurably weaker.

It was decided to make two series of experiments, the first to consist of specimens from patients with known tuberculosis in order that the laboratory men might become familiar with the reactions to be expected, while the second series was to consist of specimens from all grades of tuberculous, from non-tuberculous, and from doubtful cases. The last class of cases was to provide some indication as to the test for specificity.

The blood specimens were drawn in the usual manner from patients and employees at the North Reading State Sanatorium. This institution has a resident population of 200 patients and a large staff of employees. The bloods were sent directly to the laboratory by messenger usually on the same day as they were drawn.

GROUP 1.—KNOWN TUBERCULOUS PATIENTS

Anticipating some variation in the reactions of the serums which the first group of seventy-seven known tuberculous patients were to afford, we decided at the outset that some simple classification of the cases tested would be necessary. As a basis for this arrangement there were prepared brief typewritten statements, one for each patient from whom a blood specimen was to be drawn, giving a clear account of the stage of disease and, more particularly, of the clinical picture existing at that time. These notes were then set aside for study when the laboratory findings were reported.

TABLE 1.—RELATION OF RESULTS TO STAGE OF DISEASE PROGRESS IN SEVENTY-SEVEN KNOWN TUBERCULOUS PATIENTS

Reaction	Far Advanced	Advanced	Moderately Advanced
Strongly positive	3	28	5
Moderately positive	2	15	1
Weakly positive	2	8	1
Delayed negative	3	7	1
Negative	0	1	0
Totals	10	59	8

The stage of disease roughly indicates the extent of lung involvement. Table 1 gives the relation of results to the stage of disease progress. It appears that the far advanced class gave on an average the weakest reaction, while the advanced class averaged a much stronger reaction, and over one half of the still earlier moderately advanced class gave a strongly positive record. The last fact is significant when one considers the practicability of the test for diagnostic purpose, its value in this set of experiments seeming greater for the earlier rather than the later stage of the disease.

2. A description of these antigens may be found in the proceedings of the Twelfth Annual Meeting of The National Association for the Study and Prevention of Tuberculosis, 1916, p. 214.

The evidence seems to favor the belief that the amount of complement-fixing bodies in the blood may measure the patient's resistance against the disease progress, for clinically, resistance is at a very low ebb in the far advanced patient.

A patient having advanced pulmonary signs may yet have an excellent resistance, while another patient having a much smaller lung focus is overcome by the intensity of the disease reaction. Accordingly, the classification by stage of disease was not sufficiently broad to allow for all the variations in results.

TABLE 2.—RELATION OF RESULTS TO THE CLINICAL CONDITION OF SEVENTY-SEVEN KNOWN TUBERCULOUS PATIENTS

Reaction	Gaining		Holding		Losing
	Exercise	Rest	Exercise	Rest	
Strongly positive	9	8	5	9	5
Moderately positive	5	0	1	8	4
Weakly positive	2	2	0	3	4
Delayed negative	0	0	0	1	10
Negative	0	0	0	0	1
Totals	16	10	6	21	24

A second table, dealing with the first group of seventy-seven known tuberculous patients having positive sputum, shows the relation of results to the clinical condition of the cases tested.

For practical purposes clinically we wish to know whether a patient is gaining or losing in general condition or remaining stationary. Furthermore, we wish to know the patient's reaction to exercise. Experience might show in a given case that a patient would gain if at rest in bed, or at least on a minimum amount of exercise, and yet would quickly relapse and show disease activity on a slight increase in exertion. Another patient would gain steadily, even though his exercise was proportionately increased.

These two patients would each be classed as "gaining," and yet there would be a material difference between the measures of their resistance and also between the intensities of their respective infections. Therefore, under "Gaining" and "Holding," in Table 2, a distinction is made according to whether or not the patient is on daily exercise or at rest. It is understood that patients losing are not on exercise.

A patient's resistance from the point of view of sanatorium treatment is in this way measured by the amount of exercise he can stand without showing clinical signs of disease activity. Craig[3] has shown that a case may be clinically inactive and yet have an active infection, as would appear from a positive complement-fixation test. Unless we made some attempt to show the conditions under which the patient is active or inactive clinically, we believe that classification would not be complete.

In Table 2 it will be noted that there were ten delayed negative and four weakly positive reactions in the "losing" class of patients. Three of these fourteen patients have since died, succumbing to a rapidly progressing disease. Here again we see that a weakly positive or negative reaction is coincident with a rapidly failing resistance. On the other hand, one patient reacting as weakly positive while suffering an acute relapse returned a strongly positive reaction several

3. Craig, C. F.: Observations upon Complement Fixation in The Diagnosis of Pulmonary Tuberculosis, Am. Jour. Med. Sc., 1915, 150, 787.

weeks later when he had pretty well recovered from this indisposition. Therefore, it would seem that complement fixation in a way discloses the amount of resistance which the patient clinically active has available with which to fight disease activity.

Table 2 shows little difference between the reactions occurring in the exercise and rest columns. It should be remembered, and some discount made for the fact, that the patients gaining on exercise are getting better and that therefore their disease processes are lapsing into quiescence; therefore their serums would not give such regularly positive results as do those of patients gaining or holding but not on exercise, in many of whom there must be invariably active foci. There may be inactive foci in patients of the latter class which on the slightest stimulation from exercise would readily become active and perhaps be evidenced by clinical symptoms. This sort of inactivity would be in harmony with a "weakly positive" complement-fixation reaction in the holding but not on exercise class.

In the nonexercise class with probable active foci and with clinical findings promising considerable resistance to the disease, positive reactions, as shown by the table, appeared in a large majority of the cases, for the most part patients who have a strong resistance to the infection and either are gaining or holding their own.

Of the fourteen negative or delayed negative cases, six were apparently arrested cases, three were gaining with exercise, two were holding their own with exercise, one was holding with rest, while two were definitely losing. In these fourteen patients with varying physical conditions, there must appear to be one agreed and common condition, and that is that their blood contained but small amounts of antibodies to the tubercle bacillus. In twelve of the cases this might be on account of quiescence of the disease, while in the other two it might be explained by a lack of resistance to an overwhelming infection.

Of nineteen cases designated as probably nontuberculous, three gave a strongly positive reaction. The histories of these three patients as taken at the time the specimens were forwarded are as follows:

Case 1 (1892).—I 35, W. B. "Doubtful." This man is an employee, but was one time a patient at the sanatorium with bronchiectasis, probably nontuberculous. His sputum was never positive for tubercle bacilli, and the physical signs in his lungs were atypical for tuberculosis. This man is holding up well as an employee and working a full day.

TABLE 3.—COMPARISON OF LABORATORY FINDINGS WITH CLINICAL HISTORIES

Reaction	Tuberculosis						Probably Nontuberculous	Healthy	Stage of Disease				Positive Sputum
	Gaining		Holding		Losing	Arrested			IV	III	II	I	
	Exercise	Rest	Exercise	Rest									
Positive	7	5	3	3	2	2	3	0	1	9	9	1	16
Moderately positive	2	1	1	0	1	2	0	0	1	1	4	0	2
Weakly positive	1	0	0	1	2	1	2	0	0	1	2	0	3
Delayed positive	2	0	1	1	0	2	3	2	0	2	2	0	5
Negative	1	0	1	0	2	4	11	9	0	3	1	0	4
Totals	13	6	6	5	7	11	19	11	2	16	18	1	30

while patients "gaining" or "holding" who give weak positive reactions may be those in whom the disease is quiescent; therefore these patients present no active resistance.

GROUP 2.—PERSONS WHOSE CONDITION AS RELATED TO TUBERCULOSIS WAS UNKNOWN TO THE LABORATORY WORKERS

The second group of patients tested comprised those with pulmonary tuberculosis, those doubtfully tuberculous, and healthy persons. In all seventy-eight specimens were submitted from this group. Tables 3 and 4 illustrate this material with respect to the reaction obtained.

Notes on the clinical conditions of the patients were prepared at the same time as the bloods were drawn and in the same manner as for those in Group 1. Also, statements were made if the individuals were healthy or believed to be nontuberculous. These notes were set aside and not referred to until the laboratory findings were reported. In this way there was no opportunity for bias of opinion either by the laboratory man or clinician when the results were summed up and coordinated.

A study of Table 3 shows that out of forty-eight cases of clinical tuberculosis twenty-nine gave a strongly or moderately positive reaction, while fourteen were either delayed negative or negative. Those giving a strongly or moderately positive reaction are

Case 2 (2252).—J 62, Celia D. "Doubtful." Probably nontuberculous; has bronchitis secondary to asthma. Sputum always negative for tubercle bacilli after repeated trials. We believe strongly that this patient has not tuberculosis, although she is a sick girl and only improved lately from a bed case. She has pulmonary disease, also a luxuriant growth of nasal polyps, and a negative complement-fixation reaction would help very much as a differential guide.

Case 3 (2172).—J 10, E. M. "Doubtful." Patient examined recently but no disease activity noted in lungs. He gave up exercise mentioned in the last note saying that he was not feeling well; however, he felt able to go out on his four days' visit. Patient's sputum has never been positive for tubercle bacilli, and the only lung lesion made out is a possible old healed focus at the left apex. Patient has probably chronic endocarditis and at any rate mitral regurgitation and stenosis. Signs in lung may be referable to cardiac disease.

It is probable that these three cases are tuberculous.

Two more cases with weakly positive findings must still be considered doubtful, while the evidence in the other fourteen indicates absence at least of any active tuberculosis. These fourteen patients are on active exercise except one in whom the signs and symptoms differentiate in favor of cardiac disease rather than pulmonary infection.

The eleven specimens from healthy persons were all either negative or delayed negative.

Leaving out of consideration the eleven "arrested" cases, we have thirty-seven cases of active tuberculo-

sis. There are but three cases in Stages I and IV of the disease all giving positive findings. Of the eighteen cases in Stage II, fifteen, or 83 per cent., were positive, and eleven of sixteen cases, or 69 per cent., in Stage III.

As shown in Table 3, there were but thirty of these seventy-eight cases with positive sputums. Deducting eleven cases of healthy persons having no signs of tuberculosis leaves thirty-seven cases in which this valuable diagnostic aid was absent. To one skilled in the examination of such patients, many of these could be classed as tuberculous with but little difficulty. By the average physician, however, many of these cases might be classed as nontuberculous because of the negative sputum. It is in this class of patients especially that a complement-fixation test would be of value to the attending physician as an aid in diagnosis. These cases may be summarized in Table 4.

We are inclined to believe that the three positive cases which were classed as probably nontuberculous when the specimens were taken may have active lesions which were not revealed by the physical examination.

In this table also it will be noted that there are four cases "probably tuberculous" but reacting negatively. Two represent specimens from the same patient who apparently had an arrested case. The other two cases are also apparently arrested.

TABLE 4.—CASES WITH NEGATIVE SPUTUM, DIAGNOSIS DOUBTFUL

Reaction	Probably Tuberculous	Probably Nontuberculous
Positive	6	3
Moderately positive	5	0
Weakly positive	2	1
Delayed negative	1	6
Negative	4	9
Total	18	19

Since the Boston Health Department Laboratory is doing the Wassermann test as a routine procedure, it was decided to test all serums submitted for this specific test with the tubercle bacillus antigen. In this way some light might be thrown on the matter of cross-fixation. A total of 912 such tests was made. Of these 221 were positive and 691 were negative for the Wassermann reaction.

Of the 221 positive Wassermann tests, complement fixation for tuberculosis gave 21 positive, 13 moderately positive, 16 delayed negative, and 171 straight negative. Of the 691 negative Wassermann tests, 55 reacted positively for tuberculosis, 35 moderately positive. There were 21 delayed negative and 580 negative reactions.

We were unable to obtain clinical histories in many of these cases to confirm the specificity of the tuberculous reactions; but the evidence seems conclusive that there is no cross-fixation with syphilitic serums.

The percentage of positives, 15, seems higher than would be expected; but when we consider that tuberculosis causes the death of about one person in every ten and that careful observers calculate at least three living active cases to each death, perhaps this percentage is not excessive, especially among that class of patients who appear for free Wassermann tests.

From our observations it appears that the test is specific for tuberculosis, although perhaps the number of tests from nontuberculous cases is too few for a definite statement to that effect. Miller[4] reports: "Nontuberculous and normal patients react negatively: 144 cases: all negative."

In the diagnosis of tuberculosis it is not to be expected or desired that the complement-fixation test should replace the ordinary examination of sputum for tubercle bacilli. It is our opinion, however, that the test will prove of great value as an aid to diagnosis in cases showing suggestive physical signs but in which it is impossible to demonstrate the presence of tubercle bacilli in the sputum.

In such cases positive complement fixation reactions would be strong evidence of the disease. A single negative would be inconclusive, but several negatives would indicate that no active tuberculous process was present.

It will also be useful to determine whether a case of tuberculosis clinically apparently arrested still has an active focus as indicated by a positive reaction.

CONJUGAL TABES DORSALIS*

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Tabes dorsalis, unfortunately often spoken of as locomotor ataxia, has received in comparatively recent times a vast amount of attention at the hands of the medical profession. Owing to the frequency with which it occurs, tabes takes the first place among spinal cord diseases. With the advent of laboratory methods, more or less specific as indexes of syphilitic conditions, interest was renewed in the study of this disease entity, and I feel that it may be safely stated that it is now held that syphilis plays the all important rôle as the true etiologic factor in the production of this disorder. Although Esmarch and Jessen as early as 1857 discussed the relationship between syphilis and paresis (and we have every reason to believe today that the cerebral manifestations of paresis and the cord manifestations of tabes are one and the same as far as etiology is concerned), it was not until the discovery of the exciting organism, the *Spirochaeta pallida,* by Schaudinn and Hoffmann, and later the perfection of the work of Wassermann, that the relationship, as prophesied by these early investigators, was fully established.

Krafft-Ebing has well said that "civilization and syphilization go hand in hand." Fortunately for the human family, however, not every person who becomes infected with syphilis is doomed to become a paretic or a tabetic. More and more the thought is being advanced today that perhaps it requires some special strain or change in the quality of the syphilitic organism to produce latent and destructive lesions of the central nervous system. In evidence of this, Brosius[1] points to the contamination of a number of glass-blowers from the use of a mouthpiece which was the property of a fellow workman who had a syphilitic lesion about the mouth. Of those becoming thus infected, over 50 per cent. later developed either paresis or tabes. Other evidence is also on record in which men, worshiping at the shrine of Venus and

4. Miller, H. R.: The Clinical Value of Complement Fixation in Tuberculosis, THE JOURNAL A. M. A., Nov. 18, 1916, pp. 1519-1521.

* Read before the Chicago Neurological Society, March 15, 1917.

1. Brosius, cited by Dercum: Clinical Manual of Mental Diseases, p. 258.

receiving a syphilitic infection from a common source, later developed, entirely or in a large proportion, either paresis or tabes dorsalis. Further proof of the variability of the spirochetal strains is not wanting also when the literature is scanned and one finds the infection of husband and wife, both of whom are tabetic or paretic, or else one is tabetic and the other is paretic.

That syphilis, coming in contact with an unstable nervous system, may play an exceedingly important rôle in the production of either tabes or paresis is not to be overlooked or even to be underestimated. In support of this, the neuropathic theory, we find no less able a syphilographer than Nonne, who contends that "neuropathy plus syphilis equals paresis." Näcke likewise is a firm believer in neuropathy as a factor in the production of paresis, and maintains that only a congenitally weakened brain is capable of developing this disease. This writer further holds that in at least 45 per cent. of paretics, a history of neuropathy is obtainable. In view of these assertions concerning paresis, there remains no alternative save to grant that what is true of paresis must hold equally so of tabes, since the presence of the exciting organism of syphilis has been demonstrated in the neural axes of persons dying from undoubted paresis and tabes. On the other hand, it would appear that such factors as trauma, alcoholism, excesses, overfatigue, and exposure to cold are merely contributory and have not the power in themselves to produce such profound changes in the brain and cord as are characteristic of the destructive lesions of nervous syphilis.

Dismissing for the moment a further consideration of syphilis in the light of newer investigations, let us now turn our attention to a consideration of the conjugal type of tabes. The occurrence of tabes dorsalis in husband and wife was first recorded by Voigt in 1885. Kjellberg in 1863, however, was the first to report the occurrence of paresis in husband and wife. Since these early reports of recognized conjugal tabes and paresis, medical literature has not been altogether wanting in similar case reports, yet when one realizes the comparative frequency with which tabes or paresis is encountered, it is rather striking by contrast to find so few cases of the conjugal type. Eshner,[2] in 1911, added two new cases of conjugal tabes to medical literature, one case observed in private practice, the other in the outpatient department of the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases, in the service of Dr. John K. Mitchell. I recall during my internship in this institution a case of the so-called mixed type, in the outpatient department, then under the service of the late Dr. Wharton Sinkler. The husband showed undoubted evidence of paresis, while the wife manifested typical tabetic symptoms. Since the publication of Eshner's paper, medical literature has been extremely deficient in articles pertaining to this subject. This paucity is well emphasized, since reference was found to but one article on the conjugal type.[3]

To the cases already on record, I add an instance in which both husband and wife were suffering from symptoms of tabes dorsalis:

REPORT OF CASES

Man, aged 66, married, referred to me during latter part of December, 1912, complained chiefly of urinary incontinence, inability to walk properly, and periodic attacks of pain involving the trunk and lower extremities. The onset of his trouble dated back twelve or thirteen years, but he stated that during the last three or four years his condition had progressively grown worse.

The family history was entirely negative regarding any direct bearing on the case as an etiologic factor. The patient was the tenth living child and had never had a serious illness prior to the onset of his present trouble. He had been a farmer for the greater part of his life, subsequently doing work in a railway freight department until his gradually failing health had forced him to give up work of all kinds. He admitted gonorrhea at 18, but denied ever having had syphilis.

The onset of his present illness had begun when he was about 50, and was ushered in by vague pains, often transient in character, involving the legs and chest. Gradually certain phases of gastro-intestinal disturbances became noticeable, as evidenced by flatulence, dyspepsia, constipation, and periods of diarrhea. Numbness across the abdomen was for a time present, later to be replaced by a typical "girdle sensation." Weakness of the sphincter muscles, especially those of the bladder, was noticed early. At times there were pains in the fingers, but no history of distinct ulnar paresthesia could be elicited. Gradually there was difficulty experienced in walking as the condition progressed, and during the last three or four years the ataxic phenomena dominated the clinical picture.

Examination of the nervous system revealed marked ataxia of both the upper and the lower extremities. The right pupil was larger than the left one and was irregular in outline. The Argyll Robertson phenomenon was present. The ocular movements were good in all directions. The knee and ankle jerks were absent, even by the Jendrassik method. The flexor plantar reflex was sluggish. The tendon jerks of the upper extremities remained intact.

There was a girdle-like hypercresthesia of the chest in an area corresponding to the distribution of some of the mid-dorsal segments. So marked was the hypersensitiveness anteriorly that even to touch the skin of this area with the bell of a stethoscope caused great discomfort. The painful area could almost be mapped out with precision by the presence of dirt which had been allowed to collect for months, owing to the severe discomfort and pain of any attempt at bathing or washing the parts. In contrast with this sensitive condition was the blunting of the sensory impulses coming from the lower extremities. Delay in the transmission of sensation was readily noticeable, and analygesia of the Achilles tendons was pronounced.

The patient was greatly emaciated and worn out by long continued suffering. In addition to his tabetic pains, much discomfort ensued from a chronic cystitis and urinary incontinence. The Wassermann reaction was weakly positive, owing no doubt to previous antispecific treatment. A lumbar puncture was refused.

Several months later, a perforating ulcer made its appearance on the plantar surface of the right foot at the base of the great toe. The patient always maintained, however, that this ulcer was the direct outcome of an injury which he had received years before when he unfortunately injured the parts by stepping on a nail.

A year later death ensued, and was due largely to a lobar pneumonia complicating the all too numerous complications. Necropsy limited to the brain and cord revealed an absence of any active inflammatory condition. The brain appeared healthy, and macroscopically was free from lesions. The posterior columns of the cord, especially in the lumbar and lower dorsal segments, were greatly atrophied, and cross sections revealed, even to the naked eye, a flattening and a shrunken appearance of the dorsal columns.

Of no less interest, perhaps, is a consideration of the wife's condition. Shortly after my first visit to the home, the woman rather surprised me by stating that she believed that she had contracted the same condition in caring for her husband and administering to his needs. She was the eighth child of a family of ten children, and was never strong and healthy as a

2. Eshner, A. A.: Conjugal Tabes Dorsalis, THE JOURNAL A. M. A., June 17, 1911, p. 1797.
3. Mareau, P., and Narcy, C.: Progrès. méd. 1912, **28**, 417.

girl, although she never had a serious illness during childhood. The menses first appeared when she was 12; the periods were more or less painful, the flow scant. At 18 she married, and during the term of her active sexual career (the climacteric being established at 46 years of age) she had nine miscarriages and one stillbirth. No primary or secondary features of syphilis were ever observed. When 51 years of age, or approximately about the same time that her husband first manifested his early tabetic symptoms, she began to have vague pains in the lower extremities. At first transient in character, these pains had more recently become sharp and lancinating, and were said to be aggravated by barometric changes. Unsteadiness of gait, especially after dark, developed, and diplopia of a transient character added to her difficulties. Three years following the onset of her trouble, weakness of the urinary and rectal sphincters were ushered in. At times a girdle sensation was noticed, and an ulnar paresthesia became exceedingly troublesome.

This patient was 56 at the time of examination. Her voice was small and weak, and savored of a nasal twang. Her gait was distinctly ataxic, and the Romberg symptom was ++. The pupils were somewhat miotic, equal, regular in outline, and were of the Argyll Robertson type. No optic atrophy was observed. The extrinsic muscles of the eyes acted in a normal manner. There was no ataxia of the upper extremities. The knee and ankle jerks were absent, even by the reinforcement method. The blood serum gave a negative Wassermann test. Unfortunately, a lumbar puncture was refused.

It may not be altogether out of place to state that under energetic antispecific treatment, a decided abatement of the subjective symptoms was obtained. At present this patient is residing in one of the far western states.

RELATIONSHIP OF SYPHILIS AND TABES

Church[4] holds, after a careful consideration of the prevalence of syphilis, that one is clearly within conservative lines to estimate that one man in every five is syphilitic. If this is true, then of no less import is a further statement that every case of syphilis, from the very incipiency of the infection, is once and for all, primarily, a case of nervous syphilis. These statements, to say the least, are astounding, and if valid cannot help but have great bearing on the future consideration of this disease.

The predilection of syphilis for nervous tissue is well known, and to a degree may be satisfactorily explained on strictly embryologic grounds. Every syphilographer and dermatologist knows well that syphilis is a disease which clinically, in characteristic cases, is potent to form well marked skin lesions. This point, then, on the selective action of the disease would appear to be well taken when one considers that both nervous and skin tissues have their origin from ectoderm, the outer layer of blastodermic membrane. In a further consideration of the selective action of syphilis on the body tissues, it would not be unreasonable to assume that, in those cases manifesting the latent effects of syphilitic action on nervous tissue, disorders of the skin and mucous membranes are insignificant or entirely absent. In other words, the so-called secondary symptoms of syphilis would appear to play an exceedingly minor rôle in those cases which later are so prone to develop the late or so-called tertiary manifestations of the disease. The truth of this statement, I think, will be amply borne out by those who have carefully considered the histories of patients suffering from tabes or paresis. Here, the absence of marked secondary phenomena would appear to be the rule, rather than the exception. This leads to the natural conclusion that the battle waged by the products of syphilis in such cases is one mostly, if not entirely, against nervous tissue, allowing the cutaneous structures a respite against the invasion of so formidable an adversary.

The occurrence of conjugal tabes or paresis, I think, is merely a strengthening link in the chain of evidence, showing that the spirochetes are capable of variation, and that under circumstances perhaps not as yet well understood, strains are transmitted which are capable of producing those destructive lesions of the central nervous system sometimes encountered even in the conjugal state.

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4. Church, Archibald: Some Modern Views of Syphilis of the Nervous System, THE JOURNAL A. M. A., May 20, 1916, p. 1596.

THE PROPHYLAXIS OF ANESTHESIA ACIDOSIS *

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For surgical practice, chemical methods of investigation are beginning to have a field of usefulness comparable with the one they occupy in clinical medicine. In gathering data to indicate the character of the operative risk, it has been customary for a long time to employ urinalysis, blood counts, hemoglobin determinations and estimations of the arterial tension. At present it seems advisable frequently to add to these precautionary measures the determination of what has been called the "alkali reserve," for postoperative nausea and vomiting, menacing convalescence, may depend on an acidosis for which the anesthetic is responsible.

The underlying facts regarding the regulation of the equilibrium between the acids and bases of the animal body were contributed by the research of the Haldane school of physiologists, by Hasselbach, Lawrence Henderson and later by others. Under normal circumstances the acid-base equilibrium is remarkably stable; Haldane found that in healthy individuals the balance was accurately maintained over long periods of time. The mechanism involved in the maintenance of the equilibrium is a complicated one, but its main features are: (1) the elimination of carbon dioxid by the lungs; (2) the excretion of acid salts by the kidneys and sweat glands; (3) the presence of "buffer" substances in the blood which include the bicarbonates, phosphates and probably proteins; (4) the production of ammonia at the expense of urea, and (5) the influence of the barometric pressure (oxygen tension) to which the individual is accustomed, a factor as yet imperfectly understood.

It has been demonstrated, then, that the lungs take a leading part in the regulation of the acid-base equilibrium of our bodies. The carbon dioxid which the lungs excrete has acid properties; when in the blood it is neutralized through combination with alkali. The blood contains, moreover, an amount of available alkali in excess of that needed for the neutralization of carbon dioxid, and this excess has been designated the alkali reserve. This may be estimated indirectly by several methods, for example, by the determination of the carbon dioxid in the alveolar air, or of the capacity of the blood plasma to combine with carbon dioxid.

It is well known, of course, that an undue collection of acid products in the body is harmful, and against

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such a contingency the regulatory mechanism which I have just outlined is provided. But this mechanism may not act effectively, or the production of acids may be abnormal either in kind or in amount. Certainly, the most familiar example of acidosis arising from faulty or incomplete metabolism is that attended with the excretion of acetone and diacetic acid in the urine. In a typical case there is a fruity odor to the breath, and there are also hyperpnea, vomiting and prostration. On account of the chemical structure of the acid responsible for acetonuria, this type of acidosis is defined more specifically as a ketosis. In other cases of disturbed metabolism, acids which do not belong to the ketone series are formed. However, the specific nature of the toxic substance involved has not yet been recognized in every kind of acidosis; the classical instance of a proved specific causation is beta-oxybutyric acid in cases of diabetic coma.

In cases of vomiting and diarrhea during infancy and childhood, Howland and Marriott[1] demonstrated the presence of a true acidosis, employing methods now in general use for the recognition of this condition. Thus, in the acidosis of infants, the carbon dioxid tension in the alveolar air is decreased; the hydrogen ion concentration of the blood is raised, and the excretion of ammonia through the urine is increased. All these phenomena are indicative of a shifting of the reaction of the blood and tissues in the direction of lessened alkalinity, and this may be offered as defining in general the modern conception of acidosis.

Long before clinical methods existed for the study of the alveolar carbon dioxid and for the analysis of the blood, it was supposed that anesthesia frequently induced an acidosis, for acetone was demonstrable in the urine of patients suffering from persistent postoperative vomiting. From Deaver's clinic, Bradner and Reimann[2] reported acetonuria in 61.7 per cent. of postoperative cases. Crile and his associates also emphasized the value of studying the respiration in these cases and recommended that this examination be made before an anesthetic is administered, in order to test the patient's "operative resistance." Employing Michaelis' gas-chain method, Crile[3] found an increase in the hydrogen ion concentration of the blood in postoperative cases, and by the method of Van Slyke demonstrated a diminution in the alkali reserve. These effects he ascribed to emotion, starvation, exhaustion, interference with respiration, hemorrhage and to the anesthetic itself. Similarly, Austin and Jonas[4] observed in six cases that the alkali reserve was less after operation than previously, a result which my observations confirm.

The method I employed was briefly as follows: A specimen of blood was obtained several hours before the operation and another directly after it ended. The blood was collected under liquid petrolatum in small centrifuge tubes containing a few crystals of potassium oxalate. It was centrifugalized immediately, and the plasma drawn off with a pipet. Usually, the analysis was completed at once; but if not, the specimen of plasma was kept on ice in a paraffin-lined tube.

The analysis followed the Van Slyke technic and was carried out with the apparatus he described. The plasma was first brought into equilibrium with alveolar air. This was done by blowing through a wash bottle filled with glass beads which removed the moisture; thence the air was conducted into a separating funnel containing the plasma for analysis. The composition of the air thus employed was frequently tested by a simple apparatus for the analysis of alveolar air and blood gas devised by Yandell Henderson, a description of which he will soon publish. It was found that the amount of carbon dioxid in the air used to saturate the plasma varied but slightly, namely, between 5.5 and 6 per cent.

After the plasma had been brought into equilibrium with alveolar air, it was introduced into the Van Slyke apparatus; there, after the addition of acid, the carbon dioxid was liberated by means of a vacuum and measured. The figures in the tables are so calculated as to give the volume of carbon dioxid (reduced to 0 C. and 760 mm.) which 100 c.c. of plasma are capable of binding at 20 C.

The significance of the carbon dioxid combining power of the plasma, it will be remembered, depends on the fact that in a general way the basic substances there perform two functions: first, they enter into combination with carbon dioxid, and second, they neutralize acids formed in the course of normal or perverted metabolism. If the latter are formed in amounts which require for neutralization an unusually large proportion of these basic substances in the blood, a smaller proportion remains available for combination with carbon dioxid. In this way the extent to which the plasma combines with carbon dioxid becomes a measure of the acid bodies in the blood. A low carbon dioxid combining power denotes a tendency toward an acidosis or the actual existence of one. In an average normal individual, 100 c.c. of plasma combines with

TABLE 1.—CARBON DIOXID COMBINING POWER OF THE BLOOD BEFORE AND AFTER OPERATION

No.	Description of Operation	Duration of Anesthesia—Ether	C.c. of CO_2 Bound by 100 c.c. Plasma		Difference	Reaction of Urine
			Before	After		
1	Dilation and curettage	20 minutes	55.9	45.2	10.7	Acid
2	Pelvic puncture	20 minutes	56.4	54.7	1.7	Acid
3	Dilation and curettage	25 minutes	51.6	43.8	7.8	Acid
4	Suspension, perineorrhaphy	50 minutes	47.2	33.2	14.0	Acid
5	Hysterectomy, perineorrhaphy	1 hr. 10 min.	45.0	34.4	10.6	Acid
6	Hysterectomy, perineorrhaphy	1 hr. 15 min.	45.0	38.2	6.8	Acid
7	Hysteromyomectomy	1 hr. 20 min.	56.9	34.2	22.7	Acid
8	Hysteromyomectomy	1 hr. 30 min.	58.2	53.0	5.2	Acid
9	Suspension, perineorrhaphy	1 hr. 35 min.	45.2	44.8	0.4	Acid
10	Hysterectomy, perineorrhaphy	2 hours	42.1	34.4	7.7	Acid

1. Howland and Marriott: A Discussion of Acidosis with Especial Reference to That Occurring in Diseases of Children, Bull. Johns Hopkins Hosp., 1916, **27**, 63-69.

2. Bradner and Reimann: Observation upon the Elimination of Acetone and Diacetic Acid in Two Hundred and Fourteen Surgical Cases, Am. Jour. Med. Sc., 1915, **150**, 727.

3. Crile: The Phenomenon of Acidosis and Its Dominating Influence in Surgery, Ann. Surg., 1915, **62**, 257; A Discussion of Certain Criteria of Acidosis and Their Clinical Application, Am. Med., 1916, **22**, 447.

4. Austin and Jonas: Clinical Studies of Acidosis, Am. Jour. Med. Sc., 1917, **152**, 81.

65 c.c. of carbon dioxid (Van Slyke, Stillman and Cullen;[5] and Gettler and Baker[6]). "The great majority of observations were between 50 and 60 c.c., and no normal plasma showed a value below 55." Furthermore, experience indicates that a lower value than 30 c.c. must be reached before there is serious distress from the acidosis itself. Very low values are encountered in cases of diabetic and uremic coma.

In the majority of the cases in Table 1, the initial observation was below 55, and this fact indicates that either the preliminary preparations for operation, which include the withdrawal of food for from twelve to twenty-four hours, or, perhaps, some other feature of the patient's physical condition was responsible for a moderately subnormal capacity of the plasma to combine with carbon dioxid. Not unlikely, this in itself is a feature of practical moment, bearing on the "operative risk." However, that problem is not one with which we are immediately concerned. At first we wish to know what effect the administration of the anesthetic has on the alkali reserve of the blood. To measure this effect the carbon dioxid combining power of the plasma was estimated both before and after anesthesia. What was the result?

In every case there was a lower value at the conclusion of the operation than had been observed previously. The difference does not vary directly either with the duration of ether anesthesia or with the extent of the operation. Thus, with a simple dilation and curettage requiring twenty minutes, the drop is almost identical with that in the case of a panhysterectomy requiring two hours. Similarly, the alkali reserve may decrease notably when the patient loses relatively little blood, and on the other hand may not change greatly when conspicuous hemorrhage occurs. As none of these patients exhibited more than usual postoperative vomiting, it was not surprising that at the conclusion of the anesthesia the carbon dioxid combining power of the plasma was well above the danger limit in every case.

Aside from the fact that lower values obtained constantly at the conclusion of operation than before, these observations did not settle any of the questions we wished to have answered, and in particular they gave no definite information regarding the time when the drop in alkali reserve took place. Consequently, animal experimentation was required, and three dogs were studied.[7] A sample of blood for a control observation was aspirated from the femoral artery before general anesthesia was begun, the necessary incision having been made under novocain. Subsequently, samples were secured at intervals of half an hour. Chloroform was used in one case and ether in two. Of the latter animals, one died from the effects of the anesthetic at the end of two hours. The results of these experiments are given in Table 2.

PROTOCOLS

EXPERIMENT 1.—Feb. 9, 1917. Large, male mongrel dog. Weight, 59 pounds. Morphin, ½ grain, before observation began. Control specimen of blood taken. Anesthetic started at 2:30 p. m.; 80 c.c. of chloroform were administered during one and a half hours. Blood was obtained at half hour intervals from the femoral artery. Respiration stopped five times during the experiment, but started again promptly following the use of resuscitatory measures.

EXPERIMENT 2.—Feb. 16, 1917. Large, male coach dog. Weight, 56 pounds. Morphin, ½ grain, before observation began. Control specimen taken. Anesthetic started at 1:30 p. m.; 750 c.c. of ether were administered during two hours. Blood was obtained from the femoral artery except after death, when it was taken at once from the ventricle. The dog stopped breathing after two hours of anesthesia, the pulse ceasing simultaneously with respiration; the animal could not be revived. Necropsy revealed no anatomic lesions.

EXPERIMENT 3.—March 4, 1917. Male black and white mongrel. Weight, 43 pounds. Morphin, ½ grain, before observation began. Control specimen of blood taken; 650 c.c. of ether were given during the two hours of anesthesia. Blood was obtained from the femoral artery.

These observations teach that a notable drop may occur in the carbon dioxid combining power of the plasma during the first half hour of the anesthesia.

TABLE 2.—CARBON DIOXID COMBINING POWER OF THE PLASMA IN DOGS UNDER ANESTHESIA

Anesthetic	C.c. of CO_2 Bound by 100 C.c. of Plasma				
	Control	½ Hour	1 Hour	1½ Hours	2 Hours
Chloroform	51.06	28.5	37.1	26.7	....
Ether, Dog 1	52.5	40.05	49.7	40.05	29.8 (Dead)
Ether, Dog 2	42.4	44.3	42.4	33.8	32.8

However, in one animal the readings were practically alike until an hour and half elapsed; then the readings were lower. Since the initial drop is succeeded by a rebound, it appears not unlikely that in this case (Ether, Dog 2) the low point was missed because it was reached before the expiration of the first half hour of anesthesia. With the continuation of anesthesia in dogs, after the rebound, a gradual lowering of the capacity of the plasma to combine with carbon dioxid occurs.

It is noteworthy that the initial depletion of the alkali reserve is more marked in the case of chloroform. Whether or not this phenomenon is intimately associated with the accidents not infrequently reported at the outset of chloroform narcosis is not answered, of course, by these experiments; but it is not without interest that we find evidence of a serious change in the blood reaction near the outset of chloroform anesthesia.

As the only variables in the experiments on dogs were the anesthetic employed and the duration of its administration, the results are conclusive in showing the influence of ether and chloroform toward decreasing the alkali reserve. And since similar results obtained in human beings receiving operative treatment of various kinds and in dogs, we may conclude that in the former the anesthetic was at least the chief factor in lowering the carbon dioxid combining power of the plasma.

Having verified previous observation to the effect that lower values obtain for the alkali reserve after

5. Van Slyke, Stillman and Cullen: The Nature and Detection of Diabetic Acidosis, Proc. Soc. Exper. Biol. and Med., 1915, **12**, 165.
6. Gettler and Baker: Chemical and Physical Analysis of Blood in Thirty Normal Cases, Jour. Biol. Chem., 1916, **25**, 211.
7. I am indebted to Drs. J. M. Flint and J. M. Slemons for the opportunity to make these observations in connection with their own study of anesthesia now in progress.

operation than before, and having studied its fluctuations at suitable intervals during anesthesia, we were prepared to determine what influence on this phenomenon the administration of sodium bicarbonate would have. There have been, of course, not a few advocates of this prophylactic measure against the development of postoperative vomiting (Buckler,[8] Burnham,[9] Crile); but as far as I know there has been no attempt to test its efficiency by means of blood analysis.

That sodium bicarbonate will actually increase the capacity of the plasma for combining with carbon dioxid is a well known fact which I have had opportunity to verify. Thus, in a case of obscure toxemia of pregnancy, at the ninth month, associated with persistent vomiting and a marked acidosis the carbon dioxid combining power of the plasma was increased from 26.4 to 62.2 volume per cent.; and in another case,[10] probably of Weil's disease, it was increased from 20.6 to 80.6 volume per cent. following the administration of sodium bicarbonate.

The treatment adopted in the second group of cases studied before and after operation consisted in the administration of 15 gm. of sodium bicarbonate during a period of thirty-six hours preceding anesthesia. Occasionally this dosage was not sufficient to render the urine alkaline and, therefore, 30 gm. were given.

The first result of this treatment was to cause a moderate increase in the alkali reserve, though frequently even this precaution failed to lead to values before operation as great as Van Slyke considers the lower normal limit. More impressive is the fact that the ultimate depletion was less marked in the patients taking sodium bicarbonate preliminarily. In some cases there was practically no difference between the analysis made before and after operation; the average difference when sodium bicarbonate was given was about half that observed when it was not given. But, generally, anesthesia caused the same type of change previously observed, though it was much less marked. This fact appears in the strongest light, if the contrast is made in another way. Thus, in these two groups of cases, the one treated preliminarily with sodium bicarbonate, the other not, the former left the operating room with about the same alkali reserve with which the latter group entered it.

Very little, if any, clinical difference was noted in the postoperative condition of the patients in the two groups. However, there was no opportunity to study a case presenting a seriously low alkali reserve before operation, a situation, naturally, which would offer the severest test of this therapy. The average surgical case, obviously, does not require the administration of sodium bicarbonate before operation, but whether or not it should be given may be determined only by some test which will indicate the extent of his alkali reserve. Therefore, the routine estimation of this factor of safety is desirable. The rate of respiration should be observed, and Yandell Henderson's[11] simple test for acidosis employed — the ability to hold the breath for the normal period of forty seconds. If there is a suspicion that the alkali reserve is not what it should be, one of the clinical methods for estimating it should be employed. Probably, the simplest and most widely applicable of these is the determination of the percentage of carbon dioxid in the alveolar air by Henderson's technic, or the determination of the alkali reserve of the blood by the Van Slyke or the Henderson apparatus. When either test indicates the need for additional alkali, sodium bicarbonate should be given until the urine becomes alkaline or neutral; and after operation its administration either by mouth or by rectum should be continued.

TABLE 3.—ALKALI RESERVE OF THE BLOOD BEFORE AND AFTER OPERATION (WHEN SODIUM BICARBONATE WAS ADMINISTERED PRELIMINARILY)

No.	Description of Operation	Duration of Anesthesia	C.c. of CO_2 Bound by 100 c.c. Plasma		Difference	Reaction of Urine
			Before	After		
1	Dilation and curettage	25 minutes	52.0	38.6	13.4	Alk.
2	Laparotomy, drainage absc.	35 minutes	58.9	55.1	3.8	Acid
3	Oophorectomy	45 minutes	49.8	46.3	3.5	Neut.
4	Suspension	55 minutes	47.2	49.1	—1.9	Alk.
5	Version and extraction	1 hour	57.0	47.2	9.8	Acid
6	Hysteromyomectomy	1 hour 20 min.	56.8	50.1	6.7	Alk.
7	Wertheim suspension	1 hour 40 min.	59.5	57.4	2.1	Acid
8	Repair of complete tear	1 hour 45 min.	56.7	57.7	—1.0	Alk.
9	Operation for prolapse	2 hours 20 min.	47.9	39.3	8.6	Alk.
10	Suspension, perineorrhaphy	2 hours 30 min.	61.9	49.1	12.8	Alk.

TABLE 4.—AVERAGES OF OBSERVATIONS BEFORE AND AFTER ANESTHESIA

	C.c. of CO_2 Bound by 100 C.c. Plasma		Difference	Number of Cases
	Before	After		
Without bicarbonate	50.7	41.7	9.0	10
With bicarbonate	54.7	49.0	5.7	10

CONCLUSIONS

1. The capacity of the plasma for combining with carbon dioxid is decreased after ether and chloroform anesthesia; in other words, one influence of the anesthetic is toward depletion of the alkali reserve.
2. During the first half hour of anesthesia, this factor of safety is notably modified, and the drop is more profound in the case of chloroform than of ether.
3. The initial drop in the alkali reserve is followed by a rebound: from that level there is a gradual decrease until the conclusion of anesthesia.
4. Preliminary administration of sodium bicarbonate increases the alkali reserve, though the most noteworthy effect of this treatment is to lead to higher values for this factor of safety at the conclusion of the anesthetic.
5. The administration of this drug before operation is a rational precautionary measure against postoperative vomiting.

8. Buckler: Prophylaxis of Postanesthetic Vomiting; Am. Jour. Surg., 1914, **28**, Q. Suppl. Anesth., 13.
9. Burnham: The Administration of Glucose Solutions as a Prophylactic Against Postoperative Shock, Am. Jour. Med. Sc., 1915, **150**, 431.
10. Through the courtesy of Dr. Wilder Tileston.
11. Henderson, Yandell: The Time That the Breath Can Be Held as an Index for Acidosis, THE JOURNAL A. M. A., July 25, 1914, p. 318.

GASTRIC AND DUODENAL INFUSION BY MEANS OF THE DUODENAL TUBE

A NEW PROCEDURE IN POSTOPERATIVE TREATMENT *

GOLDER L. McWHORTER, S.B., M.D.
MINNEAPOLIS

The duodenum was first utilized for infusion in a group of dangerous biliary infections by McArthur.[1] Maury[2] used a duodenostomy opening for this purpose in the experimental laboratory. Since Matas[3] found it impossible, in some cases of cystic or of common duct obstruction, to instil fluids into the duodenum by the simple drip method through the biliary fistula, he passed a fine catheter through the biliary tract into the duodenum. It occurred to me that the passage of a catheter by mouth into the duodenum would be preferable to the biliary route, since it could be used in other than biliary fistula cases and would be more certain than the drip into the biliary drain. To the technic of a gastro-enterostomy or a stomach resection, McArthur[4] has recently advocated adding the performance of a temporary biliary fistula made in the normal gallbladder.

The use of the biliary route to the duodenum in cases in which a fistula would ordinarily be made, for the treatment of some pathologic condition of that tract, would not increase the dangers of infection, of permanent fistula, or of shock from prolonging the operation; but a biliary fistula made for the purpose of duodenal infusion, in addition to some other operation, would decidedly increase those dangers, and would have a marked disadvantage over a method as simple in performance as the passage of a duodenal tube by mouth.

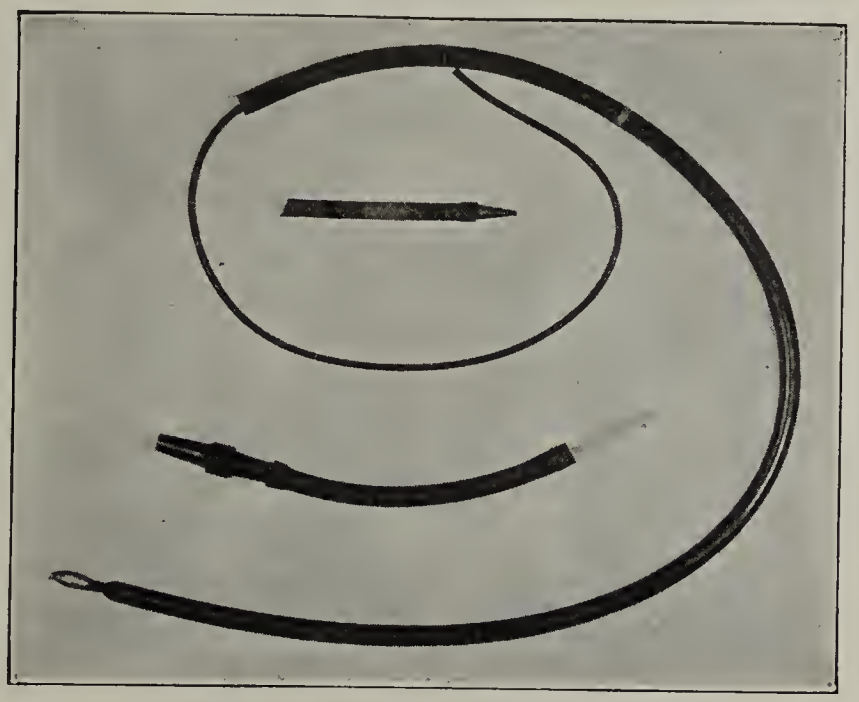


Fig. 1.—Duodenal tube placed inside of stomach tube to facilitate passage into stomach.

A review of the literature has convinced me that the use of the duodenal tube for infusion, in postoperative treatment, is a new procedure. Hemmeter[5] and Kuhns[6] were the first to construct tubes that passed the pylorus successfully. Since these tubes were somewhat bulky and complicated in construction, they did not come into general use. In 1910, Einhorn[7] and Gross[8] each constructed a small flexible rubber tube with a metal tip which has been successful for passage into the duodenum, and even into the jejunum. More recently Palefski[9] showed a smaller and heavier tip to be of advantage, while Hess[10] and others have employed an ordinary small catheter in infants. For use in stomach lavage, Kanavel[11] has added a wire carrier to aid the passage of this type of tube.

The duodenal tube up to this time has been used for diagnosis and for therapy in medical cases. It has been used to collect material in disease of the duodenum, the pancreas and the biliary tract, to determine the degree of hemolysis, and to obtain cultures for typhoid.[12] Gross[13] used direct lavage of the duodenum in chronic catarrh, in persistent jaundice and in gallstone colic, with good results. Skaller[14] used various medications applied directly to the duodenum. Einhorn[15] and others early used the tube for duodenal feeding in gastric and duodenal ulcer. Medical men have found feeding and medication through the tube to be of value in persistent vomiting, due to pregnancy, nervousness, stenosis and pylorospasm (in infants, Hess[10]); in stomach disease, due to ulcer, atony, chronic dilatation, and ptosis; and in cachectic conditions, due to pernicious anemia, tuberculosis and chronic fevers. Einhorn[16] states that in cirrhosis of

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* From the Department of Surgery, University of Minnesota Medical School.

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2. Maury, J. D.: Discussion, McArthur (Footnote 1).
3. Matas, R.: The Gall Bladder and Biliary Tract an Available Therapeutic Route to the Upper Bowel, Tr. South. Surg. and Gynec. Assn., 1911, **23**, 490.
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9. Palefski: New and Improved Duodenal Instruments and Technic of Speedy Intubation of the Normal Duodenum, New York Med. Jour., 1913, **98**, 751.
10. Hess, A.: The Use of a Simple Duodenal Catheter in the Diagnosis and Treatment of Certain Cases of Vomiting in Infants, Am. Jour. Dis. Child., March, 1912, p. 133.
11. Kanavel, A. B.: Continual Stomach Lavage and Continuous Hypodermoclysis in Peritonitis, Persistent Vomiting with Dehydration and Dilated Stomach, Surg. Gynec. and Obst., October, 1916, p. 483.
12. These uses of the duodenal tube have been discussed by:
    Hess, A.: A Method of Obtaining Cultures from the Duodenum of Infants: Collected Studies from the Bureau of Laboratories Dept. of Health, City of New York, 1912-1913, **7**, 54.
    Holzknecht and Lippman: Vereinfachung der klinischen Duodenalschlauchuntersuchung, München. med. Wchnschr., 1914, **61**, 1993.
    Gross, M., 1912: Kurze Erwagungen über die grob-physikalischen Eigenschaften des Menschlichen Duodenal (jejunal) Saftes, Wien. klin. Wchnschr., 1912, **25**, 1527.
    Garbat, A. L.: Duodenal Cultures in Typhoid Fever as a Means of Determining Complete Convalescence, THE JOURNAL A. M. A., Nov. 18, 1916, p. 1493.
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    Bondi and Salomon: Med. Klin., 1913, No. 22, p. 886.
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the liver duodenal alimentation contributes greatly toward diminution of the functional work of the liver.

The drip method of duodenal infusion was first described by McArthur[4] through the use of a drainage opening in the biliary tract. Between feedings in cases of ulcer and persistent vomiting, Einhorn[15] gave water by the drip method through the duodenal tube. Lazarus[17] has given fluids in this manner for nourishment in ulcer cases, cachectic conditions, and in some cases preparatory to stomach operations. He has used the tube a few times after operations on the stomach, but only for the purpose of preventing postanesthetic vomiting. In feeding cases, the injection into the duodenum of even moderate quantities of fluid at times causes distress, and emphasizes the importance of the drip method (Morgan,[18] Jones[19]).

Einhorn and Rosenbloom[20] have demonstrated the efficiency of the duodenal route as regards absorption. They determined that there was a maintenance of the nitrogen equilibrium in patients fed by the tube over long periods of time. Gross and Held[21] state that water and salts are readily absorbed in the duodenum, and that, of the carbohydrates, the monosaccharids are readily absorbed in solutions of 6 to 8 per cent., glucose and galactose being more quickly absorbed than levulose and mannose. (Lactose may cause diarrhea.)

The duodenal tube may be passed before operation, to improve the patient's condition more readily, or during or after operation. The tube is of value as soon as it is in the stomach, since the stomach may first be washed to prevent postanesthetic vomiting; the slow infusion avoids irritation due to swallowing, and it may also be used for gavage, in persistent vomiting. In addition, the passage of the tube through the pylorus may relax it as it does in persistent vomiting due to pylorospasm (Hess[10]).

That the pylorus is patent soon after operations on the intestine I have been able to demonstrate (on animals) by means of bismuth, showing that there may be no measurable delay except in extensive trauma, when there may be a delay of about an hour. Immediately after a gastro-enterostomy, however, when the pylorus was spastic, bismuth passed the union into the jejunum without delay (McWhorter[22]).



Fig. 2.—Drip apparatus in action

The small, soft tube may be passed into the stomach or duodenum at the time of operation (Fig. 1). The introduction into the stomach may be effected by first passing the tube inside of a stomach tube and passing it, then withdrawing the latter. I have been able (in the experimental laboratory) to manipulate the metal tip through the pylorus into the duodenum from outside the stomach wall. In one experiment, using a small soft tube without a metal tip, I made a small incision in the stomach wall and pushed the end of the tube into the duodenum by means of forceps. This could easily be done at the time of a stomach resection, or in a gastro-enterostomy when the tube could be placed in the jejunum. The usual container and drip apparatus are connected to the tube, into which any desired solutions may be placed (Fig. 2). The tube may be disconnected at any time for the purpose of lavage or of aspirating, to determine the absorption. McArthur[4] says that the Murphy drip or Kanavel's continuous hypodermoclysis does not accomplish the same results, since in hypodermoclysis the change in the splanchnic circulation is only secondarily affected, and in colonic instillation the improvement in the portal circulation is not so marked as when the same fluid bathes the jejunal lining.

REPORT OF CASES

CASE 1.—D. E. M., aged 52, on whom a resection of the stomach had been performed, with a posterior gastrojejunostomy for carcinoma, received the rectal drip but had difficulty in retention. The patient vomited small amounts repeatedly for three days following the operation, totaling 450, 650 and 450 c.c. daily. At the beginning of the fourth day I passed a tube by mouth. Following this, the stomach was washed and the drip started. The vomiting stopped immediately. The patient received 2,450 c.c. of sterile 6 per cent. glucose solution the following twenty-four hours. Then, after consultation with Dr. Leonard G. Rowntree, more nourishment was added in the form of 1 ounce of cream and the albumin of one egg, twice a day, and the solution was made up with 0.4 per cent. salt solution and 6 per cent. glucose with 4 gm. of sodium bicarbonate daily. The patient absorbed 1,880 c.c. the next twenty-four hours, as it seemed better to restrict the amount of liquid, and 1,550 c.c. the third. During the drip, we aspirated every two hours but could not obtain more than a few cubic centimeters at any time. At this time the patient's condition seemed so much improved that the tube was withdrawn.

CASE 2.—Mrs. M., with an acute attack of appendicitis, had vomited three or four times daily for a week. The first twenty-four hours after operation she absorbed 1,200 c.c. of fluids through the tube, and voided 500 c.c. of urine; in the second twenty-four hours she received 1,200 c.c., and voided 1,050 c.c., when the drip was discontinued because the condition was good.

In an animal experiment for another purpose, resulting in a general suppurative peritonitis following a perforation of the cecum, I inserted the tube into the duodenum. The dog (weighing 20 pounds) absorbed 1,200 c.c. of physiologic sodium chlorid solution with epinephrin the first seven hours.

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ADVANTAGE OF THE METHOD

Infusion through the permanent tube by mouth is desirable in the treatment of postoperative cases, with early nourishment and medication, since it may be instituted at any time without adding to the dangers of operation. In dehydration, acidosis, ileus and especially in the persistent vomiting following gastro-intestinal operations, this method has proved of definite value.

RECONSTRUCTION OF THE PYLORUS AND PYLORIC ANTRUM

BY TWO SUPERIMPOSED FASCIAL TRANSPLANTS AFTER EXCISION OF PYLORIC ULCER *

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The surgical treatment of gastric and duodenal ulcer has changed very little in the last thirty years. Early in that era a number of men performed both anterior and posterior gastro-enterostomy, and this has been the popular and usual operation for all forms of gastric and duodenal ulcers. When this operation was first employed, surgeons performed it because they believed it produced drainage from the stomach to such an extent that all the food would go through this opening and none through its normal pyloric opening. Since that time many advances have been made in the knowledge of the physiology of the stomach and also the pathology of this condition through fluoroscopic and Roentgen-ray examinations. In all these studies it has been proved that the stomach with a gastro-enterostomy functionates in an entirely different manner from that for which the original operation was performed. In spite of this fact, little has been done in the line of surgery to change the surgery of the stomach in accordance with the new scientific and physiologic facts which have been demonstrated. The result is that gastro-enterostomy alone seems to be the popular operation today, and the only changes which have been made relate to its location and a few fine technical details as to suture material and type of stitch used. In simple gastro-enterostomy without pylorectomy and closure, the Roentgen ray has shown that at least 25 per cent. of food and secretion passes by the old route, thus invalidating the purpose of the operation.

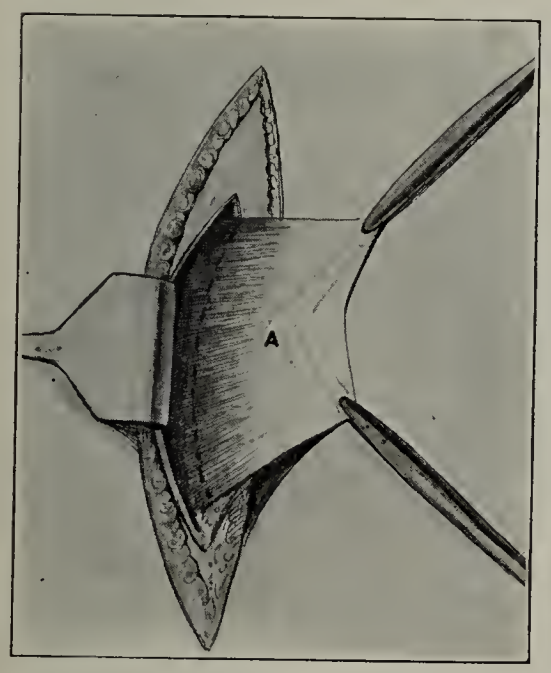


Fig. 1.—Transplant 2: *A*, transplant consisting of peritoneum, and transversalis fascia and muscle.

About seventeen years ago, various surgeons added to this operation the closing off of the ulcer distal to the gastro-enterostomy by what is known as a pyloric closure. The majority of the methods have not proved successful, because they were only temporary closures and for this reason did not give the desired results.

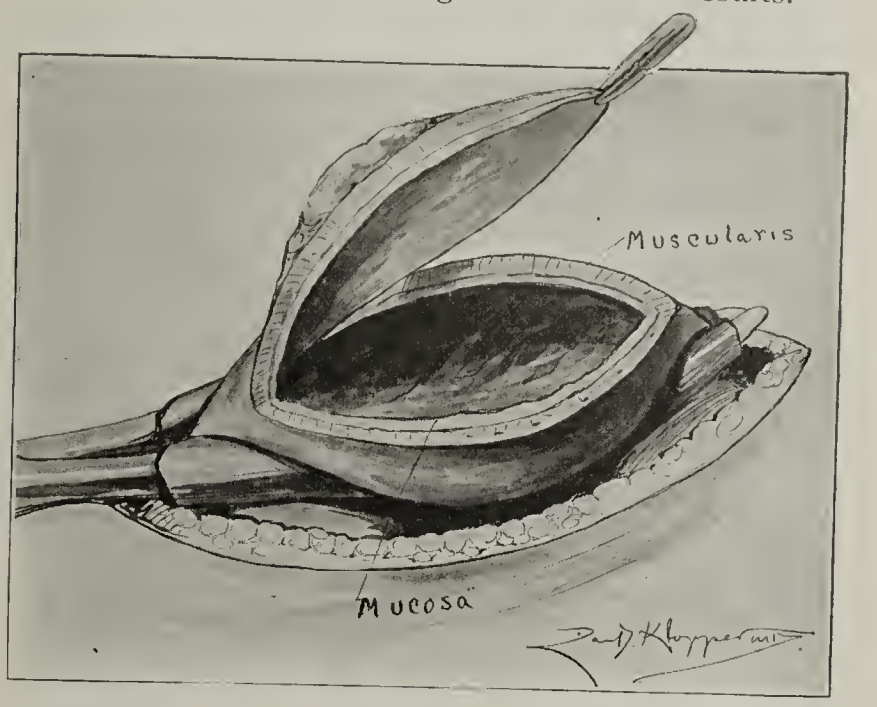


Fig. 2.—First method: application of stomach clamp and excision of ulcer.

In 1914[1] I demonstrated a method of pyloric closure by using a submucous fascial transplant, which has proved experimentally and clinically to be absolutely permanent. I believe the permanent closure is a decided step forward, because it produces in the region of the ulcer all of those conditions which tend to cure an ulcer, namely:

1. By shutting off the gastric secretions and food from the stomach and duodenum, in which these ulcers occur, all irritation is arrested.

2. By using the submucous fascial transplants, a paresis is produced in the pylorus and duodenum from the point of closure around to the gastro-enterostomy, which places the ulcer at absolute rest.

I have been much impressed by the statement of medical men and surgeons that the patients who have their ulcers excised do best and have fewer symptoms following operation, while those who have a gastro-enterostomy, with or without pyloric closure, have a more protracted course of symptoms after operation. The only reason that ulcers in the pyloric region are not excised so frequently as those in the body of the

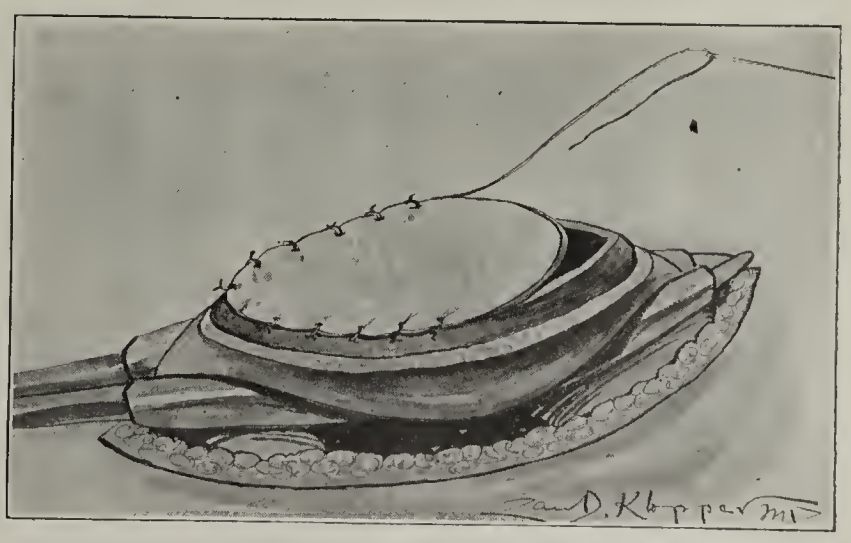


Fig. 3.—First method: suturing Transplant 2 to mucosa.

* From the Morris Institute of Medical Research of the Michael Reese Hospital.

1. Strauss, A. A.: New Methods of Pyloroplasty for Congenital Pyloric Stenosis, THE JOURNAL A. M. A., Oct. 30, 1915, p. 1533.

stomach, especially those on the lesser curvature, is that they are much more difficult to excise, and when excision is attempted, it produces so much mutilation

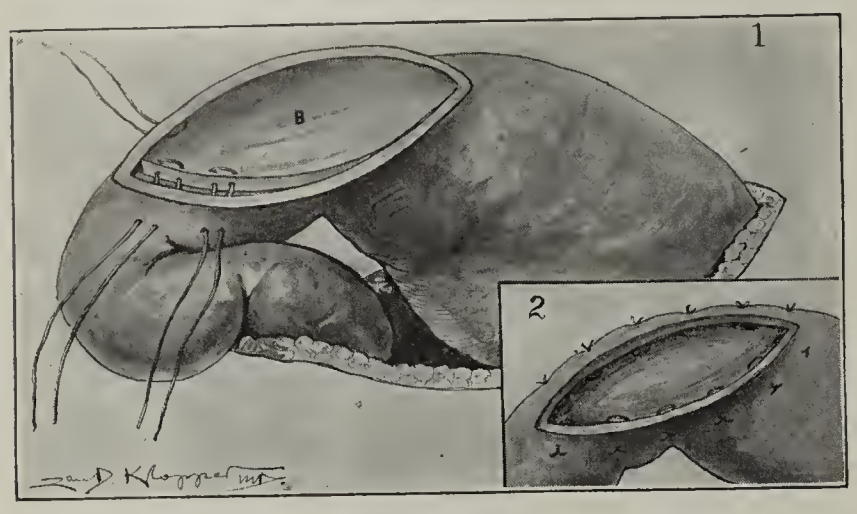


Fig. 4.—First method: Suturing Transplant 1 to muscularis.

that it is necessary to remove the entire pyloric segment. A number of men abroad and in this country, especially Rodman and Deaver, have carried out the principle of always excising the ulcer by doing a pylorectomy and then performing a gastro-enterostomy. The principle of excising the ulcer is correct, but to excise the ulcer and with it take the most important part of the stomach, as they do in the pylorectomy, I believe is wrong.

The ideal object of any surgical procedure should be to do away with the pathologic conditions and leave the organ in as nearly normal an anatomic condition and physiologic relationship as possible. In doing a pylorectomy some men leave only the body of the stomach, whose functions we know to be entirely different from that of the pylorus. The fact, that the patient lives in spite of this, does not prove the operation to be justifiable.

We know that the body and the fundus of the stomach during the process of digestion are in a state of tonic contraction, forcing the food in small portions into the pyloric antrum or vestibule. If that portion is cut off, as it is in pylorectomy or in von Eiselberg's exclusion method, the tonic contractions of the body

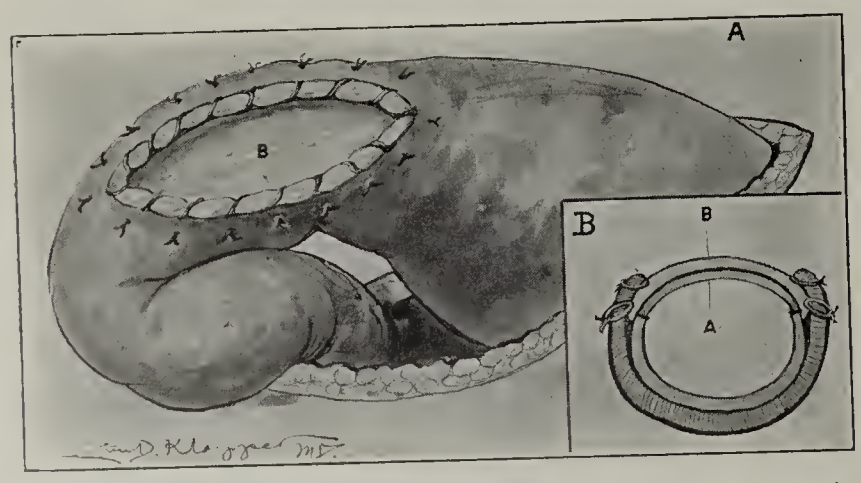


Fig. 5.—First method: *B*, fascial transplant attached to muscularis; *A*, transplant composed of peritoneum, transversalis muscle and fascia attached to mucosa.

and fundus on the gastro-enterostomy placed in that locality cause the stomach to empty within from twenty to thirty minutes. This certainly must be an abnormal condition, for the function of the stomach is to retain the food from six to eight hours and have it undergo certain forms of digestion, being passed into the intestine in small bits and not jammed through an enterostomy opening within twenty or thirty minutes without being properly digested.

Mayo, Kuttner, Hartmann and Payr have practiced excision on ulcers of the lesser curvature and found that the stomach did not empty itself properly, owing to spasm or improper action of the muscle tendon of the lesser curvature, and for this reason in several instances they either had to perform a gastro-enterostomy at a second operation, or remove in the first operation the entire segment in which the ulcer occurred.

It will be noted from the experience of all these surgeons that excision of the ulcer would be the most logical procedure if it did not require too much additional surgery and mutilation of the stomach. This is especially true when we consider the problem of the relationship of ulcer to cancer and the work of Rosenow, who has demonstrated that the ulcers of the stomach are lesions produced by a streptococcus infection similar to lesions in the inflamed gallbladder and inflamed appendix. If this is true, then there can be no valid reason why an ulcer of the stomach should not

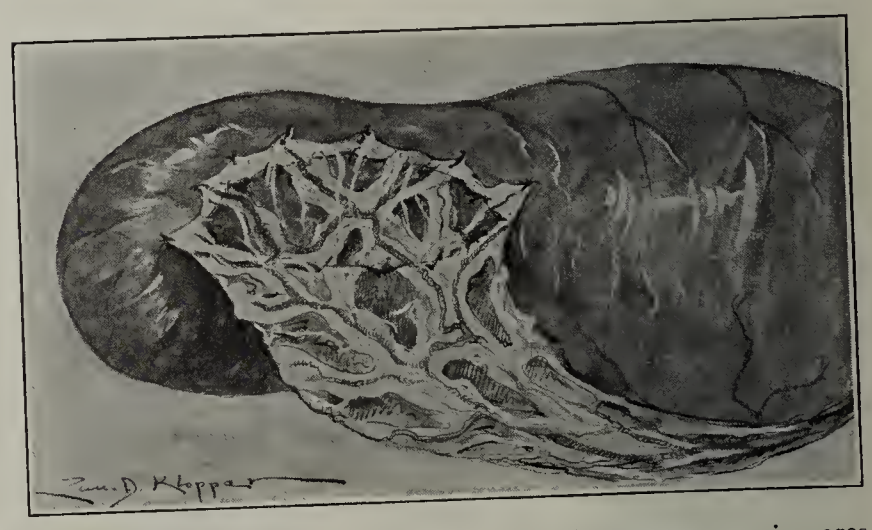


Fig. 6.—First method: free edge of attached omentum covering area of operation.

be treated the same as the chronically inflamed gallbladder or inflamed appendix, namely, by excision.

In 1912, while working on the problem of reconstruction of the ureter from internal portions of the abdominal wall consisting of fascial transplants, I noticed that the interposition of this fascial tube between the cut ends of the ureter interrupted the peristaltic waves. In the same way, one year later, by using a submucous fascial transplant to close off the pylorus, I noticed a paresis of the bowel from the point of closure around to the gastro-enterostomy. I then conceived the idea that by taking advantage of the foregoing fact and excising the ulcers of the lesser curvature and pyloric region, reconstructing that portion by fascial transplants, we would have a normally functionating stomach without pylorospasm. None of the additional surgical procedures, therefore, such as resection of the portion of the stomach in which the ulcer occurred, pylorectomy or gastro-enterostomy, would be necessary. Hence I wish to present the two following procedures:

FIRST METHOD

A right rectus incision was made one-half inch to the right of the midline, extending from the angle of the ribs down to the umbilicus. The anterior sheath of the rectus was exposed and an oval flap about 1 to 1½ inches in length and about 1 to 1½ inches in width secured. In resecting this a thin, adherent layer of

muscle fibers from the rectus muscles was taken with it. The rest of the abdominal wall was then divided and the peritoneum opened. The forceps were placed on the inner portion of the divided abdominal wall and the peritoneum with its transversalis fascia and muscle was pulled upward (Fig. 1) and divided at the dotted line which forms Transplant 2.

The stomach was next brought into view. The pyloric portion in which the ulcer occurs was tightly grasped between the thumb and index finger and an elliptic incision was made around the ulcer through the muscularis down to the mucosa. The mucosa was separated from the muscularis beyond the surrounding infiltrated area of the ulcer. A stomach clamp was then applied and the ulcer with its surrounding infiltrated area was cut away (Fig. 2).

Transplant 2, which is composed of peritoneum transversalis fascia and muscle, was now sutured by an end to end suture with fine chromic catgut to the mucosa, the peritoneum corresponding to the mucosa (Fig. 3). The first transplant, which is composed of the anterior sheath of the rectus and some muscle



Fig. 7.—Roentgenogram showing perfect action of pyloric antrum and pylorus fourteen months after operation.

fibers, was now placed and sutured to the muscularis with interrupted silk sutures similar to the Andrews imbrication method, the sutures being placed through the edges of the transplant in such a manner that the transplant was between the mucosa and the muscularis with the muscularis overlapping it (Fig. 4, 1 and 2).

A second suture, which, however, was not absolutely necessary, was placed around the inner edge of this transplant and muscularis (Fig. 5, *A* and *B*). The free edge of the attached omentum was now sutured over this entire area with a few interrupted catgut sutures (Fig. 6). This part of the procedure I believe to be very important for, as I have previously shown, the omentum not only acts as a means of preventing hemorrhage, leakage and adhesions, but it also does something far more important: it vitalizes the fascial transplant. This it will do not only in a clean field but also in an infected field. I know of no other organ or part of an organ in the body, with the exception of the heart muscle, on which a greater amount of work is placed than the pyloric region of the stomach. These fascial transplants not only are subjected to the acid secretions and food particles from the stomach, but also have to withstand the intrapyloric pressure and the tremendous peristaltic



Fig. 8.—Cross section of reconstructed pyloric region at end of twelve months.

contractions which occur at the pyloric end of the stomach during digestion.

I believe that these transplants constantly hold without leakage because the blood vessels and lymph of the attached omentum become adherent immediately to these fascial transplants, nourish them, and also produce a collateral circulation in the surrounding area of the infiltrated stomach wall, and I believe that this is the most important function of the attached omentum in this procedure.

Thirty-four animals were operated on in the last three years by this method, of which four died within from six to eight days following the operation. Necropsy revealed a peritonitis which, however, was not due to any leakage from the area of operation. All of the thirty animals that lived made uneventful recoveries and acted, shortly after the operation, like normal animals. They gained in weight and appeared in good health.

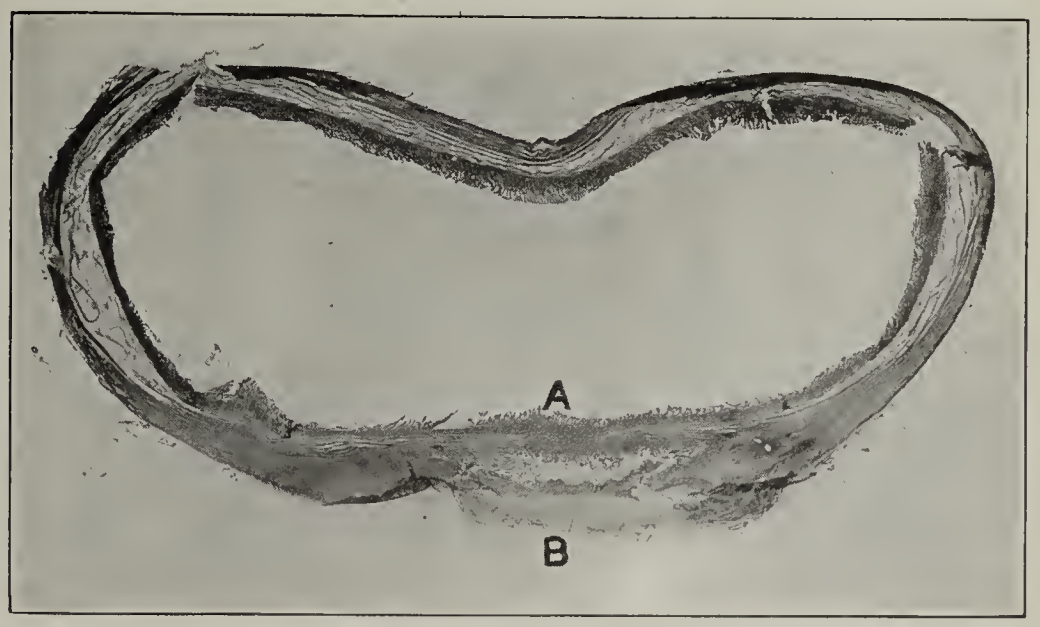


Fig. 9.—Photomicrograph of transverse section of reconstructed pylorus; *A*, mucosa; *B*, transplant. At end of twelve months.

Practically all the animals were subjected to roentgenoscopy from time to time, and to fluoroscopy at various intervals from six weeks to one year. All of them



Fig. 10.—High power photomicrograph taken at junction of transplant and stomach: *A*, omental vessels from great omentum; *B*, transplant; *C*, healed in mucosa. At end of twelve months.

showed a normally functionating pylorus (Fig. 7). The pyloric action and cap were so perfect that several Roentgen experts could not distinguish under the fluoroscope the animals which had been operated on from normal animals.

The first ten animals operated on were killed six months after operation. The second ten were killed nine months after operation, and of the next series of

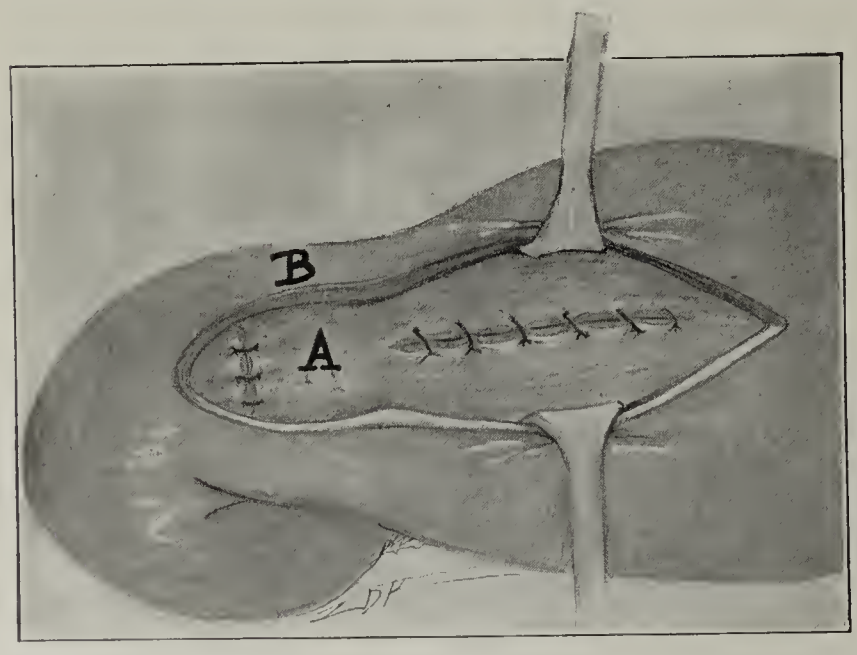


Fig. 11.—Second method: *A*, mucosa; *B*, muscularis; mucosa sutured after excision.

ten, five were killed at the end of eleven months, three at the end of twelve months, and two at the end of fourteen months. All of the animals showed practically the same condition.

When the abdomen was opened, the stomach was found perfectly free; the great omentum covered the area of operation and appeared perfectly organized with the fascial transplants. The stomach was now distended under the hydrant, both from the duodenal and the esophageal end, and shown to be perfectly patent and normal in size.

Cross section (Fig. 8) revealed a perfectly patent pylorus. Microscopically (Fig. 9) a transfer section through the pyloric region revealed that both fascial transplants had healed perfectly, that the omental vessels were attached to the transplant, no scar tissue could be noticed, there were no areas of degeneration present, and the mucosa of the stomach had healed over the peritoneal surface of the inner transplant (Figs. 9 and 10).

SECOND METHOD

Within the last year I have simplified this technic by performing a plastic operation on the mucosa and using only one transplant, thus:

The incision around the ulcer down to the mucosa was made as in the first method, with the exception, that the incision was carried back on the body of the stomach for a distance of 2 inches and this mucosa thoroughly freed from the muscularis around one half of the circumference of that portion of the stomach. The ulcer was then cut away as in the former procedure.

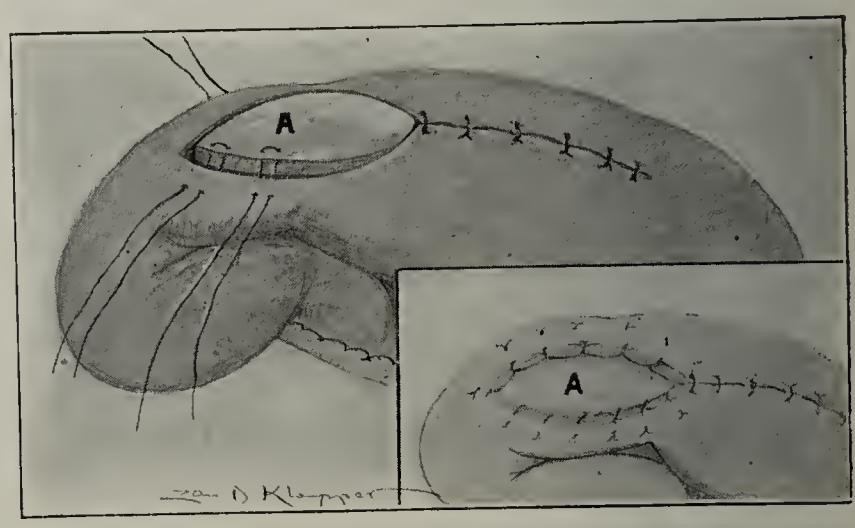


Fig. 12.—Second method: insertion of fascial transplant; *A*, transplant.

A transverse incision was made in the mucosa and sutured longitudinally, which allowed the mucosa to come forward where the ulcer was cut away, so that it could be easily sutured transversely (Fig. 11). The fascial transplant was then set in (Fig. 12), and covered by omentum as in the former procedure (Fig. 13). The same procedure has been carried out on the duodenum with equal success.

COMMENT

Clinically these animals do as well as those operated on by the first method, and the procedure is much more simple than the first one. The second method, however, has not been tried out as thoroughly and for as long a time as the first one.

The problem was as to whether this procedure would be feasible on a stomach which had undergone the pathologic changes produced by an ulcer. In an effort to determine this point, Dr. Walter Hamburger and myself produced some chronic ulcers in the pyloric region according to the method described by Hamburger and Friedman, and within from six to twelve weeks these animals were reopened. We found all the pathologic conditions of large, indurated ulcers with many adhesions to the under surface of the liver and parietal wall.

The operative procedure mentioned above was carried out on these animals, and we found that it was just as easy and just as practicable as on the normal stomach. In making pyloric closures and simple gastro-enterostomies on animals in which we had produced ulcers, we found that the clinical course was much better when the ulcer was excised.

Of interest in connection with the question of vitalization of the fascial transplant by the free edge of the attached great omentum in an infected field are four cases in which operation was performed for perforating gastric ulcer and in which the ulcers were so large and indurated that purse-string sutures and inversion was out of the question.

In the first patient the edge of the ulcer was curetted, and two deep sutures were placed through the indurated area to bring the freshened edges together. A large fascial transplant from the anterior sheath of the rectus was sutured with interrupted silk stitches over the entire field, extending beyond the indurated area of the ulcer. The free edge of the attached omentum was now brought over this entire area and sutured over the transplant.

In the second patient the induration was so marked that the edges of the ulcer could not be brought together by suture, and the fascial transplant was simply sutured over the opening and covered by omentum. The other patients were operated on in the same manner. All four patients made uneventful recoveries and are at present in good health.

These cases illustrate the practicability of using the attached omentum to vitalize free fascial transplants in an infected field as well as in a clean field. The omentum not only vitalizes the fascial transplant but also produces a collateral circulation around the indurated areas and thereby promotes healing of the perforated ulcer.

CONCLUSIONS

1. Three years' experience with this method has proved it to be an absolutely safe procedure.



Fig. 13.—Photomicrograph of transverse section of pylorus where single transplant has been used: *A*, fascial transplant; *B*, fascial transplant united to muscularis; *C*, mucosa. At end of ten months.

2. In view of the relationship of ulcer to cancer, and the fact that it probably is a localized lesion produced by streptococcus infection, this method of excision seems far more rational than gastro-enterostomy with or without pyloric closure.

3. The operation leaves the stomach in its normal anatomic condition and physiologic relationship, and does not mutilate the organ or cut away any of its most important parts.

4. The operation takes far less surgical skill, produces much less shock, and takes less time than a simple gastro-enterostomy.

5. The vitalization of the free fascial transplants by the free edge of the great omentum, in both a clean and an infected field, has been proved both experimentally and clinically.

6. The closing over of a perforated ulcer by a free fascial transplant and the attached omentum is far safer and more permanent than a purse-string suture placed in the indurated area of an ulcer.[1]

30 North Michigan Avenue.

USEFULNESS OF SERUMS AND VACCINES UNDER WAR CONDITIONS

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Director, Hygienic Laboratory
WASHINGTON, D. C.

The development of biologic products used for prophylactic and therapeutic purposes has been so extensive that confusion exists as to the value of some of the agents of this group, and a brief discussion of the subject at this time is warranted

The brilliant results which followed the use of the first agents of this group, notably vaccine virus, antidiphtheric serum and antitetanic serum, have not been duplicated by the majority of those that have come into use in recent years.

In this country products of this class may not be imported, exported, or sold in interstate commerce without a license issued to the manufacturer by the secretary of the treasury, which license is based on a careful investigation of methods of the manufacture of the products and conditions surrounding it.

The license means in effect that products are produced under conditions which should insure freedom from dangerous contamination and, in cases in which a potency standard has been established, that the product is of the potency claimed. Such standards have been adopted for the antitoxins for diphtheria and tetanus; a tentative standard has also been established for antityphoid vaccine.

Products for which there are no potency standards range all the way from such trustworthy agents as vaccine virus and antirabic virus to those of such doubtful value as many of the bacterial vaccines and the large family of tuberculins.

Aside from licensed manufacturers, certain municipal and state health laboratories produce biologic products. These laboratories are supervised only by their own departments; this supervision may be effective or otherwise, depending on circumstances.

Before consideration of the individual agents that will be discussed, it may be pertinent to state that

1. This paper is the third report of investigations made in this laboratory on this subject. The preliminary report, "New Methods of Pyloroplasty," appeared in THE JOURNAL, Oct. 30, 1915, p. 1533. Reference should also be made to "Reconstruction of the Pylorus," Surg., Gynec. and Obst., Jan. 7, 1916, p. 496.

the available supply of biologic products, actual and potential, is fully equal to any conceivable requirements. Indeed, during the war, American manufacturers have furnished to foreign governments large quantities of tetanus antitoxin, the product most extensively used in active military operations. If our supplies of munitions of other sorts were relatively as abundant, our condition of preparedness would be all that could be desired.

It seems scarcely necessary to point out that by far the largest field of usefulness for these agents is in the prophylaxis of infectious diseases, although there is an important field of usefulness for some in a curative way. Some are useful for diagnostic purposes exclusively; these will not be considered here.

AGENTS OF PROVED WORTH

VIRUS

Smallpox Vaccine.—The only points that need be mentioned here are the form of supplying the agent and the method of applying it. Vaccine virus is supplied (1) on points of celluloid, ivory, glass, or bone; (2) in glass capillary tubes for individual vaccination; and (3) in bulk for multiple vaccination. All of these forms have their advocates. The first is perhaps most generally used, the second the most generally recommended, and the third the most economical when large numbers are to be vaccinated at one time. If the virus is potent, the manner of supplying it is of no consequence.

As to the method of vaccination, linear incision is probably the most satisfactory.

The vital thing in connection with the keeping of vaccine virus is a low temperature; the lower the better. At room temperature the virus is liable soon to lose its potency. If the virus is kept sufficiently cold, the date of expiration given by the manufacturer may be regarded as dependable.

Sterile vaccine prepared by Noguchi's method has not been used extensively enough to justify an opinion as to its value under varied conditions. It seems not to be generally known that much of the regular vaccine virus on the market contains few bacteria. Some packages, indeed, are sterile by the ordinary tests.

As vaccine virus leaves the manufacturer it is generally of a satisfactory quality; but much of that obtained in the usual channels of trade is nearly or quite inert, on account of improper handling and storage.

ANTITOXIC SERUMS

Antidiphtheric Serum.—This product comes into consideration both as a prophylactic and as a curative agent; its value and mode of use are so well known that it need not be mentioned further here.

Antitetanic Serum.—The use of this agent in armies is at present extensive. It is understood that single orders for as many as 500,000 doses have been placed in America by European governments, and enormous quantities are being made in Europe. It has become the rule to give every wounded soldier a prophylactic dose of tetanus antitoxin as soon as possible after the wound is inflicted. During the early part of the war, the dose used was 1,500 American units; but, at least in the English service, this has been reduced to 500 units repeated every seven days "until the wound has healed or become healthy." It was found necessary to repeat the dose on account of the late development of tetanus in cases in which only a single dose was administered.

Dried antitetanic serum as an application to wounds has been recommended, but seems not to have found favor; certainly it has not replaced the subcutaneous use of the fluid serum.

As a curative agent, in the presence of clinical tetanus, 3,000 units of the serum should be administered intraspinally, at the appearance of the first symptoms; 10,000 units in addition should be given intravenously. The intraspinal dose should be repeated daily until improvement sets in, and the blood should be kept antitoxic by further subcutaneous doses of 10,000 units.

The war experience has confirmed what had been learned in civil practice, that as a curative agent the serum is not of great value, at least not unless used early, intraspinally, and in large doses.

ANTIBACTERIAL SERUM

Antimeningococcus Serum.—Some of the earlier reports on the use of this agent during the present war indicated that it had not proved satisfactory; at present, however, it is being used with success. The variability in the strains of meningococci encountered in various cases and in various outbreaks doubtless accounts in part for the failure to secure more uniform results. The lack of a definite potency standard makes it impossible to judge accurately of the value of any given specimen of serum. This is particularly unfortunate, as epidemic meningitis is especially liable to occur in camps in which large numbers of young men are brought together. The serum should be given early and persistently.

BACTERIAL VACCINES

Antityphoid Vaccine.—There seems to be no question about the great value of this agent. In military service it has been highly successful. It appears that, at least for military purposes, it is desirable to use a vaccine containing, in addition to *B. typhosus,* the paratyphoid organisms A and B. In the early part of the war, in some of the armies, the latter organisms were not used; and, in consequence, much paratyphoid occurred.

The administration of antityphoid vaccine varies in different hands. The procedure followed in America is to give 500,000,000 organisms; followed by double that dose in a week or ten days, and a third dose of the same size as the second after a further interval of a week or ten days. This product should be used reasonably fresh, though little is known of the rate of deterioration with age.

The question of the duration of the immunity is an important one. It has been customary in this country to regard the immunity as lasting about four years; but the experience of some of the European armies indicates that this period is too long. It is understood that revaccination is being practiced annually, and under some circumstances even after six or seven months.

AGENTS NOT WELL ESTABLISHED BUT WORTHY OF TRIAL

SERUMS

Antidysentery Serum.—It is well known that dysentery organisms of the Shiga-Kruse type produce toxins, and that it is possible to produce a serum which neutralizes these poisons. The evidence at hand indicates that such a serum should be tried in any case of bacillary dysentery due to organisms of

the Shiga-Kruse type. As high as 80 c.c. have been given at a dose.

If dysentery should prevail to any considerable extent, it probably would be worth while to have serum prepared for the type or types of infection existing in the area in which the serum is to be used.

Antipneumococcus Serum. — The work done in recent years on the separation of pneumococci into groups, and the results of a specific treatment, indicate that antipneumococcus serum, potent against organisms of Group 1, may be expected to be of value in infections due to this type. On account of the difficulty and delay that may be incurred in arriving at a type diagnosis, not to mention the impossibility of this under many circumstances, some students of the subject recommend the use of a Group 1 serum in any case of pneumonia, recognizing, of course, that it will be of no value in many cases, but believing that the benefits of its early use in Group 1 infections justify this somewhat unscientific procedure. It seems clear that no serum other than that against Group 1 organisms is of value.

BACTERIAL VACCINES

Vaccines against bacillary dysentery have been employed in a prophylactic way, but the evidence as to their value is not established; at least such evidence has not been published. It appears to be difficult to prepare a vaccine which does not produce unduly severe reactions and yet gives promise of being effective. Dosage is one half, or less, that of antityphoid vaccine.

Anticholera vaccine is reported to have given satisfactory protection, and the data at hand warrant its use as a prophylactic. The doses are 500,000,000, and 1 billion organisms, with an interval of one week.

Meningococcus vaccine has been used, but with inconclusive results. A vaccine, prepared from the organisms occurring in the epidemic prevailing, would in all probability prove more useful than one made from stock strains. The dosage is about the same as for antityphoid vaccine.

Combined vaccines, consisting of the typhoid bacillus, the two paratyphoid, the dysentery bacillus and sometimes the cholera vibrio, have been used to some extent. There appears to be justification for the use of such combinations as preventives under special conditions.

Prophylactic and therapeutic vaccinations against wound infections have been carried on, but the results do not appear to be encouraging.

ANAPHYLAXIS

The danger of anaphylactic shock, ensuing when it becomes necessary to administer horse serum to a person who has been inoculated with horse serum at an earlier date, must be mentioned. The consensus of opinion is, however, that this consideration should not interfere with the use of any prophylactic or curative serum which may be required. It has been recommended that, when hypersensitiveness is suspected, a small dose (0.1 c.c.) of serum should be given half an hour prior to the full dose, the object being to desensitize the susceptible individual. Increasing doses should be given at half-hour intervals.

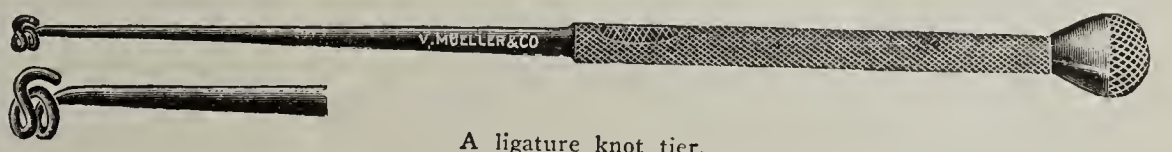
Clinical Notes, Suggestions, and New Instruments

A LIGATURE KNOT TIER

HENRY R. BOETTCHER, M.D., CHICAGO

This instrument facilitates the tying of ligatures at points which the fingers cannot easily reach.

An assistant holds the handle of the forceps in the usual way for removal. The operator takes a ligature, ties a simple overhand knot around the handle of the forceps and brings the ends of the ligature down astride the handle, holding them between the first three fingers of the left hand. Then the tier is hooked on the end of the ligature nearest the right hand, from the under side, and given two turns to the right, which will put the ligature within the spiral or head of the instrument. The spiral is now pushed up to the knot, and the end of the ligature is held against the handle of the tier by the thumb or first finger, the other end being held by the left hand.



A ligature knot tier.

The knot is now pushed down the handle and over the tip of the forceps. The left end of the ligature should be kept well under the handle of the forceps, which helps to keep the knot over the tip, when the tying force is applied. This is now done, the forceps are removed, and a second knot is tied and pushed down.

In tonsil work, forceps with a tapering handle are the easiest to tie over, and plain sterilized catgut Nos. 1 and 0 are the best strengths to use.

It is well not to cut the ligature too close to the knot.

6336 Harvard Avenue.

PELLAGRA WITH ERYTHEMA OF SCROTUM AS INITIAL SKIN MANIFESTATION

C. E. CROSBY, M.D., GREAT FALLS, S. C.

D. R. T., man, aged 31, mill hand, married, first came under my care early in June, 1916, with symptoms of nephritis which readily improved under treatment. June 15, I was called to see him and found him suffering with acute appendicitis, for which he was immediately removed to a hospital and operated on.

August 15, he came to my office complaining of burning and itching of the scrotum. Examination revealed an intense reddening and slight thickening over an area about an inch in diameter on each side of the lower portion of the front of the scrotum. It was separated by a longitudinal strip of normal skin along the median raphe, and the erythematous area on the right side was somewhat larger and more intensified than that on the left. The junction of the reddened area with the normal adjacent skin formed a distinct line of demarcation, the two areas being essentially bilateral as regards the median raphe with no communication at any point. These areas later underwent the changes characteristic of pellagrous skin lesions, ending with complete desquamation.

In about two weeks the mouth became sore and red. This condition later developed into a typical pellagrous stomatitis which was followed, about five days later, by a severe diarrhea necessitating constant access to stool.

About September 15 a mild erythema was noticed on the knuckles of both hands which, a few days later, extended to cover the backs of both hands and lower portion of the dorsums of both wrists. These areas were sharply outlined by definite lines of demarcation and later terminated in the usual desquamation.

The patient stated that since returning from the hospital he had lived almost exclusively on bread and molasses. He

was instructed to leave off the bread and molasses and eat fresh meats, fresh milk, eggs and legumes, which he secured with some difficulty, as he had not been able to work since June. September 30, he had practically recovered from his attack of pellagra, and was able to return to work. Since that time he has passed an examination for life insurance.

TREATMENT OF SKIN EROSIONS WITH PARAFFIN *

ELWOOD B. HAWORTH, M.D., PITTSBURGH
Fellow of the American College of Surgeons; Surgeon to Western Pennsylvania Hospital

In the treatment of severe burns, or of acid corrosions, or of wounds that fail to epitheliate, it is advisable to use the paraffin treatment. We have had eminent success with this method of therapy, and we shall describe here how the wax is made and how it is applied.

PREPARATION OF WEST PENN WAX

The ingredients are mixed in these proportions:

Paraffin (Gulf Refining Co., Pittsburgh)	70.0 gm.
Liquid petrolatum, U. S. P.	3.0 c.c.
White beeswax	10.0 gm.
Rosin	7.0 gm.
Resorcin	0.2 gm.
Sudan III	0.05gm.
Alcohol (95 per cent.)	10.0 c.c.

The paraffin and the oil are melted in a casserole over asbestos board, the direct fire being used. The resorcin is dissolved in the alcohol, and added drop by drop to the molten paraffin with constant stirring. The mixture is now heated until all the alcohol is evaporated. The beeswax is stirred in until melted, heat being used if necessary. Then the rosin is added and mixed in thoroughly while the casserole is being heated. The mixture can be poured into molds and cooled.

It is possible to incorporate a number of ingredients in the West Penn wax, as salicylic acid, gum benzoin, etc., which may be useful in the treatment of skin affections. These substances are incorporated by dissolving them in alcohol and thoroughly admixing them in the melted paraffin, until all the alcohol has evaporated.

TREATMENT OF BURNS BY MEANS OF WEST PENN WAX

When a severe burn of recent occurrence presents itself, we puncture all the blebs and remove all the dead skin. The melted wax is now applied directly over the burn by means of a camel's hair brush. A piece of gauze or a thin piece of cotton is placed over this application, and this is again painted with wax so that the gauze or cotton is firmly embedded in the wax. The whole surface is now bandaged with loose cotton. By permitting a piece of the cotton or gauze to project between the two layers of wax, it is quite feasible to remove the wax by one gentle pull. When the wounds are very painful and it is not practical to paint the wound with a brush, the wax is applied to the surface by running a strip of gauze through the melted wax and applying directly.

If the wound is wet it is necessary to dry it with hot air; otherwise the wax will not stick to the surface. This can be done by means of an electric hot air generator, commonly used by barbers.

In old wounds or burns that are septic, it is essential first to render the surface clean by means of Dakin's neutral solution of chlorinated soda, and then treat it with the wax as if it were a freshly burned surface.

The West Penn wax is very flexible. On cooling it contracts and exerts a suction action, thus inducing an active hyperemia and keeping the wound air tight. The resorcin is added as a mild antiseptic and as a preventive of foul odors that might otherwise be formed. Sudan III is used as a stimulant of epithelialization. Scarlet red may be used instead.

* From the Biochemical Laboratory, Western Pennsylvania Hospital.

To Know.—When you know a thing, to hold that you know it; and when you do not know a thing, to allow that you do not know it; this is knowledge.—Confucius.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1321)

TREATMENT OF UREMIA

The indications for the treatment of uremia may thus be itemized: (1) the diet; (2) elimination; (3) rest; (4) pain; (5) care of the circulation; (6) care of the central nervous system; (7) control of edema.

1. At the first evidence of uremia, the diet should be diminished to the smallest amount possible, such as a pint of milk a day. The use of water should not necessarily be restricted, unless edema is extensive and edema of the lungs is feared; if this is the case, it is well to restrict the intake of water in the endeavor to have the exuded liquid resorbed into the blood vessels and excreted in some way, if not by the kidneys, by the skin or bowels, as a certain amount of purging must be caused, and as perspiration, if not too profuse, is desirable. If, on the other hand, edema is not extensive, and catharsis and perspiration are caused, a liberal amount of water should be given the patient in order to facilitate these processes. It should be emphasized, however, that profuse catharsis causing circulatory weakness, or profuse perspiration causing exhaustion do not cure patients with uremia; furthermore, if water is not supplied and well absorbed into the blood vessels, the excretion of water from the blood vessels by the bowels or skin, or both, causes a concentration of the toxins which cause uremia. Hence, the nervous system must be more seriously irritated.

It may be well to note here, however, that Haldane and Priestley[116] have recently found that when large amounts of water are given to a normal person, and the output of urine is increased and the specific gravity lowered, the blood concentration remains the same. This was also true when profuse perspiration was caused. They came to the conclusion that a diminished hemoglobin percentage or an increased volume of blood was not caused by the intake of such amounts of water as would cause diuresis. This does not prove that in abnormal conditions, such as uremia, the blood may not become more concentrated by profuse diarrhea and sweating, or become less concentrated by the ingestion of sufficient amounts of water.

The scanty diet of a pint of milk or a quart of barley water a day, suggested above, cannot be continued more than a few days without the patient becoming seriously weak. If he is not comatose, the diet should be increased by some thin liquid cereal, with more or less alkali, such as sodium bicarbonate. The object of the alkali and the carbohydrate is to prevent the added element of acidosis. The alkali, however, should not be given in large quantities if there is serious edema, as it may aggravate this condition.

If convulsions seem imminent, the only food the patient requires is water, barley water, oatmeal gruel, malted milk, orange juice or lemonade, according to the condition of his central nervous system and stomach. If he is vomiting, and emptying his stomach well, hot water is the required treatment. If he is nauseated, but does not vomit, the stomach tube may be used to

116. Haldane, J. S., and Priestley, J. G.: Jour. Physiol., 1916, 50, 296, 304.

wash out the stomach, which will relieve him greatly. Occasionally bismuth and soda will soothe the stomach; a mustard paste over the epigrastrium may stop the nausea by counterirritation; or an electric pad may be of advantage. If more than a day or two is passed during which he is unable to retain nourishment, colon injections of water containing sodium bicarbonate should be given, as starvation may soon cause an acidosis which will add to the intoxication.

2. Bowel movement should be induced by compound jalap powder, 2 gm. (30 grains), repeated in four hours if free movements are not caused. Calomel or any other mercury may be injurious when a patient is uremic. If he is comatose and free bowel movements are urgently needed, 2 or 3 drops of croton oil on granulated sugar may be placed on the tongue, or may be given diluted, if the patient is able to swallow. If the bowels have moved freely several times, the patient should not be given another cathartic for twenty-four or thirty-six hours; but when the bowels have not moved for twelve hours or more, washing out of the colon with warm water is efficacious.

Profuse dripping perspirations are not essential in uremia. Great benefit apparently has been derived when hot air directed under the bed-clothing, actual body baking, steam bath (or some other procedure), has caused profuse perspiration. When patients survive such treatment, it is because enough dilatation of the blood vessels of the surface of the body has occurred to relieve the kidney congestion. But if the kidneys cannot so react, the blood is depleted of water, the retained toxins are in more concentrated form, the kidneys may not improve, and the danger is increased. Too profuse perspiration and general surface relaxation may also lower the blood pressure below the point desired, and the patient may die of circulatory failure. Hot packs to the back over the kidney region will cause enough local heat to be of more or less benefit to the kidneys by relieving local congestion, at the same time causing enough general perspiration to accomplish a relaxation of the skin without the use of more strenuous measures.

Pilocarpin is not usually indicated. It produces not only profuse perspiration, but also profuse bronchial secretion, so that the patient almost drowns in his own bronchial fluids. Frequently this flow of perspiration and bronchorrhea must be checked by atropin, if it is not too late. Drugs which act as strenuously as pilocarpin are not advisable.

3. Rest of mind and body is essential in uremia. The greater the muscle movements, the greater the nitrogenous waste; the more restless the brain, the more restless the body. When muscle cramps occur and convulsions seem imminent, a quieting dose of chloral, sufficiently large to be effective, should be administered, unless the patient is afflicted with cardiac weakness and low blood pressure. If the patient's heart is weak, if he cannot sleep and is very restless, codein should be given instead of chloral.

4. Some patients who are uremic suffer acute pain, either cardiac or abdominal; this acute pain must be stopped by codein or morphin, even though the impending coma may be hastened thereby. It is imperative that agonizing pain be terminated, even in uremia. Fortunately, not many patients who are uremic suffer such pain; they are more likely to be stupid.

5. The blood pressure is generally high, and large doses of nitroglycerin are advisable; or the chloral resorted to for sleep, or the bromid used to soothe general restlessness will reduce the blood pressure. Catharsis and sweating also tend to lower the blood pressure. However, one must be cautious lest the suddenly lowered blood pressure be coincident with heart failure. If the heart is failing, the diastolic pressure becomes high, the systolic pressure is lowered, and the pulse pressure is shortened. This frequently occurs in the uremic condition of cardiovascular-renal disease, but whether or not uremia is present in that disease, digitalis, or perhaps an intravenous dose of strophanthin, should be given. However, it should be remembered that strophanthin may have too great an effect on the heart, if digitalis has previously been given.

If the blood pressure is very high, and apoplexy or sudden dilatation of the heart threatens, venesection should be done. This is also perhaps the most valuable treatment for convulsions or coma. The amount of blood withdrawn depends on the individual case. Subsequent to the venesection a colon injection should be given, the water containing a small amount of sodium bicarbonate, which should be allowed to be absorbed. If there is no edema or a very small amount, as in chronic interstitial nephritis, physiologic sodium chlorid solution may be introduced into the colon, the object being to fill the blood vessels again and to dilute the toxins they contain, thus reducing the irritation of the brain. Whether or not venesection has been done in uremia, colon irrigation is often of great value, with the water at a temperature of 110 F. A rectal tube may be passed a short distance, and, with the hips elevated, the water allowed to flow into the colon, where it may be allowed to remain a short time, and then siphoned out. This procedure should be repeated every three hours until several treatments have been given, as such irrigation tends to relieve the acute kidney congestion.

6. With frequent convulsions, chloral or bromids may be given by the mouth, or, if they cannot be swallowed, by the rectum; but the latter method of administration is not very satisfactory. Venesection, fomentations over the kidneys, heat, and croton oil catharsis are preferable. If frequent convulsions seem to threaten the life of the patient, chloroform inhalations should be given. Coma may be due to the intoxication, to cerebral pressure from an exudate into the ventricles, or from actual edema of the cerebral tissues. Spinal puncture will often drain fluid from the ventricles, but it would not be of benefit in edema of the cerebral tissues. Hot water bags to the feet and legs and heat over the abdomen will draw the blood from the head, and will lessen the cerebral congestion. Even with convulsions and coma, unless it is the terminal stage of a chronic nephritis, the patient may recover.

There is no detoxicant in uremic poisoning more successful than large doses of thyroid, and if 10 or 15 grains of this substance can be absorbed from the stomach there is generally an improvement, although it may be temporary. When convulsions seem imminent, and when uremic symptoms appear, thyroid should be given in 5-grain doses, or, with the stronger preparations now offered, in 2-grain doses, two or three times daily.

7. If the edema is cardiac, the treatment is that of cardiovascular-renal disease, and if the patient is uremic, digitalis or strophanthin may be of great value. The blood pressure may not be high in a serious gen-

eral anasarca, and caffein may be of value. Exhausting purging of the bowels should not be caused, as heart failure may result.

It may be necessary to remove large exudates from the pleural cavities or from the peritoneal cavity, but when such complications occur with uremic symptoms, the prognosis is almost hopeless. With such general anasarca, theocin may be tried; but it has been proved that this does not increase the output of nitrogen, although it may increase the output of sodium chlorid and water.

If the patient survives the uremic condition, and the kidneys begin to excrete, the treatment is that outlined for the convalescence of acute nephritis.

DECAPSULATION.

Decapsulation was first suggested by Edebohls, in 1901, and was done by him and by others with the hope that a new blood supply could be created around the kidney structure. Also, if the kidney was so acutely congested and swollen that the capsule formed a constriction, the release of this constriction might improve and save the kidney, or both kidneys, and, temporarily at least, prevent uremia and save life. This operation has not proved very successful, and certainly should not be done in chronic nephritis. However, decapsulation may be considered (1) in acute eclampsia when emptying of the uterus does not stop the convulsions; (2) in toxic nephritis (mercury, arsenic and phenol poisoning); and (3) in acute nephritis following an acute infection when uremia is present and there is complete anuria.

PUERPERAL ECLAMPSIA

If possible, this condition should be forestalled. Albuminuria, casts, and symptoms of kidney disturbance during pregnancy should, ordinarily, call for a termination of the pregnancy. Too great conservatism is not justifiable. The longer the kidneys are congested from the abdominal pressure, especially if nephritis has previously occurred, the greater is the hazard to the mother if an attempt is made to save the child, therefore such an attempt should not be made. If the kidney inflammation is not discovered until a short time before term, consultation may decide that it is best not to hasten the birth of the child. On the other hand, every day increases the danger, as the muscular efforts of the mother at the time of parturition load the blood with nitrogenous toxins, especially creatin, and eclampsia is almost inevitable.

If kidney defects are not discovered until parturition has begun, eclampsia may develop rapidly. In this case chloroform must be administered and the evacuation of the uterus hastened. Considerable hemorrhage from the uterus is conservative and life-saving, as the loss of a large amount of blood loaded with toxins may save the patient, after the manner of a venesection; such loss of blood is apparently even more effective in nephritis than that caused by venesection.

Of course it is recognized that puerperal eclampsia may occur when the urine has shown no signs whatever of nephritis. Thyroid in large doses is especially effective in this condition, and should always be given in puerperal eclampsia. After the uterus is evacuated, the subsequent treatment is that of uremia.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PARRESINE.—A mixture composed of paraffin (melting point 48 to 49 C.), 94 to 96 per cent.; gum elemi, 0.20 to 0.25 per cent.; Japan wax 0.40 to 0.50 per cent.; asphalt, 0.20 to 0.25 per cent., and eucalyptol, 2 per cent. To this mixture is added 0.5 to 1.0 per cent. solution of alkannin in eucalyptol and a minute quantity of gentian violet, these being employed to bring the product to a standard color.

Actions and Uses.—Parresine acts mechanically, essentially like simple paraffin. When applied to burns and denuded surfaces, it excludes the air to a certain extent and relieves pain, provides a soft, pliable splint-like covering to the wounded surface, keeps the parts at a relatively uniform temperature, immobilizes the epidermal tissue, and may aid the formation of new tissue by acting as a scaffolding for newly formed cells.

Parresine is mainly used in the treatment of burns. It is also said to be useful in the treatment of "frostbite," "chilblains," and for covering denuded surfaces.

Dosage.—For use, parresine is melted and applied while liquid by means of an atomizer or brush in a thin layer over the surface of the wound, which has previously been dried by a current of hot air. A thin layer of cotton is then applied and then another layer of melted parresine. This is usually covered with cotton and bandage.

Prepared by the Abbott Laboratories, Chicago. No U. S. patent. U. S. trademark applied for.

Parresine has the properties of paraffin, slightly modified by the addition of gum elimi, Japan wax and asphalt.

It is of a grayish smoky color, has the odor of eucalyptol, and melts at 47 to 48 C. (117 to 119 F.).

SIOMINE.—Hexamethylenamine tetraiodide $(CH_2)_6N_4I_4$. It contains 78.5 per cent. iodine.

Actions and Uses.—Siomine is decomposed in the intestine with formation of hexamethylenamine and iodide, the rate of absorption and excretion being essentially the same as that of inorganic iodides. It therefore produces the effects of ordinary iodides, from which it differs only in that it can be administered in solid form. The administration of siomine provokes the luetin reaction.

No therapeutic claims are made for the hexamethylenamine component of siomine, this being present only to render the substance insoluble.

While ordinarily the hexamethylenamine content of siomine may be ignored, the drug should be discontinued if any signs of hexamethylenamine intolerance should arise, such as vesical irritation or hematuria.

Dosage.—The same as that of potassium iodide; but siomine is administered in solid form.

Manufactured by the Howard-Holt Company, Cedar Rapids, Iowa. U. S. patent applied for. Canadian Patent No. 166652. U. S. trademark No. 107998.

Siomine Capsules, ¼ grain.—Each capsule contains siomine ¼ grain and milk sugar 4¾ grains.

Siomine Capsules, ½ grain.—Each capsule contains siomine ½ grain and milk sugar 4½ grains.

Siomine Capsules, 1 grain.—Each capsule contains siomine 1 grain and milk sugar 4 grains.

Siomine Capsules, 2 grains.—Each capsule contains siomine 2 grains and milk sugar 3 grains.

Siomine Capsules, 5 grains.—Each capsule contains siomine 5 grains and milk sugar 2 grains.

Hexamethylenamine tetraiodide was described by Herton in 1888, and a process essentially the same as that used for the preparation of siomine is described by Sugiura and Falk (*Biochem. Bull.*, 1916, v, 18). Under the name siomine it was first proposed for therapeutic use.

Siomine is prepared by precipitating hexamethylenamine with iodin-potassium iodid solution, and purifying the precipitate.

Siomine is a red powder, having a slight but characteristic odor and taste. When heated to 138 C., it decomposes with violence.

Siomine is slightly soluble in acetone, alcohol, chloroform, carbon disulphide and ether (with partial decomposition). It is almost insoluble in water, but dissolves with decomposition in aqueous solutions of alkali iodides, of sodium thiosulphate and in diluted hydrochloric acid.

If 5 Gm. siomine is heated with 15 Cc. diluted sulphuric acid, first vapors of iodine (recognized by their color and effect on starch paper)

are evolved, later formaldehyde is given off (recognized by its odor and the blackening of paper moistened with silver ammonium nitrate test solution). If the siomine-sulphuric acid mixture is heated until colorless and then supersaturated with potassium hydroxide solution, ammonia is evolved (recognized by its odor and effect on red litmus paper).

If a drop of strong sulphuric acid is added to 0.5 Gm. siomine, decomposition occurs with evolution of brown fumes.

If siomine is incinarated, not more than 0.03 per cent. of ash remains.

If 0.5 Gm. siomine is warmed with 0.5 Cc. hydrochloric acid and 5 Cc. water until a clear solution results, a few drops of barium chloride test solution should not produce a precipitate (*sulphates*).

MERCURIC SALICYLATE (See N. N. R., 1917, p. 190-1).

Sterile Ampules of Mercury Salicylate, 1½ grains.—1 Cc. of suspension contains 0.09 Gm. (1½ grains) of mercuric salicylate. Each ampule contains more than 1 Cc. of suspension.

Sterile Ampules of Mercury Salicylate, 2 grains.—1 Cc. of suspension contains 0.12 Gm. (2 grains) of mercuric salicylate. Each ampule contains more than 1 Cc. of suspension.

Prepared by Hynson, Westcott & Dunning, Baltimore, Md.

ARSENPHENOL-AMINE HYDROCHLORIDE.—Arsenphenol-Aminae Hydrochloridum. — $HCl.NH_2.OH.C_6H_3.As : As.C_6H_3.OH.NH_2HCl+2H_2O$.—The hydrochloride of 3-diamino-4-dihydroxy-1-arsenobenzene, corresponding to 31.57 per cent. arsenic (As).

Actions, Uses, Dosage, Physical and Chemical Properties.—The same as those of salvarsan (see New and Nonofficial Remedies, 1917, p. 45).

Diarsenol.†—A proprietary brand of arsenphenol-amine hydrochloride.

Manufactured by the Synthetic Drug Co., Toronto, Canada. Canadian patent No. 133,636. U. S. trademark Nos. 90,128 and 90,129.

Diarsenol, 0.1 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 0.1 Gm.

Diarsenol, 0.2 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 0.2 Gm.

Diarsenol, 0.3 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 0.3 Gm.

Diarsenol, 0.4 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 0.4 Gm.

Diarsenol, 0.5 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 0.5 Gm.

Diarsenol, 0.6 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 0.6 Gm.

Diarsenol, 1.0 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 1.0 Gm.

Diarsenol, 2.0 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 2.0 Gm.

Diarsenol, 3.0 Gm. Ampoules.—Each hermetically sealed ampule contains diarsenol 3.0 Gm.

Diarsenol is accepted for New and Nonofficial Remedies as the available supply of salvarsan appears to be insufficient to meet the demand, and this preparation conforms to the rules of the Council for acceptance of proprietary preparations. Diarsenol is made in Canada under a license issued by the Commissioner of Patents of Canada. The Farbwerke-Hoechst Company, however, announces that the sale of brands of arsenphenol-amine hydrochloride other than that sold as salvarsan is, in its opinion, an infringement on its rights. The company states that all violations of these rights will be prosecuted under the law.

Medicine During the Colonial Period.—During the colonial period, the status of medicine on this continent was of the most provincial character, its practitioners being sometimes ministers of the gospel, oftener men who had got their training with physicians under indentures of apprenticeship with no medical degree whatever, self-trained midwives for obstetric cases, back-woods sawbones who had acquired their knowledge of surgery in the most rough and ready fashion, and a few settlers who had acquired a legitimate education in Europe, with the still more favored few whose parents were able to give their sons a proper medical education at some European university. The title "doctor" was not even employed in the colonies before 1769. Medical legislation in the several states was mainly centered on the regulation of physicians' fees, and with the exception of the Acts of Massachusetts in 1649 and 1699, and of New York in 1665, little of it was restrictive, in the sense of excluding the incompetent, or of application to the prevention of infectious diseases.—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *The Scientific Monthly*.

Special Article

THE MEDICAL OFFICER OF THE ARMY

IV

RECRUITING; EXAMINATION OF RECRUITS; STATUS OF MEDICAL OFFICER

The recruiting service of the army is practically in the hands of the medical department. The recruit is first obtained by line officers detailed in cities and towns for the purpose. But they act only as advertising agents, and the approved candidate is sent to a recruit depot to be physically examined and sworn into the service. These recruit depots are distributed throughout the country, and are located at Fort Slocum, N. Y.; Columbus Barracks, Ohio; Jefferson Barracks, Mo.; Fort Logan, Colo.; Fort Sam Houston, Texas, and Fort MacDowell, Calif. At each depot there is a line officer in command, with a permanent personnel of selected line officers and noncommissioned officers who have charge of the training of the recruits. A large staff of medical officers is also on duty at these stations.

THE PHYSICAL EXAMINATION

When a recruit arrives at a recruit depot he immediately receives his physical examination. This is completed by medical officers detailed for the purpose, and is particularly thorough. Under the volunteer system of recruiting, pressure is at times brought to bear on the examining surgeon to accept men who are subnormal. This pressure may be from the man personally, or from some one else who is interested in him. This naturally adds to the difficulties of the situation, but it is always the wisest course for the examining surgeon to reject all those candidates who do not come up to the standard provided in the recruiting regulations.

The recruit is not required to be a physically perfect man, but must be structurally between certain limits. For instance, no man is accepted who is less than 5 feet 4 inches in height, or less than 120 pounds in weight. Also, no one is accepted who weighs over 190 pounds. There is no limit in height for recruits entering the infantry or the staff corps, but cavalry and artillery recruits cannot be over 5 feet 10 inches and 6 feet, respectively.

Following is a brief outline of the examination:

STATEMENT OF APPLICANT

Have you found that your health and habits in any way interfere with your success in civil life? And if so, give details:
.....
Have you ever since childhood wet the bed when asleep?.....
Do you consider that you are now sound and well?.....
What illness, diseases, or accidents have you had since childhood?.....
Have you ever had any of the following? If so, give approximate dates:
Spells of unconsciousness or convulsions:.....
Gonorrhea:..... Sore on penis:.....
Have you ever raised or spat up blood?.....
When were you last treated by a physician, and for what ailment?.....
Have you ever been under treatment at a hospital or asylum, and, if so, for what ailment?.....

I certify that the foregoing questions and my answers thereto have been read over to me; that I fully understand the questions, and that my answers thereto are correctly recorded and are true in all respects.

I further certify that I have been fully informed and know that if I secure my enlistment by means of any false state-

ment of misrepresentation I am liable to court-martial for fraudulent enlistment.

.....
(Signature of applicant.)

PHYSICAL EXAMINATION AT PLACE OF ACCEPTANCE.*

(Applicant stripped.)

Weight, ... lbs.; height, ...inches.
Eyes: .....
Vision—Right eye, ...; left eye, ...
Ears: .....
Hearing—Right ear, ...; left ear, ...
Girth of chest (at nipples): At expiration, ...inches.
At inspiration, ...inches.
Flat foot: .....
Remarks: .....

I certify that I have personally examined the applicant, and that, to the best of my knowledge and belief, he fulfills the physical and legal requirements for enlistment.

.....
Recruiting Officer.

.....
(Place.)

.....
(Date.)

*If the applicant is enlisted at place of acceptance, this report will not be filled out, except where examination at place of enlistment is made by a civilian physician.

PHYSICAL EXAMINATION AT PLACE OF ENLISTMENT

(Applicant stripped.)

Weight, ...lbs.; height, ...inches.
Girth of chest (at nipples): At expiration, ...inches.
At inspiration, ...inches.
General examination (head, chest, abdomen, extremities): ....
Nose and throat: .....
Heart: .....
Genito-urinary organs (urine will be examined in suspicious cases): .....
Hernia: .....
Hemorrhoids: .....
Flat foot or other deformities of feet: .....
Wassermann reaction (Regular Army only): .....
Eyes: .....
Vision—Right eye, ...; left eye, ...
Ears: .....
Hearing—Right ear, ...; left ear, ...
Teeth:

		Right	Left
Missing Teeth:	Upper,	8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8
	Lower,	8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8

(Strike out those that are missing.)

Rules for the examination of recruits are issued in pamphlet form from the War Department under the title of General Order 66 and Circular 2, and they set forth the defects which call for the rejection of candidates. These are all pathologic defects, and these specifications should be carefully followed by all officers performing this work.

BLANKS AND RECORDS

As soon as the recruit has passed his physical examination, he is sworn into the service by the recruiting officer, who is a medical officer. At the same time a blank, called the physical examination for enlistment, is filled in. This paper contains a record of his complete physical examination, and also any information in regard to the previous life of the recruit which can be obtained from him.

The enlistment paper, which is made out and signed by the recruit at the time he is sworn into the service, is principally the oath which every one takes on entering the military service, and is signed in the presence of witnesses.

A designation blank is also filled in and signed by the recruit. This is in reality his will, and he designates in this paper his heir or heirs. In case of his death during service, besides his personal effects, any pay due the soldier and six months' additional pay is sent to his heir.

After the recruit has been sworn in, his identification records are made. These records consist of any indelible marks which appear on his body (scars, moles, etc.), and the prints of all his fingers. These papers are sent on to Washington and are filed there at army headquarters as part of the record of the soldier. In time of war the photograph is not taken of volunteer troops.

Another paper is completed at this time and is called a descriptive and assignment card. This contains a complete description of the soldier, his principal physical characteristics and the record of vaccination, typhoid immunization and any other data which it is important for his future company commander to know.

VACCINATIONS

The man then receives his vaccination against smallpox and his typhoid prophylaxis. These two are administered to every recruit regardless of vaccination scars or unverified statements of previous typhoid prophylaxis. A record is made of this work, so that it is always known at what time such vaccinations have been given.

TRAINING OF THE RECRUIT

The recruit is then turned over to the recruit companies and there receives his first training. This training consists partly of physical exercises given primarily to develop the soldier as rapidly as possible and to permit him to perform his full military duties when he is assigned to a regiment. He also receives his training in discipline and the other duties of a soldier. The instruction of the recruit is participated in by the medical officers, who give instruction in personal hygiene, including talks on venereal diseases, the latter being considered from both the moral and the physical standpoints.

As soon as his training has progressed sufficiently to justify his assignment to a permanent company, the recruit is sent to some regiment. There his military training progresses in the company of his fellows, and after six or twelve months' service he is classed as a trained soldier.

FOOD AND CLOTHING

The food and clothing of the enlisted man are furnished him free of charge by the government, and his general welfare is looked after closely by both line and staff officers.

The rations of the army are furnished by the quartermaster's department and obtained by the organization commander on presenting a ration return. This is a blank on which is shown the number of men entitled to subsistence and the period for which this subsistence is drawn. This period is usually one month. Actual food can either be drawn from the store house, or the company commander receives a credit of a certain amount for each man's ration, and this credit can be used to purchase the supplies either from the quartermaster's department or the outside dealer, though it is required that any articles desired should be purchased from the quartermaster if these articles are on hand there. The money

value of the ration in recent orders was 34 cents per man per day. Those entitled to be rationed at the government's expense are enlisted men, prisoners of war, military prisoners, nurses, and civilians employed by the army in the field. The officer is not rationed by the government, but has to purchase his own food. Attached to each commissary store house is usually a sales commissary from which articles not included in the ration can be purchased by individual officers or men, or by any organization.

With each regiment or other organization in the field an exchange may be established by the organization. This exchange is a small store at which articles desired by the soldier can be purchased at a small price. Usually a small profit is charged, and this profit is turned into the mess of the organization to furnish additional articles of food to supplement the rations provided. These supplemented articles are not required, but serve to vary the food for the men. At the posts and other stations in the army these exchanges are in buildings provided for the purpose, and these buildings also contain gymnasiums, swimming pools and other means of amusement for the entire command.

PAY

All troops are paid monthly on pay rolls which are made out at the end of each month. These rolls contain the names of the men of the organization and any notations which the paymaster may require to assist him in accurately estimating the pay due the individual. These notations are to be accurately made so that the proper deductions or additions can be made. Officers are paid on pay vouchers presented by each officer on the last day of the month. These vouchers are simple statements, and usually there is no difficulty in filling them out in the proper manner. The pay for the different grades is as follows: first lieutenant, $2,000 per annum; captain, $2,400; major, $3,000; lieutenant colonel, $3,500; colonel, $4,000. In addition, lieutenants, captains and majors receive 10 per cent. increase of pay for every five years of service up to twenty years.

If officers are stationed where no quarters are provided for them, as in cities or towns, they are entitled to commutation of quarters, which is added to their pay by the paymaster at the end of each month. This commutation consists of $36 for first lieutenant, $48 for captain, and $60 for major. Under such circumstances he is entitled also to commutation of heat and light, which amount is shown by tables published in army regulations. If he is stationed where public quarters are provided he is entitled to a house, heat and light at that station. Every officer is also entitled to forage for his authorized mount and mileage at 7 cents a mile when traveling under orders.

CLOTHING ALLOWANCE

Every soldier on entering the service receives his clothing at the government expense. This clothing is not issued to him in the quantity he desires, but a certain amount of money is allotted to him as a clothing allowance. Clothing can be drawn every six months in value equal to the amount of the allowance provided for that period. If the value of the clothing drawn is more than the allowance for the period, the soldier is required to pay the difference at the end of the period. If any of this allowance remains to the credit of the soldier at the end of his enlistment, he receives that on his discharge from the service. At the present time the initial clothing allowance for each soldier is $43.05. The total amount of his allowance for his entire enlistment is $142.26.

TERM OF SERVICE

After the enlisted man has completed his term of service, which by law at present is seven years, he is discharged from the service of the United States. This entire seven years is not passed with the colors, but the soldier serves three years with the colors and is then furloughed to the reserve. It is allowable for the commanding officer to discharge a soldier after one year's service if that service has been thoroughly satisfactory and he is to all intents and purposes a trained soldier. During the time of the present war, men are being recruited to serve until peace is declared, then to be discharged from the service of the United States.

DISCHARGE

In addition to an honorable discharge at the expiration of a man's term of service, he may also be discharged for the following reasons: by order of the president of the United States or the secretary of war; by sentence of a court martial; by purchase; on a surgeon's certificate of disability; on account of sentence to imprisonment by a civil court; by a board of officers, and by order of one of the United States courts on a writ of habeas corpus.

To be discharged by sentence of a court martial, the soldier must have been tried by a general court martial, which is the highest military court allowed by law. This sentence must be approved by the military commander who convened the court for the trial of the soldier.

Discharge by purchase can be obtained by a soldier on account of some personal emergency, such as the necessity of obtaining a position paying more salary, for the support of dependent relatives. This discharge must also be approved by higher authority.

Discharge for disability is obtained after observation and examination by officers of the medical department; but their conclusions must be approved by the department or division surgeon. If a soldier is discharged for disability incident to the service, he is entitled to a pension, and also to residence in the National Soldiers' Home at Washington, D. C.

A soldier who is considered inapt or who does not possess the required degree of adaptability for military service, or is morally unfit, may be discharged on the recommendation of a board of officers which has thoroughly investigated his case.

When a soldier receives an honorable discharge, he is given a discharge certificate entitled "An Honorable Discharge from the Service of the United States." But when a soldier is discharged for fraudulent enlistment, or on account of having been disqualified physically or morally through his own misconduct, or on account of imprisonment by a civil court, he receives a discharge without honor. If he is discharged by the sentence of a court martial, he receives a "dishonorable discharge."

After thirty years of service a soldier is entitled to retirement on three-fourths pay. This service may be in either the army, the navy or the marine corps. In addition to the pay allowed them, these men are entitled to $9.50 per month for commutation of clothing and rations, and $6.25 per month in lieu of quarters, fuel and light. If living in the vicinity of an army post or station, they are entitled to medical attention free of charge.

(To be continued)

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SATURDAY, MAY 12, 1917



THE FIRST CALL OF OUR ALLIES WAS FOR PHYSICIANS. TWO UNITS ARE ALREADY ON THE ATLANTIC BOUND FOR FRANCE. THE DEMAND FOR MEDICAL MEN IS GREAT. THE TIME HAS ARRIVED FOR PHYSICIANS TO ACT. THE YOUNGER MEN ESPECIALLY WHO HAVE BEEN DELIBERATING AS TO WHETHER OR NOT THEY SHOULD OFFER THEIR SERVICES SHOULD DECIDE NOW. STOP DELIBERATING AND ACT!



PROPHYLACTIC INOCULATION AGAINST PNEUMOCOCCAL INFECTION

Since the artificial production of immunity has been one of the most effective means for the control of acute infectious diseases, it seems strange that so few attempts have been made to determine the value of this procedure in the prevention of lobar pneumonia. A formidable argument against prophylactic immunization in pneumonia has always been that one attack does not confer protection against a second attack but often leaves the patient more susceptible—a fact which seemingly differentiates lobar pneumonia from almost all other acute infectious diseases. In recent years, however, our ideas of pneumonia have greatly changed, and in the light of newer facts this objection cannot be seriously maintained. Neufeld and Händel and others found that an immune serum of high potency could be developed in animals by repeated inoculation with living virulent pneumococci which was highly specific only for certain strains. There were many strains of pneumococci that were in no way influenced by this immune serum, but equally efficient serums could be developed for these particular strains. These observations were greatly extended by Dochez and Gillespie[1] in America, and Lister[2] in South Africa, who demonstrated that pneumococci isolated from patients with lobar pneumonia could be divided into groups according to their biologic reactions. It has been found, too, that the serum of pneumonic patients or animals suitably immunized against pneumococci will agglutinate organisms belonging only to its homologous group, other groups being entirely unaffected. It is apparent, therefore, that the type of organism concerned in the causation of an attack of lobar pneumonia must be of primary importance from the standpoint of specific therapy, whether it is curative or prophylactic. Indeed, the use of an antipneumococcic serum on the basis of this grouping has already given encouraging curative results, particularly in the instance of Group 1 infections.

The application of these newer observations on the biologic differences of pneumococci to the problems of prophylactic inoculation has recently been made by Lister,[3] and the results are at least encouraging. In one group of experiments he injected rabbits with large doses of a pneumococcus vaccine containing equal amounts of the most important biologic groups concerned in the causation of lobar pneumonia in the Rand, where the disease is disastrously prevalent. Rabbits inoculated three times either subcutaneously or intravenously with such a vaccine developed opsonin and agglutinin for all the biologic types of organisms contained in the vaccine. Moreover, these immunized animals were resistant to large doses of virulent pneumococci of the homologous groups. In another group of experiments, men were inoculated subcutaneously with a vaccine containing 6,000 million dead pneumococci of each group against which immunity was desired. After three injections at seven day intervals, a marked increase in the opsonin and agglutinin for the homologous groups was observed in the blood, and these antibodies were specific for the various types of pneumococci contained in the vaccine. Furthermore, some degree of immunity, as judged by the reactions of the serum, seemed to persist for at least eight months after inoculation. When we consider these experiments, it is obvious that if the problem had been the immunization of rabbits against pneumococcal infection, it could be said that the method has been put to the crucial test and that the opsonin and agglutinin content of the immune rabbit serum would be a good index to the degree of immunity. In the instance of man, however, the results are not so striking. Although suitable inoculation will give rise to similar antibodies as in the rabbit, it remains to be determined whether there is sufficient immunity to have real protective value. Since there is a great mass of evidence at hand indicating that opsonins and agglutinins are important factors in the mechanism of recovery in lobar pneumonia, Lister's results in the immunization of man are certainly promising, and warrant continued study. This work invites further investigation, and stimulates the hope that some prophylactic measure of a specific nature may be developed for lobar pneumonia. The

1. Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, The Journal A. M. A., Sept. 6, 1913, p. 727.
2. Lister: Publication of the South African Institute for Medical Research, Johannesburg, 1913.
3. Lister: Publication of the South African Institute for Medical Research, Johannesburg, 1916, 8.

practical application of such a measure would not be so difficult as before, because our knowledge of the epidemiology of pneumonia has been greatly extended in recent years.

THE ROUTINE EXAMINATION OF THE PLACENTA

The conscientious obstetrician should exhaust every source of information regarding fetal development and should place the facts at the disposal of the physician who will supervise the care of the infant during the early years of its life. If this thesis, by Professor Slemons[1] of the Yale Medical School, be accepted without question, it may properly be inquired whether the detailed examination of the placenta is an essential or even helpful procedure — something likely to throw light now and then on either prenatal difficulties or postnatal development. The placenta represents the fetal organ for respiration, nutrition and excretion. Usually the expulsion of the placenta and decidual membranes after parturition, and a cursory examination to determine whether or not a portion has been retained, represent at the bedside the maximum concern for the placenta.

Slemons maintains that this should not be. Antenatal pathology, he remarks, as yet poorly endowed with facts, depends for its development in great part on the solution of placental problems. Even when such structural phenomena as infarcts have been satisfactorily explained, hardly a guess has been hazarded as to their underlying cause, their physiologic significance, and their relation to fetal complications. Other rudimentary facts remain obscure, and on demonstration may radically change our conception of the manner in which the placenta performs its work.

What is the justification for insistence on a careful examination of the placenta? Among 600 placentas consecutively collected by Slemons in hospital practice, in forty-one instances naked-eye examination revealed abnormalities, some of which would surely have escaped recognition in an unsystematic, cursory inspection. These findings tended to check haste, and were conducive to more thorough obstetric technic on the part of those in attendance. Slemons points out that a better understanding not only of defective but also of normal placentation proceeds from the study of abnormal cases. Accordingly, intimate investigation of placenta praevia is well repaid, and likewise the investigation of a placenta which separates too early, or one which is retained. In the event of a subsequent pregnancy, such information may serve as a guide for the proper treatment. Contrary to the teaching of the past generation, which lacked accurate means of observation, Slemons insists that it is unsafe on the gross appearance of the placenta alone to base a diagnosis of syphilis. Even the Wassermann test may be subject to aberrations. Among 260 patients on whom serologic observations were made, there were twenty-two patients suffering from albuminuria, and in fourteen the Wassermann reaction was negative. Approximately, then, in every third case there was a positive reaction. Whether or not syphilis underlies the toxemias is a question, but it seems more likely that some substance in the blood, referable to the metabolic disturbance, causes slight fixation when an examination is made according to the Wassermann technic. The chief source of confusion in the interpretation of the Wassermann test during pregnancy lies in the presence of autointoxication attended by albuminuria.

The recorded fact that one out of five or six placentas may present some departure from the normal is based on a considerable number of cases. What rules, then, should be formulated to secure appropriate information? Slemons thus summarizes his own views:

> In well-organized clinics the careful study of the placenta should be insisted on not only at the bedside but also in the laboratory. Such rigid requirements cannot be exacted of the practitioner, but if he wishes not to overlook important data he should supplement bedside observations with study of the placenta in his laboratory. It should be weighed and measured, gross abnormalities noted, fresh tissue teased, and the chorionic villi studied microscopically. These data should be recorded and thus become more reliable, if in the puerperium some complication develop which requires for its interpretation a knowledge of the placenta. When the teased villi suggest the presence of syphilis the placenta should be sent to a pathological laboratory and stained sections prepared to establish the diagnosis. Simultaneously a Wassermann test on the mother's blood should be made. Similar precaution is advisable if delivery occurs prematurely. At times a diagnosis of syphilis will be the result, but more frequently the investigation will remove all suspicion of that disease. Finally, if the infant is stillborn or dies within the first few days of extra-uterine life, study of the placenta should be comparable in painstaking care to that given the organs at an autopsy.

ACIDS AND ALKALIES IN RELATION TO DIABETES

The possible bearing of the reaction of the body fluids and tissues on the physiologic activities which proceed in the cells of the organism has recently become prominent in the discussion of many functional transformations. Not long ago, the reaction of the blood and a few characteristic secretions were grossly recorded by the color changes which they produced on one or two familiar indicators like litmus; but since the reaction in a physicochemical sense has been measured by more delicate methods of estimation, and the preponderance of hydrogen or hydroxyl ions has been more accurately determined under a variety of conditions, a remarkable regulatory efficiency of the body has been discovered. The living mechanism is apparently constituted to carry out its essential performances under fixed conditions of environment. Alterations in the latter, in the sense of change of reaction, promptly cause some regulatory response. We speak, therefore,

1. Slemons, J. M.: The Results of a Routine Study of the Placenta, Am. Jour. Obst., 1916, **74**, 204, 295.

of an acid-base equilibrium, a neutrality regulation, as a vital characteristic of the physiologic outfit.

More illustrations are being revealed from year to year. The pathology of metabolism, respiration and excretion has at length become concerned with the meaning of disturbances of reaction for bodily well-being. Acidosis and acid intoxication are expressions now frequently used. Alkalosis has recently come into vogue to express a disturbance of acid-base equilibrium in a contrary direction. The respiratory mechanism is singularly sensitive to minute changes in the hydrogen ion concentration of the blood. The kidneys are not indifferent to the reaction of the fluid which provokes them to secretion. There is an intimate, though quite different sort of relationship between the acid-producing function of the stomach and the alkali-producing activity of the pancreas. For example, the amount of pancreatic juice produced by any food appears to be proportional to the quantity of gastric juice which it calls forth. The neutralization of the acid gastric chyme by the alkaline secretions which reach the small intestine is the usual, and apparently desirable sequence in the events which make up the story of alimentary changes.

Murlin and Sweet[1] inquire what significance the regulation of intestinal alkalinity to stomach acidity may have for events beyond the alimentary wall. If, they ask, it is essential to health that gastric acidity be completely neutralized, what would be the consequence of preventing such neutralization by removal of the pancreas, considering that the pancreas, as Boldyreff shows, produces more than ten times as much alkali as appears in the bile, and twenty times as much as in the intestinal juice? Obviously hydrochloric acid might remain unneutralized in the alimentary tract, and being absorbed as such might induce phenomena characteristic of acid intoxication.

The combustion of sugar in the organism is modified in some way by the reaction of the cells or the fluids which bathe them. Acidosis accompanies those conditions in which carbohydrates fail to be burned up properly in the body. In its attempt to correct this maladjustment, compensatory amounts of acid usually are excreted in the form of acid phosphates by the kidneys; or the body neutralizes the acid with ammonia deflected from its normal metabolic channels. Acid intoxication may give rise to glycosuria. The conversion of glycogen into unburned glucose which is responsible for this may be prevented by corrective administration of alkalies. Furthermore, there is reason to believe that alkalies may actually further the metabolism of glucose by facilitating its oxidation.

The frequent, if not invariable involvement of the pancreas in human diabetes, and the familiar experimental production of glycosuria by excision of the pancreas have suggested the possibility that the consequences of pancreatectomy might be due in large measure to an acid intoxication resulting from loss of sufficient alkali-producing function.[2] The numerous incidental observations which tend to strengthen this view cannot be reviewed in detail here. The conviction that the stomach contributes in some way to the etiology of diabetes mellitus has frequently been expressed by clinical writers. The situation as regards the unneutralized gastric acid is presented thus by Murlin and Sweet: [1]

> When acid is taken from the blood by the gastric glands, the venous blood in the gastric veins must be relatively richer in hydroxyl ions. Accepting the view commonly held that the chlorin ions of hydrochloric acid are derived from sodium chlorid in the blood, there would then be a relative excess of sodium ions left behind. Normally, this disturbance as regards sodium is at once restored by the production of the sodium carbonate by the pancreas, for not only is the amount of alkali produced by the pancreas proportional to the production of acid by the stomach, but, as appears clearly in the work of Pawlow's pupils, its secretion begins as soon as the production of acid begins in the stomach. The blood from gastric and pancreatic veins, reunited in the portal, has then a normal reaction before it enters the liver. . . . When the pancreas is removed entirely we might expect also that the kidney would remove the excess of sodium ions resulting from secretion of hydrochloric acid into the stomach until this acid were again absorbed into the blood. Even if this were not the case, however, the liver would not suffer from a temporary excess of such ions (combined probably as disodium hydrogen phosphate or as sodium carbonate or with protein), for the tolerance of protoplasm for free hydroxyl ions is much greater than for free hydrogen ions. The trouble would come when the hydrochloric acid reached the duodenum.

The new hypothesis presented thus postulates that the hydrochloric acid produced in the stomach and left unneutralized in the duodenum after pancreatectomy is absorbed by the portal system and poisons the liver, causing the rapid onset of the resulting diabetes. In support of this, Murlin and Sweet[1] have observed that ligation of the pylorus at the time of pancreatectomy, an operation invariably attended with glycosuria, delays the appearance of sugar in the urine. If complete gastrectomy is performed in diabetic animals, little or no glycosuria is developed ordinarily. Furthermore, animals with the pancreas removed after gastrectomy do not exhibit the usual profound toxemia of a simple pancreatectomy.

Alkali therapy has long been practiced in connection with diabetes. The prevailing opinion has been that the alkali affects only the acidosis. Since the latter factor has been found to be controllable by dietary regulation, particularly by fasting and restriction of fats in the ration, the liberal use of alkalies in diabetes has been given up by some therapeutists. These newer observations have raised questions fraught with profound significance not only for the theory of the etiology of glycosuria but also for the clinical management of the diabetic condition.

1. Murlin, J. R., and Sweet, J. E.: Pancreatic Diabetes in the Dog, IV, The Influence of Pylorus Exclusion and of Gastrectomy upon the Effects of Pancreatectomy, Jour. Biol. Chem., 1916, **28**, 261.

2. Murlin, J. R.: Post-Graduate, 1914, **29**, 7.

Current Comment

BIOLOGIC THERAPY IN THE WAR

War, with its immense numbers of diseased and wounded men, affords opportunity to determine the efficacy of various scientific procedures. The present, the greatest war the world has ever known, is serving as a crucible in which many biologic products are being tested. When peace returns and all of the data from the various combatant countries become available, we should know which products, if any, may be removed from the experimental list and placed among the agents of established value. According to McCoy, whose discussion of this subject appears in this issue,[1] there are five agents — vaccine virus, diphtheria antitoxin, tetanus antitoxin, antimeningococcus serum, and antityphoid vaccine — which may be regarded as indispensable in connection with conditions which prevail when large bodies of men are brought together. In addition to the agents mentioned by McCoy, that now may be regarded as necessary, there are some which at present give enough promise of value to make their use worth considering. In this country, fortunately, we are better situated than are any of the European nations, so far as facilities for producing biologic supplies are concerned. The firms manufacturing this class of medicaments can, if need be, meet the demands of our own army and civilian population, as well as those of our allies. The essential nature of the products makes their manufacture in large quantities comparatively simple. With the good sanitary conditions that we may reasonably expect to prevail in our concentration camps, the need for various agents not thoroughly tried out, such as antidysentery serum, antipneumococcus serum, and vaccines against dysentery, cholera and epidemic meningitis, should not be extensive with the possible exception of the meningococcus vaccine. Fortunately biologic products grow in a manner not applicable to munitions or, in fact, any other indispensable material of modern warfare. The supervision of biologic products by the United States Public Health Service safeguards the interests of the manufacturer and of the consumer.

THE STATUS OF ENROLMENT OF MEDICAL OFFICERS

An old proverb says not to count one's chickens before they are hatched. This principle should apply when discussing the status of recruiting for the Medical Departments of the Army and Navy. It is well to realize that simply enrolling one's name on a list or making a verbal statement to the effect that one is willing to serve with this or that unit, or unofficial organization or committee, does not qualify one to be counted as an officer of the Medical Reserve Corps. To be so counted, one must be enrolled — that is, commissioned — in the Medical Reserve Corps. To thus enroll, it is necessary first to fill out the regular application blank, such as appeared in THE JOURNAL two weeks ago; second, to have it certified to before a notary public; third, to send the application to the nearest examining board; and fourth, to pass the examination. The results then are forwarded to Washington, where the final decision is made as to whether or not the applicant is accepted. If the applicant is accepted, he receives his commission and with it the oath of allegiance, which he must sign, swear to and return to Washington. Only then can he be regarded as a member of the Medical Reserve Corps or of the Medical Corps of the Army. The time has come to face facts, to know exactly where we stand, and then only shall we know what remains to be done.

1. McCoy, G. W.: Usefulness of Serums and Vaccines Under War Conditions, THE JOURNAL A. M. A., this issue, p. 1401.

THE NEED OF MEDICAL OFFICERS

Until the last two weeks, the attempts to secure men for the medical departments of the army and navy, and for their reserve corps, were not encouraging. On the first of May there were about 4,000 members of the Reserve Corps of the Army, including approximately 3,500 of the old Reserve Corps. Some of the latter, as has been repeatedly stated, are beyond the age limit, and many have not yet intimated that they are willing to accept a commission in the new Reserve Corps. During the last two weeks, however, conditions have improved, but since not all of the applications go to the central office now, some being sent to the various examining boards, it is impossible to tell just how fast recruiting is going on. As we have already stated, if an army of 2,000,000 men is finally formed, it will mean that at least 20,000 physicians will be required. At the present time, including those in the regular Medical Corps, there are not 5,000 who are commissioned or who have been approved for commission; hence the actual need for the entire army, if and when it is completed, is 15,000 more men than are yet commissioned. There are perhaps 1,000 applications now in the various stages of progress toward acceptance or rejection of the applicant, although for the reason given above this necessarily is estimated. All in all, therefore, while there is no reason for fearing that the medical profession will not respond to the limit required by the government, at the same time considerable work and individual self-sacrifice will be necessary before the required number is obtained.

WHAT IS ADIPOCERE?

Adipocere is the product of a process that may take place when corpses are buried for some time in wet or damp localities. To the pathologist this interesting so-called corpse wax at one time possessed a special interest in that it was supposed to furnish direct evidence of the formation of fat from proteins. This conclusion has, however, long since been successfully disputed; and it has recently come to be understood that in the formation of adipocere the fat of the tissues itself takes part. Fat corpses are most likely to become the subjects of adipocere production, and the preservation of the general form of the body in the cases on record is due to the peculiar distribution of the corpse wax and the retention of the bones. The actual quantity of adipocere may not be large. Ruttan

and Marshall[1] of the Department of Chemistry at McGill University, Montreal, have given a description of the composition and a tenable indication of the formation of this substance, which has been an interesting chemical puzzle since its description by Fourcroy in Paris in 1787. They feel justified in concluding that adipocere is the residue of the preexisting fats of animals. It is composed almost entirely of the insoluble saturated fatty acids left after the slow hydrolysis of the fats in wet ground. The protein matter has entirely disappeared, and the glycerol, soaps, etc., resulting from the hydrolysis have been carried away in aqueous solution.

MEDICAL LEAVEN IN THE ADVERTISING LUMP

A notable series of articles on honest advertising in local fields is running in the New York *Tribune*. They are by Samuel Hopkins Adams, which in itself is assurance of their readability and accuracy. In last Sunday's *Tribune,* dealing with the situation in New Orleans, Mr. Adams pointed out that in the advertising practices of a community there can be no standing still; the movement is either forward or backward. "New Orleans is on the march, facing front!" The influences which unite to keep local advertising in New Orleans on a decent basis are three, said Mr. Adams. The first is Dr. Oscar Dowling, president of the State Board of Health; the second is the New Orleans *Item,* while the third is the united endeavor on the part of the best merchants, expressed largely through the agency of the Advertising Club of that city. In speaking of Dr. Dowling's influence on the situation Mr. Adams says:

"If one may borrow a term of lawlessness for application to a strictly legal procedure, Dr. Dowling is the 'direct actionist' in the local field. Among public health workers he has a national reputation as the foremost quack-fighter holding any official medical position in this country. The manufacturers of that dubious boon to womanhood, Wine of Cardui, have a libel suit of almost *Tribune* magnitude against him, which, however, they are not pressing to trial with any undue haste. Various other patent medicines have threatened him, and essayed to get him out of office, but without success. When the Louisiana advertising law was enacted he seized on it as a new weapon in his fight. Working in conjunction with the Shreveport Ad. Club, he arrested the Tanlac agent there. In New Orleans he swore out a warrant for the local purveyor of an outrageous fake called Vitalitas. It is an interesting fact, by the way, that the State District Attorney is not moving to bring this case to trial, though it is two and a half years since the arrest was made. While Dr. Dowling's astivities are confined to the worst and most harmful class of fake advertisers, the quacks, nevertheless his influence is potent throughout the entire field. As one of the local vigilance committee put it: 'Dowling has shown us that the law is there to be used when we need it.'"

1. Ruttan, R. F., and Marshall, M. J.: The Composition of Adipocere, Jour. Biol. Chem., 1917, **29**, 319.

Informing the Patient.—There is a natural hesitancy on the part of many members of the medical profession in telling patients that they have tuberculosis. This should be overcome. It is unjust to the patient; it is associated with danger to the community, and it lowers the standing of the medical profession in the community.—S. J. Deehan, M.D., *Monthly Bulletin,* Philadelphia Department of Public Health and Charities.

Medical Mobilization and the War

Application Blanks Must Be Sworn To

The surgeon-general of the army desires THE JOURNAL to announce that those contemplating making application for appointment in the Medical Reserve Corps must have the statements made on the personal history blank certified to before a Notary Public or other person authorized to administer oaths and instead of forwarding the blank to the surgeon-general's office, the applicants may communicate with the president of any of the boards heretofore published in THE JOURNAL, as these boards are authorized to make the examinations without reference to this office. This course has been taken in order to expedite the issuing of commissions and lessen the amount of correspondence going through this office. A list of these boards will be sent by THE JOURNAL on receipt of a self-addressed envelope.

Military Measures Against Venereal Diseases and Alcohol

As a measure looking toward the prevention of venereal diseases and alcoholism in the military services of the United States, the Council of National Defense has recommended that a zone under military control shall be created about every military command, within which zone prostitution will not be tolerated and the sale of alcoholic beverages to the military forces will be under the immediate control of the Army and Navy.

This action was taken on the recommendation of the General Medical Board of the Council, which advised that the Departments of War and of the Navy officially recognize that sexual continence is compatible with health and that it is the best preventive of venereal infection, but which advised further that with a view to diminishing opportunities for infection prostitution be kept as far back from all military and naval establishments as practicable. Recognizing the difficulty of procuring the enactment of the legislation necessary to permit and to require the civil authorities having control of the territory immediately outside of military establishments to afford the necessary protection to the soldiers, sailors and marines on duty there, and recognizing the necessity for such protection, the General Medical Board urged that zones of safety be established under the control of the military forces, as a war measure. The prohibition of the sale of alcoholic beverages to sailors, soldiers and marines within the prescribed zone, and of the use of these beverages by these men within those limits, was advised primarily because of the intimate relation between prostitution and the use of such beverages.

With a view to diminishing the temptation to which men are subjected when confined for considerable periods of time in camps and other similar establishments, away from the restraining influences of domestic and ordinary social life, the General Medical Board recommended that provision be made for suitable recreational facilities. This part of the program has been seriously taken up by the War Department, which has created a Commission on Camp Activities, under the chairmanship of Mr. Raymond B. Forsdick of New York. It is the purpose of this commission to provide facilities for recreation and entertainment, to encourage wholesome sports and athletic games, to promote athletic contests, and generally to provide for the most wholesome relations between the military and the civil populations.

In view of the magnitude and gravity of the danger of venereal diseases, not only to the military forces in active service but also to the civil population on the return of such forces to their ordinary places in society at the close of the war, or when discharged because of disability, the General Medical Board has recommended that a special division be created in the medical department of the Army and in the medical department of the Navy, for the control of venereal infections. A careful study is now being made to see whether such a scheme can be satisfactorily fitted into the existing medical organizations, and if so, how best to accomplish that end.

Medical Students and Conscription

A medical student writes: "Can you give me any information as to whether or not a medical student who intends to finish his medical work as soon as possible will be subject to draft for service before he has completed his course, providing he will offer his services as soon as he finishes his course

of study? Without any such assurances the medical student will be in a most uncertain position and might better enter one of the Officers' Training Camps and make his education and training be of more value than in the line as a regular. . . . I am registered to enter Harvard Medical School as a junior this next fall and am desirous of learning my status as a subject to draft under these conditions." The General Medical Board of the Council of National Defense has urged that medical students, and college students preparing to enter medicine, do not enlist but continue in college until they graduate, since the greater need of the country is for their trained service. It was recommended—although no action has been taken—that such men should wear some insignia to show that they were not "slackers." The General Medical Board took this action specifically because it was realized that many young men would be placed in the same position as our correspondent. The board desired also to avoid the error made in England by which the normal supply of men entering the profession each year was not maintained. Undoubtedly, when the law for selective conscription is put into effect, such students will be specifically exempted.

The Medical Services in the Somme Advance

In the *British Medical Journal,* April 14, several points of immediate medical military interest are noted concerning the recent advance in the Somme region. It was found necessary, of course, to shift many medical units, including the casualty clearing stations. These units had occupied their stations during the winter. The shift involved a great deal of work and threw new light on the relative importance of horse drawn and motor propelled vehicles. Since the coming of the automobile ambulance and hospital wagon it has been suggested that horse drawn vehicles be abandoned entirely. It was found, however, that a certain number of horse drawn vehicles in each field ambulance was of the utmost importance. The ground was so much cut up by shell fire and by traffic after the frost in addition to intentional obstructions which had been created that there was a broad stretch of country which could not be traversed even by those ambulances created out of the smallest (Ford) cars. The horse ambulances were able to go ahead freely and easily. It was therefore arranged that the horse ambulances should bring the cases back to the place where the totally impassable parts of the road commenced. At these places squads of stretcher bearers took the patients from the field ambulances and carried them until they reached the automobile vehicles. At times these "carries" extended for several miles. Owing to the character of the ground and the scattered nature of the fighting, it was necessary to collect the wounded by day instead of by night, but fortunately the casualties in the medical department were not exceedingly numerous.

The Shortage of Physicians in England

In discussing the Somme advance before the House of Lords the question arose as to whether it would be possible to give the benefit of a special medical board to those who might wish to be examined by it. Lord Derby said that this had been found impossible. It would mean that practically every one who did not want to serve would see a possible loophole for escape and would appeal to the board. It was not possible to form numerous boards all over the country for the simple reason that there were not at the present moment in England physicians enough for all the work which the War Office had to put on them. Lord Derby stated that the country should know, too, that whereas some people thought that the work of the Royal Army Medical Department was without any danger, more than 400 physicians had been killed and wounded in the Somme battle line. "We are," said Lord Derby, "I will not say critically short, but certainly lamentably short of doctors for all the work which we have for them at the present time, and, I am afraid, in the immediate future."

Young Men Needed for Hospital Corps

Young men who desire to enter the hospital corps of the navy should enlist at once as vacancies are being rapidly filled. This service is particularly inviting to the recruit who selects the navy for his life work as he receives careful training under medical direction and in congenial surroundings, the pay is good and promotion rapid. The recruit who enlists for a stated period receives training which will be of value to him in his civil life. Send the young men of your acquaintance who are interested in this phase of military work to the nearest naval recruiting office. Instruct them to speak to the physician on duty there.

The Duty of Members of the Old Reserve Corps

There are a large number of members of the old Reserve Corps who have not notified the surgeon-general's office as to whether or not they wish to be transferred and commissioned in the new Medical Reserve Corps. The members of the old Reserve Corps should act now, not wait until June 3—the date on which the old Medical Reserve Corps becomes obsolete—so that their status may be known.

War Budget for the Medical Department.—In the first appropriation bill in the war budget which was sent April 30 there is an item of $23,780,000 for the Medical Department of the army, and $7,300,000 for additional equipment expense for the Bureau of Medicine and Surgery of the Navy.

Young Physicians Pass Tests for Navy.—A competitive examination was held at Fordham University, April 17, for appointments to the medical division of the United States Navy, as a result of which seventeen young physicians will enter the federal service, June 1, with the rank of junior lieutentant. Of these, eight were from Fordham, four from Yale, four from Cornell, and one from Columbia.

Forward Blanks to Examining Boards.—To relieve the surgeon-general's office, examining boards have been created in various parts of the country for the purpose of examining applicants for the Medical Officers' Reserve Corps. Applicants for appointment to this corps should send their personal application blanks, when filled out and certified, to the nearest board. These boards were listed in THE JOURNAL for April 28, page 1267, and May 5, page 1330. A list of these boards will be sent on application to THE JOURNAL.

Universities and Colleges Supply Ambulance Companies.—The American Red Cross which is organizing and training ambulance companies throughout the country is placing especial emphasis on the formation of these units at the colleges and universities, as these groups can be most conveniently assembled and most effectively trained. This service will probably be the first sent to the European battle fields, and is therefore particularly attractive.

Bureau of Standards to Examine Blood Counting Apparatus.—The Bureau of Standards of the Department of Commerce has drawn up specifications for blood counting chambers and dilution pipets. A tentative schedule of fees for examination of such apparatus has been decided on, namely, $1.50 each for counter chambers and 35 cents for each interval of the pipet tested. As at least two intervals on each pipet will be tested, the minimum charge will be 70 cents.

New Military Hospital.—On account of sickness and accidents among guardsmen now stationed on duty, a new hospital has been fitted out at Fort McHenry, Baltimore. A compartment for the housing of sick soldiers has been erected, with separate quarters for examination. A quarantine has also been established. Major Herbert C. Blake has been appointed district superintendent of the hospital, with Dr. William J. Coleman, of the University of Maryland staff, as assistant superintendent.

The English Red Cross in Italy.—The *Riforma Medica* of Naples relates that the equipment for two more hospitals has arrived in Italy sent by the English Red Cross. One with 300 beds is being set up at Gradisca, the other, with 150 beds, at Castelletto. This supplements their other units scattered through the Trentino, Carnia and Carso, including one equipped for Roentgen work. Our exchange adds that the English Red Cross has thus cared for 180,000 wounded and sick soldiers and taken 4,000 radiographs.

Physicians Favor Prohibition During War.—At the meeting of the American Society for Clinical Investigation held in Atlantic City, May 1, under the presidency of Dr. Haven Emerson, health commissioner of New York City, a resolution was adopted recommending that the manufacture of alcoholic beverages and their importation to the United States be prohibited for the duration of the war and for at least one year thereafter. This action was based solely on medical grounds as it was felt that the present time affords an unprecedented opportunity for inaugurating a convincing demonstration as to the value of abstinence from alcoholic beverages.

War Fund of Rockefeller Institute.—The Rockefeller Foundation announced, May 3, that it had appropriated $475,000 to be spent in the United States for medical research and maintainage as the beginning of war work; $400,000 for the continuance of the relief activities now being carried on abroad; $200,000 to the Rockefeller Institute for Medical Research for the equipment of the Carrel Hospital, and $60,000 to the Rockefeller Institute, for the instruction of surgeons in new methods of diagnosis, for the preparation of serums, and to find improved means for treating peritonitis and shock.

Bill to Abrogate the Patent on Salvarsan.—H. R. 4190 was introduced in the House of Representatives on May 4, 1917, by Congressman Emerson of Ohio. It was referred to the Committee on Patents and ordered to be printed. Following is the text of the bill:

To abrogate the patent upon the article known as salvarsan.

Whereas, The use of salvarsan is now necessary to the medical profession and the output of the article is so handicapped because of certain patent rights; therefore

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the patent rights issued upon the article known as salvarsan is hereby abrogated and set aside and declared null and void.

Orthopedic Surgeons Sail for England.—The following orthopedic surgeons will sail for England about May 15. They will go under the leadership of Joel E. Goldthwaite of Boston and will serve in English hospitals under the direction of Col. Robert Jones: Carlton R. Metcalf, Concord, N. H.; William G. Erving, Washington, D. C.; Roy Abbott, San Francisco; A. R. McCausland, Boston; De Forest P. Willard, Philadelphia; H. W. Orr, Lincoln, Neb.; Sydney M. Cone, Birmingham, Ala.; Mitchell Langworthy, Chicago; Murray Danforth, Providence, R. I.; Charles F. Eikenbary, Spokane, Wash.; Walter I. Baldwin, San Francisco; H. A. Durham, New York; James C. Graves, Jr., Spokane, Wash.; Roades Fayerweather, Baltimore; F. C. Kidner, Detroit; L. C. Spencer, Baltimore.

Ambulance Notes.—Christ Episcopal Church, Waukegan, Ill., has purchased and will maintain an ambulance for service in France, which will be known as the Chicago Diocese Ambulance, and will be driven by the son of Bishop Anderson. ——A unit of the University of California Ambulance Corps passed through Chicago, May 6, en route to France.——There sailed from an Atlantic port, April 5, twenty-three ambulances, drivers from Chicago, and on the same ship were six ambulances donated by the people and organizations of the city.——The children of Mr. and Mrs. Charles A. Plamondon, Chicago, announced on May 7 the gift of an ambulance for service on the western front, which will be known as the Charles Mary Plamondon Ambulance, and is given in memory of the parents of the donors, who were drowned at the sinking of the *Lusitania*.——Section 17 of the American Field Ambulance has left for the French front, May 5. The personnel of the section is composed of university men from Chicago, Wisconsin, Cornell and other institutions.

Federal Aid for Rural Sanitation Recommended.—The Conference of State and Provincial Boards of Health, which met in Washington, D. C., on April 30 and May 1, adopted a resolution under which an effort will be made to procure the enactment of federal legislation for the protection and promotion of the health of rural communities along the lines that have been adopted to stimulate agriculture, to promote the building of good roads, and to encourage vocational education. It is proposed that Congress make appropriations from time to time for health work in rural districts, to be apportioned among the states and territories in proportion to their respective populations, the allotment to a state or territory to become available only to the extent of state or territorial appropriations for like purpose, and to be used only for the execution of projects approved by the United States Public Health Service.

Standardization of Biological Products.—The official Conference of State and Territorial Health Officers with the United States Public Health Service, which met in Washington, D. C., on April 30, adopted a resolution recommending that the service named establish and promulgate standards as to potency with reference to all biologic products, vaccines and serums, not only with relation to diphtheria and tetanus antitoxin but especially with relation to antimeningococcus and pneumonia serums and vaccines for typhoid fever, paratyphoid fever and bacillary dysentery. The resolution was based on a report to the conference that all of the antimeningococcus serum in an entire state was found at one time last year to be worthless, and that much of such serum sent to France and England in the early days of the war had given unsatisfactory results, which had disappeared only after the Rockefeller Institute had inquired into the methods of manufacture used by those who had supplied such serum and had provided a proper supply. Antityphoid vaccine, it was reported, had also been found to be bad.

Base Hospital Units Sail.—Lakeside Base Hospital No. 4, Cleveland, sailed, May 8, for immediate service abroad. The unit will be under command of Major H. L. Gilchrist. Its commissioned personnel is as follows:

George W. Crile, 1921 Prospect Avenue, director; William E. Lower, 1921 Prospect Avenue, assistant director, surgical section; Charles F. Hoover, 700 Rose Building, assistant director, medical section; Howard T. Karsner, Lakeside Hospital, assistant director, laboratory section. Henry L. Sanford, 1021 Prospect Avenue, staff surgeon; Harry G. Sloan 1021 Prospect Avenue, staff surgeon; Thomas P. Shupe, 1021 Prospect Avenue, staff surgeon; Walter B. Rogers, Lakeside Hospital, staff surgeon; Charles A. Bowers, Lakeside Hospital, staff surgeon; Allen Graham, Lakeside Hospital, staff surgeon; Gordon N. Morrill, 2047 East Ninth Street, orthopedist; William E. Bruner, 13380 Euclid Avenue, ophthalmologist; Chester D. Christie, Lakeside Hospital, staff physician; Richard Dexter, 815 Rose Building, staff physician; Herbert V. Weibranch, Lakeside Hospital, staff physician; Harry V. Paryzek, Lakeside Hospital, staff physician; Marion A. Blankenhorn, Lakeside Hospital, staff physician; Charles W. Stone, 602 Rose Building, neurologist; Harry Roswell Wahl, Lakeside Hospital, bacteriologist; Walter C. Hill, University Club, roentgenologist; William R. Barney, Lakeside Hospital, adjutant; John F. Stephan, 1404 New England Building, dentist; Bertram S. Rothwell, 430 Rose Building, dentist; Leroy B. Sherry, Lakeside Hospital, registrar; Andrew R. Warner, Lakeside Hospital, quartermaster.

The Harvard Medical School Unit, officially known as Red Cross Base Hospital No. 5, sailed, May 11, for France. It is under command of Major R. W. Patterson. The commissioned personnel of the unit is as follows:

Dr. Harvey Cushing, director; Dr. David Cheever, assistant director (surgical); Dr. Roger I. Lee, assistant director (medical); Dr. Richard P. Strong, assistant director (laboratory); Dr. Louis H. Burlingham, adjutant; Dr. William H. Potter, dental surgeon; Dr. Walter B. Cannon, laboratory section; Dr. George S. Derby, ophthalmologist; Dr. Robert S. Osgood, orthopedist; Dr. Percy Brown, roentgenologist; Drs. Walter M. Boothby, Edward B. Towne, Gilbert Horrax, Samuel C. Harvey, Thomas R. Goethals, staff surgeons; Dr. James L. Stoddard, bacteriologist; Drs. Reginald Fitz, George P. Denny, George R. Minot, Oswald H. Robertson, Henry Lyman, staff physicians; Dr. William S. McCann, registrar; Capt. Augustus G. Reynolds, quartermaster; Dr. Jacob B. Bruce, assistant quartermaster.

Special Regulations on Designation of Medical Section, Officers Reserve Corps.—By special regulations for Officers Reserve Corps No. 43, the general designation "Medical Section, Officers Reserve Corps" is changed to "Medical Department, Officers Reserve Corps," with subsections as follows: (a) Medical Reserve Corps. (b) Dental Reserve Corps. (c) Veterinary Reserve Corps. The official title should be similar to the following: Major (Captain or First Lieutenant) John Doe, Medical Reserve Corps, U. S. Army.

Instructions to Medical Officers of the Officers' Reserve Corps.—Under date of May 4, the surgeon-general's office issued Circular 18 to all medical officers of the Officers' Reserve Corps. The circular stated:

1. It is contemplated that you will shortly be ordered to active military duty.

2. You should, therefore, at once provide yourself at your own expense, with the following articles of uniform, so as to be in readiness to obey orders. The following is a minimum that you should have at once. They can be purchased from the Quartermaster's Department at the nearest post, or you can get them from private dealers: 1 hat, service; 2 breeches, service O. D.; 1 coat, service O. D.; 1 leggings, leather, officer's; 2 pairs shoes, russet; 2 shirts, woolen, O. D.; 1 sweater, army; 1 slicker, saddle.

The following must be purchased from private dealers in military uniforms and equipments: 1 hat cord, officer's; collar insignia and insignia of rank; 1 note book, pocket, manifolding; 1 compass, 1 watch.

You may use your own underclothing, socks, handkerchiefs, and toilet articles. Additional articles to the above list can be purchased later.

3. Provide yourself with 1 bedding roll, 2 army blankets, 1 sleeping pad (or two comforters); 1 mosquito bar, cot; 1 canvas basin, 1 canvas bucket, 1 collapsible candle lantern; 1 folding canvas cot; 1 folding camp chair. These are sold by private dealers. If possible, provide yourself with a trunk locker, army pattern, sold by the Quartermaster's Department or private dealers.

4. Your necessary mess equipment includes: 1 canteen, cavalry; 1 canteen strap, cavalry; 1 cup; 1 knife; 1 fork; 1 spoon; 1 meat can.

You can purchase these from the Ordnance Officer at the nearest military post; or write to the Commanding Officer, Rock Island Arsenal, Rock Island, Ill., for the necessary vouchers and costs. Private dealers also sell them.

5. The horse equipment, including spurs, which you will need, can be drawn without cost from the Ordnance Department on memorandum receipt, on joining your first station.

6. The shelter tent halves, poles and pins you will need can be drawn from the Quartermaster's Department on memorandum receipt at your first station.

7. If the Government calls you out, it needs your services at once. Promptly obey your order to report for duty on its receipt. Only the War Department can authorize delay.

8. Buy your own ticket from your home to your station. You will later be reimbursed at the rate of 7 cents per mile if traveling without troops. If there is an army quartermaster in the vicinity, see him, for there are a few land grant railroads over which the Government issues transportation without cost to you, and over which you accordingly draw but 4 cents per mile in mileage.

9. Ship your bedding roll with your baggage on your ticket.

10. On arrival at your station, report yourself in uniform, to the commanding officer for duty.

11. He, or an assistant, will see that you are provided with quarters, and inform you how to arrange for messing facilities.

12. The Government provides you with fuel and lights gratis.

13. You are paid monthly on special vouchers, in amount corresponding to your grade and length of service.

14. If you have rank below that of major and own your own horse, which must come up to certain Government standards as to age, size and soundness, you will be paid $150 yearly in addition to your pay, $200 if there are two horses. Forage and stabling for the same are furnished you without cost.

15. In anticipation of your orders, at once start systematically to familiarize yourself with the contents of any official manuals, regulations, or books of reference on medico-military matters which you may have.

16. For further information, secure the advice of any medical, or other officer, of the Army or National Guard in your vicinity.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. H. George Crease, Bakersfield, fell into an open cellar way, April 24, sustaining severe injuries to his head and chest.——Dr. Joseph R. Cornell, Sterling City, has been appointed district surgeon of the Southern Pacific system with headquarters at San Francisco.

Adopts Quarter System.—Leland Stanford Junior University School of Medicine has adopted the quarter system, to begin Oct. 1, 1917. By the adoption of this system the school has a continuous session, any three quarters constituting a college year. The quarter system has been in effect at the Rush Medical College, Chicago, since 1899.

Psychopathic Hospital Advocated.—Dr. Elmer E. Southard, Boston, addressed a number of the local profession at the St. Francis Hospital, San Francisco, recently, and in his address made a strong plea for the establishment of a psychopathic hospital to care for persons of subnormal mentality and alcoholic and drug addicts.

Medical Building Dedicated.—Physicians and dentists of the Santa Clara Valley assembled at San Jose, April 20 and 21, for joint clinical and dedication ceremonies held by the Santa Clara Medical Society and Santa Clara Valley District Dental Association at their new quarters in the Toohy Building. The program included, in addition to the dedicatory exercises, a scientific program and medical and dental clinics.

New Officers of State Society.—At the annual meeting of the Medical Society of the State of California, held in San Diego, April 17 to 19, under the presidency of Dr. George H. Kress, Los Angeles, the following officers were elected: president, Dr. John H. Barbet, San Francisco; vice presidents, Drs. William W. Richardson, Los Angeles, and Morton R. Gibbons, San Francisco; secretary-treasurer, Dr. Saxton T. Pope, San Francisco; councilor of the fifth district, Dr. J. E. Phillips, Santa Cruz, and councilors at large, Drs. George H. Kress, Los Angeles; Gayle G. Moseley, Redlands, and John C. Yates, San Diego. Del Monte was selected as the meeting place for 1918. The society adopted resolutions instructing the various component societies to make surveys of their members to ascertain how many are available to the United States government in case of war. The society also went on record as opposing the bill before the legislature favoring compulsory health insurance. It was decided to redistrict the state so as to add three councilor districts.

CONNECTICUT

Dairy Product Specialist Dies.—Herbert William Conn, Ph.D., Middletown, Conn., eminent as a bacteriologist and biologist, died, April 18. Dr. Conn was born, Jan. 10, 1859, in Fitchburg, Mass., was a graduate of Boston University, in 1881, receiving the degree of A.B. and A.M. In 1884 he became a member of the faculty of Wesleyan University, Middletown, Conn., as instructor of biology. After two years he was made assistant professor and in 1889 professor of biology. He organized the state board of health laboratory in 1905 and continued as its director until the time of his death. In 1911 he was appointed a member of the National Commission on Milk Standards, and from that time on gave freely of his time and talents to this work. For the last five years of his life he devoted himself especially to bacteriology and dairy products, including standardization of milk, in order to prevent the unnecessary infant mortality. He was one of the directors of the American Public Health Association, was president of the American Society of Bacteriologists in 1902, and was affiliated with many other scientific organizations. He was a man of sterling character, a prominent health worker and a scientist of national repute.

FLORIDA

New Hospital.—Ground has been broken for the Orange General Hospital, Orlando, and the building will be completed in October.

Warning.—A number of Florida physicians have been victimized by a young man, who gives his name as Dr. R. S. Deaver, and claims to be the son of Dr. Deaver of Philadelphia. He gives a story of being detained by the breakdown of his automobile and pays bills with forged checks, receiving the balance in cash.

GEORGIA

Hospital for Savannah.—The campaign held in Savannah last month to secure funds for the Savannah hospital brought in $40,573 at hand and pledges for large additional amounts.

Health Officers Hold Meeting.—At the annual meeting of the state, county and municipal health officers' association held in Augusta, April 17, the following officers were elected: president, Dr. Olin H. Weaver, Macon; vice president, Dr. Lorick T. Pattillo, Atlanta, and secretary-treasurer, Dr. Clarence B. Greer, Atlanta. The association by resolution endorsed universal military training.

Memorial Tablets for Macon Physicians.—The city council of Macon, at a meeting April 24, requested the members of the hospital commission to commemorate the deaths of Drs. William F. Holt and Henry McHatton, the original founders of the Macon Hospital, by placing within the walls of the hospital building tablets commemorating the deaths and achievements of these distinguished physicians.

State Association Meeting.—The sixty-eighth annual meeting of the Medical Association of Georgia was held at Augusta, April 18 to 20, under the presidency of Dr. Jarvis G. Dean, Dawson. Savannah was selected as the next place of meeting and the following officers were elected: president, Dr. Eugene E. Murphey, Augusta; vice presidents, Drs. Arthur D. Little, Thomasville, and Elmore C. Thrash, Atlanta; councilors; first district, Dr. M. J. Mooney, third district; Dr. Virgil O. Harvard, Arabia; fourth district, Dr. Henry W. Terrell, Grange; all reelected, and second district, Dr. C. Kosciusko Sharp, Arlington, to succeed Dr. Arthur D. Little, elected first vice president; delegates to the American Medical Association, Dr. Mallie A. Clark, Macon, and alternate, Dr. Allen H. Bunce, Atlanta.

INDIANA

Resolutions on the Shortage of Salvarsan.—At a meeting of the Indianapolis Medical Society, April 24, 1917, resolutions were adopted similar to those adopted by the Chicago medical and St. Louis medical societies on the subject of the shortage of salvarsan.

KANSAS

Communicable Diseases.—Dr. John J. Sippy, epidemiologist of the state board of health, reports that 13,836 cases of measles were reported in the state in 1916, and 6,162 in March, 1917.——Smallpox is reported to be prevalent at Little River.

New District Society Officers.—At the annual meeting of the Seventh Kansas District Medical Society held in Hutchinson, April 26, the following officers were elected: president,

Cornelius A. Mann, Hutchinson; vice presidents, Dr. Floyd E. Wallace, Chase, and Marion Trueheart, Sterling, and secretary-treasurer, Dr. William F. Schoor, Hutchinson.

LOUISIANA

Tuberculosis Survey.—Squads for the survey of tuberculosis in New Orleans were organized, April 24, at a meeting of the Louisiana Anti-Tuberculosis Campaign Committee. The object of this survey is to list all patients suffering from tuberculosis and to arrange for the safeguarding of those associated with these patients.

State Surgeons' Association Elects.—At the annual meeting of the Louisiana State Surgeons' Association held at Alexandria, April 17, the following officers were elected: president, Dr. James J. Robert, Baton Rouge; vice presidents, Drs. James A. White, Alexandria; Emil Regard, Mansura, and Hollie B. Wilson, Vicksburg, Miss.; secretary, Dr. Charles F. Duchen, Baton Rouge; treasurer, Dr. John Tolson, Lafayette. New Orleans was selected as the next place of meeting.

State Society Meeting.—At the thirty-eighth annual meeting of the Louisiana State Medical Society held under the presidency of Dr. William H. Seemann, New Orleans, at Alexandria, April 17 to 19, the following officers were elected: president, Dr. Clarence Pierson, Jackson; vice presidents, Drs. Charles V. Unsworth, New Orleans; Leon J. Menville, Couma; Archibald B. Nelson, Shreveport, and Edmund L. Leckert, New Orleans; secretary-treasurer, Dr. Laurence R. DeBuys, New Orleans (reelected).

MARYLAND

Outbreak of Cerebrospinal Meningitis.—An outbreak of cerebrospinal meningitis has occurred at Sparrows Point, Baltimore County. Three children suffering from the malady have been taken to the Harriet Lane Home, Johns Hopkins Hospital, and every precaution is being taken to prevent the spread of the disease. Dr. Josiah S. Bowen of Mount Washington, representing the state board of health, is cooperating with the physicians at Sparrows Point to keep a strict quarantine and prohibit the spread of the epidemic. One death has resulted so far.

Milk Pasteurization Ordinance to Be Effective.—The milk pasteurization ordinance has been favorably passed on by the Baltimore City Council and will be signed by the mayor, but will not become effective until the autumn, the committee having recommended that it take effect five months after its passage, in order to give dealers ample time in which to equip themselves with pasteurizing plants satisfactory to the commissioner of health and to comply with regulations. The premises and equipment of dairies are to be inspected before permits for the sale of milk are issued, and medical examinations are provided for employees who handle milk. Cows are to be inspected annually and all possible safeguards thrown around the sale of milk or cream for food consumption. Labels on containers will show the character of the milk and the date on which it was pasteurized or bottled.

Animals to Be Turned Over to Hospitals.—By a decision of the Board of Awards, the Society for the Prevention of Cruelty to Animals is no longer the official agent for the city in catching and disposing of stray dogs. The city solicitor, in his opinion, said that the most humane way of disposing of stray dogs would be to sell them to the Johns Hopkins or any other hospital for vivisection purposes and if necessary to have the city council amend the present ordinance, clearly and distinctly to permit of this manner of disposition. The new contractors are also obliged to dispose of stray and sick cats. Dr. William C. Gorgas, surgeon general of the U. S. Army, and Dr. Rupert Blue, surgeon general of the U. S. Public Health Service, have written the mayor explaining the necessity of the municipal authorities in cooperating with the hospitals in an effort to obtain animals for scientific research work.

Meetings.—A special meeting of the Baltimore City Medical Society was held in Osler Hall, May 4, at which time a symposium on "Health Preparedness" was held. The principal address was made by Dr. T. W. Sears, state sanitary supervisor of New York State, and was entitled, "Some Methods of Conserving the National Health." The discussion was opened by Dr. William H. Welch of Baltimore.

Another of a series of public health lectures, under the auspices of the Medical and Chirurgical Faculty of Maryland, was held in cooperation with the Laennec Society of the Johns Hopkins Hospital, April 30, in Osler Hall, Baltimore. The topic under discussion was tuberculosis in its various phases. Dr. Horace John Howk of Mount McGregor, N. Y., spoke on "The Public Health Work of a Great Life Insurance Company," and "The Social Service Side of Tuberculosis Work in New York City" formed the topic of a paper read by Dr. James Alexander Miller of New York. Dr. J. Hall Pleasants acted as chairman, and Dr. Louis V. Hamman presided.

Personal.—Dr. William F. Twigg of Cumberland and Dr. Robert A. Webb, Jr., of Louisville, Ky., who were graduated from Johns Hopkins Hospital on April 28, have left for New York to join an American unit of physicians for service "somewhere in France." The two physicians will be assigned for the present to the British forces and will have the rank of lieutenant. In the event that troops from this country are sent abroad, they are to be assigned to American camps.——Dr. Lewellys F. Barker has offered the use of his home, 1035 North Calvert Street, Baltimore, to the surgical dressing committee of the Maryland Branch of the American Red Cross. The committee will meet here daily until its permanent quarters in the biological laboratory of the Johns Hopkins University have been made ready.——Dr. James A. Nydegger, surgeon in the United States Public Health Service, has been reassigned to the port of Baltimore for four more years.——Dr. Edward V. Milholland of Baltimore has been appointed chief medical examiner of the Baltimore & Ohio Railroad to succeed Dr. Joseph F. Tearney, who has retired on account of ill health.——Dr. John W. Sanderson of Baltimore is at the Maryland General Hospital suffering from a fractured skull as the result of a fall down the stairs at his home, when he arose to answer a sick call.

MASSACHUSETTS

Tuberculosis War Victims Fund.—Mr. Richard Hale, Boston, treasurer of the French Tuberculosis War Victims Fund, acknowledges receipt of $13,537.04 for the fund.

Antituberculosis League Meeting.—At the third annual meeting of the Massachusetts Antituberculosis League held in Boston, April 11, Dr. Vincent Y. Bowditch, Boston, was elected president.

Workman's Compensation Act.—The governor has allowed to become law, without his signature, the bill permitting injured workmen in certain institutions under the provision of the Workman's Compensation Act to select their own physician for treatment.

Diphtheria at Immigrant Station.—Three positive cases of diphtheria have been discovered in the immigrant station of Long Wharf, Boston, and 238 immigrants were quarantined in the detention quarters. The disease was apparently brought by the steamer *Cretic,* recently arrived from Mediterranean ports and the Azores.

The Infantile Paralysis Fight.—The Harvard Infantile Paralysis Commission in cooperation with the state health department is proposing to raise $150,000 for the work of the commission. The hospitals of Boston are cooperating in this work and the equipment of the Harvard Medical School laboratories is offered for the preparation of serums. Dr. Robert W. Lovett, Boston, is chairman of the commission.

Personal.—Dr. Joel E. Goldthwait, Boston, delivered an address before the New York Academy of Medicine, May 2, on "The Challenge Which the Chronic Patient Presents to Our Profession."——Dr. Homer Z. Leach, Hardwick, has been appointed assistant medical examiner (coroner) for the Tenth Worcester District.——Dr. Francis H. Slack, Boston, deputy commissioner of health of the bacteriologic laboratory, has resigned to accept the position as pathologist, bacteriologist and serologist in the Sias Laboratory, Brookline, which is connected with the Brooks Hospital.——Dr. David D. Brough has been appointed deputy health commissioner of Boston, to succeed the late Dr. Thomas B. Shea.——Dr. William R. Ohler has been appointed assistant in the clinical pathologic department of the Boston City Hospital, succeeding Dr. Charles L. Overlander, who has accepted a position in Cincinnati.——Dr. Charles C. Farnham, Randolph, librarian of the Turner Public Library since 1876, has resigned.

NEBRASKA

Dr. Orr to Do Orthopedic Surgery in English War Hospitals.—Dr. H. Winnett Orr has accepted the call for orthopedic service in the war hospitals of England. He will go as a member of the group to be headed by Dr. Goldthwait of Boston.

NEW YORK

Mohansic Bills Defeated.—The three bills of Senator Wahner aimed to prevent the further construction of the Mohansic State Hospital and the State Training School for Boys at Yorktown, with the view of preventing the pollution of the Croton watershed, have been defeated. A resolution has already passed the house declaring it to be the sense of the legislature that these institutions should not be located on the watershed and providing a joint legislative committee to report to the next legislature whether the two sites were available for other state purposes or to suggest a proper disposition of them.

Psychiatrists Discuss Activities of Clinical Psychologists.—A committee of the New York Psychiatrical Society appointed, Dec. 6, 1916, to inquire into the activities of the "clinical psychologists" in relation to the diagnosis and treatment of abnormal conditions, has just rendered its report. The committee, consisting of Drs. Charles L. Dana, Adolf Meyer and Thomas W. Salmon, makes the following specific recommendations:

1. We recommend that the New York Psychiatrical Society affirm the general principle that the sick, whether in mind or body, should be cared for only by those with medical training who are authorized by the State to assume the responsibility of diagnosis and treatment.

2. We recommend that the Society express its disapproval and urge upon thoughtful psychologists and the medical profession in general an expression of disapproval of the application of psychology to responsible clinical work except when made by or under the direct supervision of physicians qualified to deal with abnormal mental conditions.

3. We recommend that the Society disapprove of psychologists (or of those who claim to be psychologists as a result of their ability to apply any set of psychological tests) undertaking to pass judgment upon the mental condition of sick, defective or otherwise abnormal persons when such findings involve questions of diagnosis, or affect the future care and career of such persons.

New York City

Personal.—Dr. Maximilian Frick, who has been doing hospital work in Germany, has returned to this country.——Dr. Alfred G. Langmann was seriously injured when a New York Hospital ambulance, in which he was bringing a patient to the hospital, was struck by an automobile and overturned.——Dr. Elmer E. Larkin of Plattsburg, N. Y., has been appointed a member of the state parole board to succeed ex-Senator William Townsend.

OKLAHOMA

Money Raised for Hospital.—In the first three days of a campaign recently inaugurated in Tulsa to raise $250,000 for a new hospital for the Sisters of the Sorrowful Mother, $125,000 was subscribed.

Northeast Physicians Hold Meeting.—The annual meeting of the Northeast Physicians' Medical Society held in the State Hospital Vinita, April 19, Dr. Frank L. Hughson, Vinita, was elected president and Dr. Ralph V. Smith, Tulsa, Okla., was reelected secretary. Tulsa was selected as the place of meeting for October.

Medical Smoker.—The members of the faculty of the University School of Medicine, Oklahoma City, and students from Norman and Oklahoma City, held a smoker in the latter place, recently, in celebration of the appropriation of $200,000 by the legislature for a state hospital. Addresses were made by Dean LeRoy Long and other members of the faculty, and by Dr. John W. Duke, Guthrie, state health commissioner.

PENNSYLVANIA

Philadelphia

Personal.—Dr. James Tyson, who has retired from practice after fifty-four years of active work, was the guest of honor at a testimonial dinner, May 11, at the Bellevue-Stratford.

Philadelphia Women of New York Endow Beds.—Word has been received by Mrs. Rudolph Blankenburg that the women of the Pennsylvania society in New York City will take $12,000 from its treasury and endow two beds in the American Field Ambulance Hospital in Paris. Following Mrs. Blankenburg's suggestion, the beds will be named for Hannah Penn and Lucretia Mott.

Montgomery Leaves Jefferson.—On May 3, Dr. Edward E. Montgomery, for twenty-five years the professor of gynecology in Jefferson Medical College, delivered his last lecture in that institution. This was carrying out his determination to retire at the end of this college year. Besides the senior class, many doctors, former pupils of Dr. Montgomery, were present and flowers were presented to him in behalf of the Class of 1917 by its president.

Hospital Roof Garden Dedicated.—Dedication exercises for the new roof garden of the Samaritan Hospital were held in the building, Broad and Ontario streets, May 3. The garden is the gift of an anonymous woman donor and was presented by Charles E. Beury and accepted by Rev. Russell H. Conwell. The roof garden was given in memory of the donor's husband. It will be used for pneumonia patients particularly. It is 40 by 80 feet square and is of brick with red tile floor. It is fireproof throughout and is partly covered. The cost was $8,000.

SOUTH CAROLINA

Bond Issue Voted.—The city of Greenville has recently voted a bond issue of $100,000, the proceeds to be applied to the increase of the capacity and equipment of the Greenville City Hospital.

State Society Meeting.—At the sixty-ninth annual meeting of the South Carolina Medical Association held in Spartanburg, April 17 to 19, under the presidency of Dr. Currans B. Earle, Greenville, the following officers were elected; president, Dr. Frank H. McLeod, Florence; vice presidents, Drs. Kenneth M. Lynch, Charleston; L. Rosa H. Gantt, Spartanburg, and Pettis G. Ellesor, Newberry; secretary-treasurer, Dr. Edgar A. Hines, Seneca (reelected). Aiken was chosen as the next place of meeting.

State Association Meeting.—The sixty-ninth annual meeting of the South Carolina Medical Association was held in Spartanburg, April 17-19, under the presidency of Curran B. Earle, Greenville. Aiken was selected as the place of meeting for 1918, and the following officers were elected: president, Dr. Frank H. McLeod, Florence; vice presidents, Dr. Kenneth M. Lynch, Charleston; L. Rosa H. Gantt, Spartanburg, and Pettis G. Ellesor, Newberry, and secretary-treasurer, Dr. Edgar A. Hines, Seneca (reelected).

TEXAS

Sanatorium Needed.—The Harris County Medical Society has presented a petition to the city council asking for the immediate establishment of a tuberculosis hospital at Shepherds Dam.

New Sanatorium.—Dr. Hubert F. Leach, Weatherford, has purchased the buildings formerly occupied by the Fairmount Seminary, and will remodel the buildings for sanatorium purposes. The name of the institution will be the Weatherford Sanatorium and the staff will consist of Drs. Hubert F. Leach, Frank M. Moose and Austin Leach.

Rural Health Bureau.—The Texas State Board of Health has established a Bureau of Rural Sanitation the activities of which will be devoted entirely to directing, supervising and assisting in the conduct of the rural health work made possible by the recent appropriation of the legislature of $70,000 which is to be supplemented by a like sum from the Rockefeller Foundation through the International Health Board. Dr. Platt W. Covington, professor of preventive medicine in the medical department of the University of Texas, has been selected by the agencies concerned as head of this bureau.

WISCONSIN

Sanatorium Opened.—The Marathon County Tuberculosis Sanatorium, Rib View, was formally opened April 18. The capacity of the institution is 42, and Dr. Webster A. Ladwig, county commissioner, is in charge.

Personal.—Dr. George B. Noyes has been appointed local surgeon for the Minneapolis, St. Paul and Sault Ste. Marie Railroad at Stone Lake.——Dr. Charles M. Gould, health officer of Superior, has resigned on account of ill health.——Dr. Thomas P. Russell, Oshkosh, celebrated his ninetieth birthday April 19.——The residence of Dr. Edward J. Purtell, Milwaukee, was damaged by fire to the extent of $500, April 10.——Dr. Oscar Lotz, Milwaukee, has been appointed to fill the unexpired vacancy on the state board of medical examiners caused by the resignation of Dr. John M. Beffel, Milwaukee.

CANADA

Canadian Physicians for Service in Orient.—Four Toronto medical officers—Captains W. G. M. Smith, H. A. Abraham; Lieutenants F. H. Boone and D. G. Finlayson—have been chosen by the militia department for special service in the

Orient. They will leave for Vancouver shortly for China, and from thence to France in charge of Chinese coolies.

Personals.—Dr. Forbes E. Godfrey, M. P. P., Mimico, Ont., has gone to British Guiana for a trip.——Dr. Charles K. P. Henry, Montreal, has returned from Atlantic City.——Lieut.-Col. Irving H. Cameron, Toronto, has been visiting in Ottawa, Ont.——Dr. D. J. Gibbe Wishart has been elected president of the Academy of Medicine, Toronto; Lieut.-Col. Alexander Primrose, vice president; Dr. Jabez H. Elliott, hon. secretary (reelected); Dr. J. Herbert McConnell, treasurer.

Department of Health Recommended.—Dr. Michael Steele, M. P., Stratford, Ont., submitted a resolution in the Canadian House of Commons last week calling for the creation of a Department of Health for the Dominion of Canada. A federal department of health would in no way conflict with the existing provincial boards of health. The Hon. Martin Burrell, under whose department is administered the work of the director-general of public health, believed the time would come when it would be necessary to coordinate all activities in regard to human health, medical research work, national health as it affects international problems as well as sanitation.

Hospital News.—One year ago the total returned disabled soldiers under the care of the Canadian Hospitals Commission totaled 1,530. On April 15, 1917, the number stood at 5,677.——There has been a reduction in Canadian wounded soldiers in England hospitals from 20,256, Oct. 20, 1916, to 14,545, March 30, 1917.——Canadian hospitals will soon have accommodation for 1,250 returned tuberculous soldiers.——The total accommodation now in sight in Canada for returned convalescent soldiers is about 8,600, without including hospitals for the insane.——A home for incurables has been established in Toronto for soldiers. It was formerly the Massey-Treble Home in Jarvis Street. Thirty patients can be accommodated, and it is the first of its kind to be established in Canada.——Nearly 600 men are working on additions to hospitals, and on the erection of new buildings with existing institutions all over Canada for the care of returned wounded solders.——The Immigration Building at Quebec is being completely remodeled into a clearing depot; it will house 1,000 men. Special accommodation has been set apart for tuberculosis cases, and cases of mental derangement.——The Immigration Building, Halifax, N. S., has been completely remodeled, and has been transformed into a clearing hospital for 450 men. The officers of a hospital ship arriving the other day stated they had never seen such excellent provision for landing wounded men.

GENERAL

American Physicians Convene at Atlantic City.—The American Physicians' Convention met in Atlantic City, N. J., last week and the following officers were elected: president, Dr. Francis H. Williams, Boston; vice president, Dr. Alexander McPherdran, Toronto; secretary, Dr. Thomas McCrae; treasurer, Dr. Joseph A. Capps, Chicago, and recording secretary, Dr. Thomas R. Boggs, Baltimore.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, $100,000 by the will of Mrs. Ellen S. James.

National Jewish Hospital for Consumptives, Denver, Colo., $10,000 by the will of Cary Wormser.

Montefiore Home. New York City, $25,000; Mt. Sinai Hospital, New York City, $5,000 by the will of Julius Robertson.

Railway Surgeons Organized.—The surgeons of the Georgia Railway, Charleston and Western Carolina Railway, Georgia, Florida Railway and Augusta, Georgia Railroad, met in Augusta, Ga., April 17, and perfected an organization, electing the following officers: president, Dr. Howard J. Williams, Macon, Ga.; vice presidents, Drs. George L. Smith, Swainsboro, Ga., and David E. McMaster, Tennille, Ga., and secretary-treasurer, Dr. Hugh R. Tison, Allendale, S. C.

Health Insurance vs. Sickness Insurance.—The Conference of State and Territorial Health Officers with the United States Public Health Service, which met, April 30, in Washington, D. C., adopted the following resolution defining its attitude in relation to health insurance and sickness insurance:

Resolved, That in the judgment of this conference the use of the phrase "health insurance" to describe a system of sickness relief that makes no specific, positive, and definite provision for the conservation of health is liable to endanger the efficiency of existing health agencies and to retard their further development.

Resolved, That in any scheme for health insurance all activities looking toward the active conservation and promotion of health should be entrusted to the regularly established health conservation agencies, which should be reorganized or reinforced for that purpose, if necessary.

Preventing Infectious Diseases.—The United States Public Health Service has issued for the benefit of the public a bulletin calling attention to the importance of preventing communicable and infectious diseases and to a number of bulletins issued free by the government designed to aid in bringing about this desirable result. Among the bulletins which may be had for the asking are the following: "Good Water for Farm Homes," Public Health Bulletin 70; "Typhoid Fever—Its Causation and Prevention," Public Health Bulletin 69; "Prevention of Malaria," Reprint 170; "The Prevention of Pellagra," Reprint 307; "Tuberculosis, Its Predisposing Causes," Supplement 3; "Hay Fever and Its Prevention," Reprint 349; "Infantile Paralysis," Reprint 350; "Malaria —Lessons on Its Cause and Prevention," Supplement 18 (for use in schools); "Fighting Trim—The Importance of Right Living," Supplement 5; "What the Farmer Can Do to Prevent Malaria," Supplement 11; "The Care of the Baby," Supplement 10.

FOREIGN

New Hospital for China.—Reports state that a new central hospital, planned by American architects, has been erected in Peking, China, at a total expense, for building and equipment, of approximately $250,000, on property costing an additional $21,000. The building is of gray brick, with red tile roof, and is strictly fireproof. It is 262 feet broad, an average of 90 feet deep and 65 feet high, consisting of three floors and basement. The cement and iron used are of Chinese manufacture. The building is equipped with all the modern surgical and bacteriologic instruments, costing over $25,000. The medical director is Dr. Wu Lien-Teh, who was educated in Cambridge, England, and who is said to have won fame by his work during the plague epidemic in Manchuria in 1911. The resident staff will be chosen from Chinese graduates of medical schools of different countries, including China. Administrators, physicians and nurses are all to be natives of China. A motor ambulance service has been established in connection.

Retirement of Penna.—Having reached the age limit, Prof. J. Penna retires from the chair of epidemic diseases at the University of Buenos Aires and from the leadership of the Public Health Service, which he may be said to have founded in Argentina. To his efforts was due the founding of the model Hospital Muñiz in 1894 destined for contagious diseases and as an aid in teaching epidemiology. Penna has also been at the head of the entire hospital system at Buenos Aires since 1906, the Asistencia Publica, as it is called. His works on smallpox, yellow fever and other epidemics published in 1884 and thereafter have long been classic, and in 1894 his studies of spider bites and since then his work in serotherapy and prophylaxis in general have given valuable results for the country and for science, especially his country-wide study of malaria and the most practical means to apply prophylactic measures. Lozano, secretary of the Public Health Service, retired with Penna, and a testimonial ceremony was arranged for the farewell gathering at which Prof. R. Kraus delivered the main address, lauding "the first and the greatest epidemiologist of Argentina, José Penna." An artistic souvenir bronze plaque was presented to each.

Deaths in the Profession Abroad.—**F. F. Ulrik** of Copenhagen, the oldest physician in Denmark, aged 99. He took a leading part in the movement to provide more hygienic homes for the laboring classes, and published as early as 1867 an appeal for insurance against sickness and old age. He was also a member of the legislature at one time.——**J. Kaarsberg** of Copenhagen, a prominent surgeon and gynecologist, titular professor of the University of Copenhagen, aged 51.——**L. von Muralt,** chief of the Davos Santorium for the Tuberculous, and author of numerous works on neurologic and psychiatric subjects and on tuberculosis, aged 48. His study of the nervous and mental disturbances with pulmonary tuberculosis, published in 1913, attracted much attention. He began his career as a psychiatrist but contracted pulmonary tuberculosis at the age of 25 and had this to fight the rest of his life. He kept it latent most of the time and his personal experience was an important factor in his success at Davos, which owes much to him during the nearly twelve years he spent there. The obituary notice in our Swiss exchanges states that he married in 1902 an American wife, Miss Florence Hull Watson, M.D., of Philadelphia, who survives him. A list of twenty-four of his works is given and the list of societies, etc.,

over which he often presided. The arrangements he made at Davos for the interned war prisoners were taken as a model for other institutions throughout the land.

Projects of the China Medical Board.—The first annual report of the China Medical Board of the Rockefeller Foundation (December, 1914, to December, 1915) sets forth the action of the board in aid of medical progress in China. Among the steps taken up to that time were the purchase of the property of the Union Medical College and Compound in Peking, formerly owned by the London Missionary Society, and also a number of private properties adjoining the college property for the purpose of enlarging the plant. The transfer provided that the college should be conducted by a board of trustees some of the members of which should be from the six missionary societies associated with the London Missionary Society in the conduct of the college previous to its purchase. It was decided to establish a medical school at Shanghai by merging the medical schools of St. John's University, the Pennsylvania Medical School and the Harvard Medical School, all conducted previously in association with missionary societies, and still to be conducted in cooperation with them, each to have membership in the board of trustees of the merged school. The Hunan-Yale Medical School at Changsha was granted $16,500 a year for five years. A modern hospital on a new site is being built and promises to be one of the best in China. Grants are to be made annually to a number of missionary medical schools and hospitals throughout China, beginning first with those easily accessible from the leading medical schools to be developed at Peking and in the lower Yangtze Valley. Among these are a large number of hospitals in north and central China. Among fellowships granted were fellowships for Chinese graduates in medicine, for Chinese nurses and for Chinese pharmacists, and also for a number of medical missionaries for pursuing graduate work.

LONDON LETTER

LONDON, April 16, 1917.

Child Mortality

A report on child mortality by Sir A. Newsholme, medical officer to the Local Government Board, has just been published. It deals with the years 1911-1914, and therefore may be regarded as uninfluenced by war conditions. During these four years, 575,078 deaths occurred in England and Wales under the age of 5, more than a quarter of the deaths at all ages. There is a great contrast between the mortalities of industrial towns and industrial areas in large cities and places inhabited by the better classes. Thus, in London, Shoreditch had 341 and Finsbury 216 deaths per thousand births against 112 in Hampstead. In the great towns, Burnley had 257, Wigan 254 and Middlesborough 251 against 96 in Ilford and 123 in Swindon. In discussing the causes of this excessive mortality, Sir A. Newsholme dismisses the facile explanation that it is due to ignorance among mothers of the working class. He does not consider that this exists among them to a much greater extent than in other classes of society. Moreover, breast feeding is commoner among them. He attributes the difference in mortality between the two classes to the following causes:

1. The well-to-do mother is commonly able to devote herself to her infant and have assistance in this duty; the working-class mother is single-handed, and has also to perform, unaided, all the duties of her household, including the washing and cooking for her husband and herself and possibly for several children.

2. The well-to-do mother is commonly able to make sure that the milk for her infant is purchased under the best circumstances, is stored in a satisfactory pantry, and is prepared under cleanly conditions. The working-class mother often is supplied with stale, impoverished milk, may have no pantry, and, except when suckling her infant, is handicapped at every stage in the cleanly preparation of her infant's food.

3. If the well-to-do mother is ill, adequate medical and nursing assistance is at once available, and the child's welfare can be safeguarded; if the working-class mother is ill, the child usually must suffer with its mother.

4. If the child of the well-to-do mother falls ill, everything that good nursing and medical attendance can furnish is commonly at once available; for the child of the working-class mother the state of matters is remote from this ideal. Facilities for medical attendance and nursing vary greatly in different districts. In London, in small towns and in rural districts, the nursing assistance provided by district and county nursing associations is usually more generally available than in industrial towns. Prompt medical assistance is of great importance. It is often not available for children of wage earners, and particularly for the children of unskilled workers.

5. Infants and nursing mothers are rapidly influenced by their environment. This environment is complex. The mother is the main element in the environment of the infant. If she is overworked and suffering from chronic fatigue, her infant must suffer; directly, because the mother's milk under these circumstances is liable to be impoverished or otherwise unwholesome, or indirectly, owing to insufficient attention to the infant. The infant of the well-to-do mother is less liable to suffer in either of these ways.

6. Not only are the milk supply and the storage and preparation of artificial food important parts of the environment of the infant, but also the housing conditions of the family, and the sanitary conditions of the back yard and of the street in which the house is situated.

The remedy for this relative "social helplessness" is that medical advice and nursing assistance should be made available for the poor as promptly as for others. The physician, the sanitary inspector, the health visitor and the trained midwife must all be available to give the requisite advice. Such advice is becoming available to an increasing extent.

The War

THE FOOD PROBLEM

A new order for regulating the consumption of food in hotels, restaurants, boarding houses and clubs has been issued. The attempt to restrict consumption by curtailing the number of courses served at meals has failed to achieve its purpose, and the new regulations are on entirely different lines—a system of rationing in bulk. A meatless day once a week is to be observed. In London no meat, poultry or game may be served on Tuesday. Elsewhere the meatless day will be Wednesday. Five potatoless days are to be observed. No potatoes may be served except on the weekly meatless day and on Friday. Rationing is to be on a weekly scale for each person of 4½ pounds of meat, 3½ pounds of bread, 14 ounces of flour, and ½ pounds of sugar. This scale allows 2 ounces of bread for each meal, 2 ounces of meat for breakfast, 5 ounces of meat at luncheon and 5 ounces for dinner. As the unit of calculation is the week, the caterer may, however, allocate the rations to meals as he chooses. Two ounces of poultry and game are to be reckoned as 1 ounce of meat. The weight of meat is to be the uncooked weight, including bone. The order does not apply to a boarding house in which the number of bedrooms does not exceed twelve or to a public eating place at which no meal is served, the cost of which exceeds 30 cents. By a new flour order the percentage of flour from other cereals to be mixed with wheaten flour is increased from a maximum of 15 per cent. to 25, and the minimum from 5 to 10 per cent. This is the fourth new standard for flour since the outbreak of war. The other cereals referred to are maize, barley, rice, maize semolina, oats, rye and beans. Official statistics show that the retail prices of food have increased by 94 per cent. since the war began. This calculation does not take into account the considerable economies effected by changes in dietary resulting from the increased prices. Thus such very common economies as the omission of eggs, the substitution of margarin for butter, and the reduction of the consumption of sugar and fish by one half lowers the percentage of increase to 61. It is interesting to compare the percentages of increased prices of food elsewhere: Vienna, 171.7; Italy, 70; United States, over 24; Australia, 25.3, and New Zealand, 25.2. Attention is being directed to the many forms in which food is growing wild in the country and usually neglected. There are over 266 different wild species of the animal and vegetable kingdoms, mostly commonly distributed, easily identified and procured, as well as suitable to simple processes of cooking. Among them are the edible frog found in East Anglia, Surrey and Hampshire, seven species of seaweed, and nearly fifty esculent fungi. Such foods, of course, are available only to those who live in small towns or in the country. It is calculated that these persons should be able to supply during at least three quarters of the year two thirds of their needs from the fields, woodlands, lanes and streams in their immediate neighborhood.

THE HEALTH OF MUNITION WORKERS

Speaking at the Institute of Public Health, Sir Thomas Barlow said that it was a revelation to him how little real illness there has been among the munition workers, consider-

ing the amount of work done and the hours of labor. One reason is the excellence of the cooking and the variety of food supplied in the canteen. He did not hesitate to say that people have been fed better than ever before. (The explanation of this, notwithstanding the dearness of food, is the high wages earned.) Women have wonderful powers of endurance, especially in monotonous occupations. It is quite certain that young women do better than men and young boys in this sort of work.

PARIS LETTER

Paris, April 12, 1917.

The War

NECESSITY OF ENTRUSTING ROENTGENOGRAPHY TO MEDICAL MEN

The Society of Medical Roentgenology of France recently held an important meeting under the presidency of Justin Godart, undersecretary of state for the military health service. At this meeting were studied successively the methods of application, the rôle and the utilization of various types of roentgenographic apparatus in the army, the Roentgen ray in the diagnosis of pulmonary tuberculosis in soldiers, Roentgen therapy of war wounds, etc. Besides these technical questions, two communications were of general interest. One article contributed by Dr. Béclère, physician of the hospitals of Paris, points out the necessity of entrusting only to physicians the direction of the roentgenographic service. While praising for their devotion the persons of all conditions and the members of all professions, who have shown themselves eager to serve as roentgenographers during the war, Béclère is of the opinion that the anatomic localization of projectiles, the roentgenoscopic diagnosis of the ostearthropathies and of the lesions of the respiratory, circulatory, digestive and urinary tracts, the application of the Roentgen ray to medicochirurgic surveys or examinations, and, finally, roentgenotherapy demand a knowledge of anatomy, physiology, pathology and chemistry which is possessed only by the physician. The direction of the roentgenographic service is beset by difficulties and dangers, and carries responsibilities which rightfully and legally belong to those in possession of medical knowledge. Therefore, it is necessary to entrust this service exclusively to competent medical men. Barret and Aubourg, on the other hand, insisted on the necessity of leaving to the roentgenologist the free choice of procedures or methods to be used in making his diagnosis. According to Barret and Aubourg, the roentgenographic examination is too often practiced without judgment and without method. Roentgenography is overdone and roentgenoscopy is neglected, and one does not obtain from either one the results which may reasonably be expected. Which of the two procedures should be employed depends on definite indications. A correct diagnosis depends equally on the choice of method, the mode of application and the interpretation of the results. The roentgenologist should be expected not merely to produce a roentgenogram or to do a fluoroscopy, but to make a diagnosis, and to him may be left the choice of the procedures which best suit his purpose, assuming that he will duly consider the existing circumstances which impose on him economy of material and of time. It may be accepted that fluoroscopy suffices, in the majority of cases, to meet the demands of Roentgen diagnosis in war, thus permitting of a notable reduction in the number of plates used.

THE EFFECT OF ALCOHOL ON MARKSMANSHIP

A member of the army medical corps recently presented in the *Concours médical* some interesting information concerning the effect of alcohol on marksmanship. He chose the best shots from among the noncommissioned officers and soldiers of his regiment, and had them fire a series at 200 meters. They were then given a dose of brandy, approximately 50 gm., after which they fired a second series similar to the first. These experiments were repeated at different times and under different conditions with always identical results. It was found that the efficiency of the marksmen after the absorption of the alcohol had depreciated 30 per cent. in rapid firing and 50 per cent. in slow firing.

BREAD RATION FOR THE ARMY

The perpetual secretary of the Department of Agriculture has published a letter from a staff officer and correspondent of the department dealing with the consumption of bread by the troops. The men receive only 650 gm. This measure was adopted in consequence of the preference of soldiers for white bread when they can buy it in the cantonments in which bakeries are still operated. But in the trenches or the second line, when the men are at work, the ration of 650 gm. is insufficient. If sometimes one finds pieces of bread thrown away, pieces of crust especially, this can be explained by the soiling resulting from transport and baking, and by the hardness of the bread, which is consumed ten or fifteen days after it is baked by soldiers whose poor dentition is no longer looked into so carefully.

PRESENTATION OF DECORATIONS TO THE PERSONNEL OF THE CANADIAN HOSPITAL

Under the presidency of Justin Godart, undersecretary of state for the military health service, a ceremony was conducted at which decorations were given to the personnel of the Canadian hospital at Saint Cloud. In the name of the government, Godart presented the cross of the Legion of Honor to Colonel Le Bel, physician in chief of the hospital. Other decorations were presented to the Canadian personnel, the physicians and the male and female nurses who have served for more than a year in that sanitary formation.

Use of Saccharin

A special commission has been appointed by the minister of the interior, under the presidency of Professor Gariel, for the purpose of studying the question of authorizing by decree the use of saccharin in conformance with the advice of the Academy of Medicine and the Superior Council of Hygiene of France (The Journal, March 10, 1917, p. 793; March 17, 1917, p. 860). Being called on to give a medical opinion and to formulate propositions to be taken up by the Superior Council of Hygiene, the commission has proposed the following: That sugar be replaced by saccharin in the sweetening of liquors used in the manufacture of ciders, beer and effervescent wines, in manufactured sweet wines (except products destined for export), and in common liquors and pops. It proposes to authorize the suppression of the use of sugar in cafés, and by all retailers of wines, according permission for the consumer to use saccharin. It would permit the use of saccharinated glucose in the manufacture of preserves, ordinary syrups, jams and compotes. In this connection, the commission has expressed itself as favoring the manufacture of glucose, and the delivering for consumption of all the glucose which is not needed for the manufacture of alcohol destined for the powder works. It has further recommended that the use of the available supply of glucose in the manufacture of alcoholic drinks be not authorized. The commission has rejected the use of saccharin in the manufacture of preserves, jams, compotes, syrups, confectionery, pastry, chocolate and condensed milk. It has declared that if the sugar supply fails it would be better to deny to these industries the distribution of their goods rather than to permit the free use of a suspected product in order to keep up the consumption of commodities which are unfit for food purposes. The commission has rejected the use of saccharin for pharmaceutic products. It proposes that pharmacists be authorized to manufacture sugar syrups, but that they be supervised, to the end that they may not be able to deliver to the public confectioner syrups, but manufacture only medicinal syrups. The opinion was expressed that the public must be informed that the products containing saccharin must not be given to children, and that the sick and the aged must also abstain from their use.

Closing of the Absinth Dispensaries

In response to a question asked of the minister of finance, he has given some interesting details on the number of establishments closed by the enforcement of the law which prohibits the manufacture, circulation and sale of absinth. The number of establishments in France which have been ordered closed for selling absinth is 485 (464 retail and 21 wholesale). These dispensaries were distributed as follows: 108 in the department of Gard, 98 in Bouches-du-Rhône, 40 in Vaucluse, 32 in Hérault, 29 in Var, 17 in Loire, 16 in Rhône, and 11 in Doubs, in Drôme and in Isère; 134 were divided among 46 departments, in which the closures numbered from one to nine.

Death of Prof. A. Combe

We record the death of Prof. A. Combe of Lausanne, at the age of 58. He was for many years connected with the University of Lausanne in the department of pediatrics. He had become well known through his works on intestinal autointoxication and the treatment of enteritis.

Association News

THE NEW YORK SESSION

A Patriotic General Meeting

The Local Committee on Arrangements reports that because of the war, the committee contemplates substituting a patriotic general meeting for the formal reception which has usually been given in honor of the President of the Association and which this year would have been held on Thursday evening of the week of the annual session.

While the plans are not yet fully matured, it is the purpose of the committee to have for this meeting speakers of national and international reputation, who are familiar with the issues of the day. The meeting will be held in a large hall and reservations to accommodate the Fellows and their guests will be made, then the remaining space will be at the disposal of the public. It is probable that ex-President Theodore Roosevelt and Mr. Joseph H. Choate, late ambassador to Great Britain, will be among the speakers.

The American Medical Golfing Association

Plans for the 1917 tournament of the Association are under way. The Garden City Golf Club has extended the courtesy of its course subject to the payment of a greens fee of $2 for each player. Play will be in foursomes arranged by the Fellows themselves, starting on prearranged schedule at five minute intervals from 8:30 for morning play and 1 o'clock for afternoon play. Luncheon will be served from 12 to 2 at the Garden City Hotel adjoining. The annual golf dinner and meeting will be held in the evening.

To be fair to all, an early announcement of the plan of entries is now made. The events will be patterned after those of last year, and section captains are expected to get out their respective teams. All foursomes will start from the first tee, where entry cards will be accepted. All entries will be made in the order received, but time for play cannot be assigned until three Fellows of a foursome are entered. Entries will close when the capacity of the course is reached (thirty-five foursomes). In any event they will close in the Chicago office, May 20, and will then be forwarded to New York. Entry blank, covering the needed data, will be mailed on request. Full program of events will be forthcoming duly. Members of the Golfing Association are requested to urge their confrères to send in their two dollar enrolment fees that a strong list may be presented to the local committee at New York.

Address all communications to the secretary, 1414 Chicago Avenue, Evanston, Ill.

THOMAS HUBBARD, President.
WILL WALTER, Secretary-Treasurer.

Missouri Valley and Southwest Special

The Missouri Valley and Southwest special, as announced last week, will leave Kansas City, Saturday evening, June 2, at 8 o'clock, via the Santa Fé Railroad, and arrive at Chicago 9 a. m. Sunday. It will leave Chicago 10 a. m. Sunday, arriving in New York via the Pennsylvania line at 2:20 p. m. Monday. There will be no change of cars and no extra fare on this train. For service address Dr. Fred. H. Clark, El Reno, Okla.; Dr. Charles Wood Fassett, Lathrop Building, Kansas City, Mo., or the nearest Santa Fé agent.

Southeastern Passenger Association Rates

Those residing in territory covered by the Southeastern Passenger Association who expect to attend the New York session are referred to the thirty day summer excursion fares, sixty day variable route summer excursion fares and season limit summer excursion fares which will be in effect from the Southeast to New York. The thirty day summer excursion tickets are on sale daily from June 1 to September 30, inclusive. The sixty day variable route summer excursion tickets are on sale May 22 to October 15, inclusive, bearing limit of sixty days. The season limit summer excursion tickets are on sale from May 15 to October 15, inclusive, which tickets bear limit of October 31.

Banquet for Women Physicians

The Women's Medical Association of New York is planning a banquet to be given at the Hotel McAlpin, Wednesday evening, June 6, 1917, for the women physicians who will be in New York to attend the meetings of the American Medical Association. Tickets, $3, may be obtained from Dr. Mathilda K. Wallin, 616 Madison Avenue, New York.

NEW YORK CLINICAL SESSIONS

(*Continued from page 1378*)

ADMISSION TICKETS to the Clinics, Demonstrations and Exhibits incorporated in the Clinical Sessions program will be issued *only* to members and guests who register and make application at the American Medical Association Headquarters.

GUESTS other than physicians and dentists will not be admitted to the Medical and Surgical clinics.

SPECIAL BADGES and BUTTONS will be issued to guests (other than physicians and dentists) of the Clinical Sessions and of the American Medical Association who wish to attend the demonstrations, moving pictures and exhibits or inspect the different nursing, medical, municipal and public health institutions arranged for in the program by the Committee on Preventive Medicine and Public Health and the Committees on Allied Topics, including Trained Nursing and Training Schools, District Nursing System, Hospital Social Service, and Planning and Financing of Municipal and Non-Municipal Hospitals.

FELLOWS OF THE AMERICAN MEDICAL ASSOCIATION may apply in advance by mail for tickets of admission to the Clinical Sessions. In writing for the three sessions (Monday afternoon, Tuesday morning and Tuesday afternoon) give first, second and third choice, as seating capacity of amphitheaters is limited. Tickets of admission will be delivered after registration at the American Medical Association Headquarters.

GENERAL CLINICAL SESSIONS COMMITTEE[1]

Wendell C. Phillips, Chairman
Samuel G. Gant, Sec. — **D. Campbell, Asst. Sec.**
Alexander Lambert — **Floyd M. Crandall**

PHARMACOLOGY AND THERAPEUTICS

FRANK S. MEARA, Chairman — MALCOLM GOODRIDGE, Secretary
PHILIP EICHLER — CHARLES C. LIEB
ROBERT A. HATCHER — GEORGE B. WALLACE

TUESDAY MORNING, JUNE 5

BELLEVUE HOSPITAL, Sage Institute of Pathology—11. Demonstration of respiration calorimeter, Dr. Eugene F. Du Bois.

LOOMIS LABORATORY—10. Demonstration: action of certain drugs on normal and abnormal circulation in animals, Drs. George B. Wallace, R. A. Hatcher, Cary Eggleston.

TUESDAY AFTERNOON, JUNE 5

COLLEGE OF PHYSICIANS AND SURGEONS—3. Laboratory of Pharmacology; Demonstration: pharmacologic action of pituitary extract, Dr. Charles C. Lieb.

PATHOLOGY AND PHYSIOLOGY

A. CLINICAL AND MEDICOLEGAL

OTTO H. SCHULTZE, Chairman — FRED S. MANDLEBAUM
CHARLES NORRIS — ALWIN M. PAPPENHEIMER

MONDAY AND TUESDAY MORNINGS, JUNE 4 AND 5

CORNELL UNIVERSITY MEDICAL COLLEGE—10. Necropsies at mortuary; demonstration of medicolegal specimens illustrating intracranial injury, strangulation and abortion; pathologic department, Dr. Otto H. Schultze.

MONDAY AND TUESDAY AFTERNOONS, JUNE 4 AND 5

CORNELL UNIVERSITY MEDICAL COLLEGE—2. See program, Cornell University Medical College, 10 a. m., Monday and Tuesday.

B. LABORATORY (DIAGNOSTIC)

FREDERIC E. SONDERN, Chairman — O. S. HILLMAN, Secretary
JOSEPH R. LOSEE — REUBEN OTTENBERG
WARD J. MACNEAL — WILLIAM H. PARK

1. The complete program will be available in due season, and will be mailed to those who request it, sending to the committee a stamped addressed envelope.

MONDAY AFTERNOON, JUNE 4

BELLEVUE HOSPITAL—2. Necropsy findings, female breast, Drs. J. N. Worcester, B. Morgan Vance; aspects of pathology and histology of visceral syphilis, Dr. Douglas Symmers; carcinoids of small intestine, Dr. B. Morgan Vance; primary and secondary neoplasms of bony system, Dr. Douglas Symmers; laboratory specimens, pathologic staff. Demonstration: surgical pathologic specimens, genito-urinary tract, Dr. Oswald F. Lowsley.

BETH ISRAEL HOSPITAL—3. Pathology splenic anemia and polycythemia; specimens illustrating general pathology; microscopic pathology of appendicitis, Dr. E. Moschcowitz.

FORDHAM UNIVERSITY MEDICAL SCHOOL—2. Gross and microscopic pathologic specimens, Drs. L. Heitzmann, G. Fried; interesting pathologic charts, Drs. L. Heitzmann, G. Fried.

GERMAN HOSPITAL, N. Y.—3. Selection donors for transfusion by blood tests, Dr. A. L. Garbat.

HAHNEMANN HOSPITAL—2. Laboratory methods, Drs. D. S. D. Jessup, G. P. Olcott.

KINGS COUNTY HOSPITAL (Brooklyn Laboratories of Pathology)—3. Standardizing reading of Wassermann reactions; instrument whereby physician, while operating, can dictate to stenographer in another room, Dr. B. T. Terry.

LYING-IN HOSPITAL—2. Museum specimens; lantern slide demonstration of laboratory findings in pregnancy and labor complications; chemistry of blood and urine in pregnancy, Dr. J. R. Losee.

MANHATTAN EYE, EAR AND THROAT HOSPITAL—2. Wassermann and other serum reactions; blood plates from cultures; fruit and flower allergy sensitization with various fruits, pollens, etc., with reactions on sensitized patients; pathologic specimens of eye, ear and throat, Dr. J. G. Dwyer.

MONTEFIORE HOME AND HOSPITAL—2. Demonstration hospital metabolism ward, Dr. N. W. Janney; pathologic specimens chronic disease, Dr. B. S. Kline; demonstration unusual Roentgen-ray findings, Dr. Thomas Scholz.

MOUNT SINAI HOSPITAL—2. Methods diagnosing stomach, liver and pancreatic diseases, Dr. B. B. Crohn; morphology normal and pathologic blood cells, Dr. N. Rosenthal. 3. Blood-sugar analysis and its clinical applications; chemical pathology in nephritis, Dr. A. A. Epstein; transfusion tests, Dr. R. Ottenberg. 2. Cholesterin in cholelithiasis, Drs. M. A. Rothschild, A. O. Wilensky. 4. Microchemical methods for clinician, Dr. T. Kuttner; methods studying functions of the stomach with reference to surgical procedures, Drs. A. O. Wilensky, B. B. Crohn.

NEW YORK CITY HEALTH DEPARTMENT (Bureau of Laboratories), 149 Center Street—2. Diagnostic examinations: diphtheria, tuberculosis, malaria, typhoid, syphilis and gonorrhea; microbial milk examinations for city milk control, Dr. Hatfield.

NEW YORK EYE AND EAR INFIRMARY—4. Pathologic eye specimens, Dr. George S. Dixon.

NEW YORK HOSPITAL—2. Use of a mechanically sterilized room in bacteriologic technic; making postmortem blood cultures; intravenous injections of rabbits by special animal holder and transillumination, Dr. W. J. Elser; use sugar-containing mediums for differentiation gram-negative cocci and members diphtheria organisms; isolation typhoid and paratyphoid bacilli from stools, and their differentiation; use centrifuge for clarification agar and other mediums; handling ascitic fluid aseptically, Dr. G. W. Wheeler; identification different types pneumococcus infection, bacteriologically and by examining urine, Dr. Larsen; diagnosis hypersensitiveness to foreign proteins, Dr. Coca and Cooke; Wassermann reaction technic, Drs. J. M. Kent and W. H. Baughman; clinical significance Wassermann reaction, Dr. A. F. Coca; apparatus, care of stool specimens and their disinfection, Dr. R. G. Stillman; methods used in blood chemistry: sugar, carbon dioxid capacity of plasma, total nonprotein nitrogen, urea, uric acid, creatinin, Dr. R. G. Stillman; isolation vitamins from lamb's pancreas; cage for rats used in metabolism studies, Dr. Walter E. Eddy.

PRESBYTERIAN HOSPITAL—2. Method determining type of pneumococcus, Miss M. P. Ohmstead.

ROOSEVELT HOSPITAL—2. Hexamethylenamin kidney-function test as compared with others; methods blood analysis, nephritic test meal, etc., Dr. W. G. Lyle.

ST. MARY HOSPITAL, Brooklyn—2. Gross microscopic pathology, Dr. W. Moiterer.

SKIN AND CANCER HOSPITAL—2. Skin tumors; cultures pathogenic fungi; laboratory methods, Dr. D. S. D. Jessup.

VANDERBILT CLINIC (Outpatient Department)—2. Diagnosis and treatment diabetic patients, Drs. Geyelin and H. Wiener.

TUESDAY MORNING, JUNE 5

BELLEVUE HOSPITAL—10. Certain aspects of pathology and histology visceral syphilis, Dr. Douglas Symmers; laboratory specimens, Pathologic staff of hospital; primary and secondary neoplasms of bony system, Dr. Douglas Symmers.

COLLEGE OF PHYSICIANS AND SURGEONS—9. Grouping typhoid and paratyphoid organisms, Dr. Weiss; complement fixation acid-fast group, including lepra bacilli, Dr. Cook; complement fixation in tuberculosis, Dr. H. R. Miller; rabbit syphilis, Dr. McBurney; specific leukocytosis, Dr. Tsen; Wassermann reaction technic, Dr. Reuben Ottenberg; bacterial anaphylaxis, Dr. Hans Zinsser; clinical diagnosis, Dr. W. T. Gies and assistants. 10. Museum of Anatomy, Dr. George S. Huntington and assistants.

HAHNEMANN HOSPITAL—10. See program, Hahnemann Hospital, 2 p. m., Monday.

LYING-IN HOSPITAL—10:30. See program, Lying-In Hospital, 2 p. m., Monday.

MANHATTAN EYE, EAR AND THROAT HOSPITAL—10. See program, Manhattan Eye, Ear and Throat Hospital, 2 p. m., Monday.

NEW YORK CITY HEALTH DEPARTMENT (Bureau of Laboratories), Foot of East 16th Street—9:30. Relation microbes to dairy scores; microbal control, laundries, Dr. Schroeder. 10:10. Antitoxins, Dr. Banzhaf; serums and bacterial vaccines; fecal examinations in typhoid and related fevers, Dr. Charles Krumwiede. 11:20. Diphtheria control, Dr. W. H. Park. 11:40. Schick reaction, Dr. Abraham Zingher. 12. Pneumonia diagnosis and treatment, Dr. Charles Krumwiede.

SKIN AND CANCER HOSPITAL—11. See program, Skin and Cancer Hospital, 2 p. m., Monday.

TUESDAY AFTERNOON, JUNE 5

BELLEVUE HOSPITAL—2. See program, Bellevue Hospital for 2 o'clock, Monday afternoon.

BETH ISRAEL HOSPITAL—3. See program, Beth Israel Hospital, 3 p. m., Monday.

CITY HOSPITAL (Strecker Memorial Laboratory), Blackwell's Island—1. Colloidal gold reaction in paresis and tabes, and allied neuropathologic conditions; exhibition brain and spinal cord specimens, Drs. J. H. Larkin, I. J. Levy, L. H. Cornwall, R. S. Nelson.

CLINICAL LABORATORY, 20 West 55th Street—2. Laboratory methods, Drs. F. E. Sondern, O. S. Hillman.

CORNELL MEDICAL COLLEGE—2:30. Complement fixation in gonorrhea, Dr. H. J. Schwartz. 3. Complement fixation in chronic arthritis, Dr. Thomas W. Hastings. 4. Colloidal gold test spinal fluids, Dr. John Richards. 4:30. Bacteriology, abscesses of teeth and arthritis, Dr. William C. Thro.

GERMAN HOSPITAL, New York—3. See program, German Hospital, 3 p. m., Monday.

HOAGLAND LABORATORY, 335 Henry Street, Brooklyn—1. Museum specimens, Dr. Archibald Murray.

KINGS COUNTY HOSPITAL—3. See program, Kings County Hospital, 3 p. m., Monday.

LINCOLN HOSPITAL—2:30. Wassermann test, Dr. L. H. Berliner; methods blood analysis, Dr. Z. Sagal.

LONG ISLAND COLLEGE HOSPITAL—2. Complement fixation, tuberculosis, Dr. R. A. Davison; methods determining blood urea, uric acid, creatin and cholesterin with clinical data and interpretation, Dr. H. M. Feinblatt. 3. Clinical laboratory for students in teaching hospital; ward and dispensary teaching of medicine, Dr. L. F. Warren.

MANHATTAN EYE, EAR AND THROAT HOSPITAL—2. See program, Manhattan Eye, Ear and Throat Hospital, 2 p. m., Monday.

MONTEFIORE HOME AND HOSPITAL—4. Gross and microscopic pathologic material, Dr. B. S. Kline.

MOUNT SINAI HOSPITAL—2, 3, 4. See program, Mount Sinai Hospital, 2, 3, 4, Monday afternoon.

NEUROLOGICAL INSTITUTE—4. Serology, nerve and mental diseases: tests showing type reactions in paresis, tabes and cerebrospinal syphilis, Dr. D. M. Kaplan.

NEW YORK CITY HEALTH DEPARTMENT (Bureau of Laboratories), Foot East 16th Street—2. Diagnosis, rabies, Dr. Williams; rabies vaccine, Dr. Abramson; smallpox vaccine, Dr. Anthony. 3. Meningitis, diagnosis and treatment, Dr. J. B. Neal; etiology, poliomyelitis, Dr. A. W. Williams. 3:45. Poliomyelitis, diagnosis and treatment, Dr. J. B. Neal; control of oysters and water, Miss Noble. Laboratory open.

NEW YORK EYE AND EAR INFIRMARY—4. See program, New York Eye and Ear Infirmary, 4 p. m., Monday.

LYING-IN HOSPITAL—2:30. See program, Lying-In Hospital, 2 p. m., Monday.

POST-GRADUATE HOSPITAL—1:30. System, receiving and checking specimens and recording and filing laboratory reports, Dr. W. J. MacNeal; isolating typhoid bacilli from feces, Dr. W. L. Aycock; methods, collecting blood, Dr. R. M. Taylor. 2:30. Preparing colloidal gold solution, its use in testing cerebrospinal fluids, Dr. J. Wheeler Smith, Jr.; human intestinal protozoa and worms, Dr. A. N. Tasker, Captain Medical Corps, U. S. Army; chemical blood analysis: creatinin, V. C. Myers, Ph.D.; chemical blood analysis: blood sugar, Dr. C. V. Bailey. 3:30. Chemical blood analysis: blood diastase, J. A. Killian, Ph.D.; chemical blood analysis: uric acid, Dr. C. K. Watamabe; chemical blood analysis: cholesterol, Dr. A. J. P. Pacini; chemical blood analysis: urea, V. C. Myers, Ph.D.; chemical blood analysis: carbon dioxid combining power, J. A. Killian, Ph.D.

SKIN AND CANCER HOSPITAL—2. See program, Skin and Cancer Hospital, 2 p. m., Monday.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH—66th Street and Avenue A—2. Estimating alkaline reserve by the plasma carbon dioxid method and Fridericia's Alveolar carbon dioxid method, Dr. Edgar Stillman; determination of oxygen content of blood; lowered venous oxygen as a measure of cardiac insufficiency, Dr. Christian Lundsgaard; rapid accurate method, estimating hemoglobin, Dr. W. W. Palmer; determination of acetone and beta-hydroxybutyric acid in blood and urine, Dr. R. Fitz; determination of urea in blood and urine by urease method, Dr. G. E. Cullen; determination of chlorids in blood, Drs. Franklin McLean, D. D. Van Slyke; rapid method donors for transfusion, Dr. Peyton Rous; methods for isolating and identifying types pneumococcus lobar pneumonia, Drs. C. T. Avery, A. M. Chesney; technic electrocardiography, Dr. R. A. Morison.

ROOSEVELT HOSPITAL—2. See program, Roosevelt Hospital, 2 p. m., Monday.

ST. LUKE'S HOSPITAL—2. Serologic technic, Dr. L. W. Famulener; methods chemical pathology, O. I. Lee.

WOMAN'S HOSPITAL—2. Gynecologic pathology, Dr. Lawrence W. Strong.

C. CANCER RESEARCH

FRANCIS C. WOOD, Chairman
WILLIAM H. WOGLOM, Secretary
JAMES EWING
W. G. MACCALLUM

MONDAY AFTERNOON, JUNE 4

CROCKER LABORATORY, 1145 Amsterdam Avenue—2. Demonstration laboratory methods, cancer research, Drs. W. H. Woglom, Frederick Prime and H. N. Stevenson.

TUESDAY AFTERNOON, JUNE 5

MONTEFIORE HOME AND HOSPITAL—2. Demonstration: research in tumors of animals and plants; radium and Roentgen therapy in cancer; institutional care, advanced inoperable carcinoma (cases).

PEDIATRICS

ROWLAND G. FREEMAN, Chairman
HENRY DWIGHT CHAPIN
ABRAHAM LINCOLN GOODMAN
ALFRED F. HESS
ROYAL S. HAYNES, Secretary
L. EMMETT HOLT
NATHANIEL R. NORTON
GODFREY R. PISEK
OSCAR M. SCHLOSS

MONDAY MORNING, JUNE 4

NEW YORK POLYCLINIC HOSPITAL—10. Clinic, Dr. Henry Heiman.

MONDAY AFTERNOON, JUNE 4

BABIES' HOSPITAL—2. Ward demonstrations and methods intensive research, Dr. W. R. Norton.

BELLEVUE HOSPITAL—2. Survey work, cardiac clinic, Huddleston Foundation, Dr. A. H. Bingham. 4. Meningitis, prematurity, cardiac decompensation, Dr. L. E. LaFetra and Dr. H. B. Wilcox. 3:30 and 5:30. Application recent advances in clinical pathology, Dr. Oscar M. Schloss.

GERMAN HOSPITAL—2. Interesting ward cases: chorea, autoserum therapy; unit system of hospital construction, Drs. Abraham Jacobi and Abraham L. Goodman.

LONG ISLAND COLLEGE HOSPITAL, Brooklyn—4. Demonstration solarium and methods of treating joint tuberculosis affections, Dr. E. H. Bartley.

MOUNT SINAI HOSPITAL—4. Bedside cases (children) in Wards Y and Z, Dr. Henry Koplik.

POST-GRADUATE HOSPITAL—2. Diagnosis and treatment, cardiac cases, Dr. Henry Dwight Chapin; Demonstration: ward cases, Drs. G. R. Pisek and N. C. Pease. 4. Demonstration children's heart class, electrocardiograph in children, Dr. Robert H. Halsey.

ROOSEVELT HOSPITAL—4. Cases, roof treatment, Drs. Rowland G. Freeman and Philip Van Ingen.

ST. CHRISTOPHER'S HOSPITAL, Brooklyn—2. Survey children's hospital, Dr. W. A. Northridge.

WILLIARD PARKER HOSPITAL—2. Cases exanthems, Dr. Louis Fischer. 4. Diphtheria, cases and direct method, larynx intubation, Drs. Eli Long and Henry L. Lynch.

TUESDAY MORNING, JUNE 5

BABIES' HOSPITAL—10. Ward cases and methods intensive research, Dr. Frederick H. Bartlett.

CHILDREN'S HOME BUREAU, 327 Schermerhorn Street, Brooklyn—9:30. Exhibition: methods, caring for and placing dependent children in homes, Dr. Garlick and Mr. John Daniels.

HEBREW INFANT ASYLUM, Kingsbridge Road—10. Infantile scurvy; rickets; duodenal tube passage; survey of cubicle ward, Dr. A. F. Hess.

MOUNT SINAI HOSPITAL—10. Clinic, Wards Y and Z, children's pavilion, Dr. Herman Schwartz.

NURSERY AND CHILD'S HOSPITAL—10. Roof pavilion; modern reception ward; methods of diagnosis; studies in rickets and tetany, Drs. Freeman, R. S. Haynes and J. F. Sammis. 11:30. Examination, methods boarding-out department, Dr. R. S. Haynes and Miss Katherine Holmes.

POLYCLINIC HOSPITAL—10. Clinic, Dr. Charles Gilmore Kerley.

POST-GRADUATE HOSPITAL—10. Amphitheater A, phases infant feeding; cases, Drs. A. Caillé and R. H. Dennett.

ST. LUKE'S HOSPITAL—10. Cases in active children's ward; modern reception ward; survey work children's cardiac clinic, Drs. C. F. Collins, W. P. St. Lawrence.

WILLARD PARKER HOSPITAL—10. Schick reaction and results of toxic-antitoxic injections, Drs. W. H. Park, A. Zingher.

TUESDAY AFTERNOON, JUNE 5

BABIES' HOSPITAL—2. Clinic, Dr. L. Emmett Holt.

BELLEVUE HOSPITAL—2. Work in malnutrition clinic; nutrition problems, older children, Dr. C. H. Smith. 4:30. Meningitis, prematurity, cardiac decompensation, Drs. L. E. LaFetra, H. B. Wilcox, 3:30 and 5:30. Application recent advances in clinical pathology, Dr. Oscar M. Schloss.

CITY HOSPITAL, Blackwell's Island—2. Cardiac and nutritional cases, Dr. Walter Lester Carr.

DEPARTMENT OF HEALTH, 149 Centre Street—1:30. Work of Bureau of Child Welfare, Dr. S. Josephine Baker and staff; group-system care dependent children vs. institutional care, Dr. Henry Dwight Chapin.

HEALTH DEPARTMENT, Station at 421 East 74th Street—2. Methods, conducting milk stations, Dr. Jacob Sobel.

MOUNT SINAI HOSPITAL—2. Demonstrations Wards Y and Z, Children's Pavilion, Dr. Henry Heiman.

NEW YORK AMERICAN BABY HOSPITAL, Brooklyn — 2. After-care, poliomyelitis, Dr. L. C. Ager.

NEW YORK FOUNDLING HOSPITAL—4. Care of foundlings, Dr. Joseph O'Dwyer.

NEW YORK HOSPITAL—4. Results in feeding vitamins for marasmus, Dr. Joseph C. Roper.

PRESBYTERIAN HOSPITAL—4. Roentgen-ray studies, pneumonia in children, Drs. William P. Northrup, Howard H. Mason.

ST. JOHN'S GUILD SEASIDE HOSPITAL, Staten Island — 2. Methods: operating seaside hospital, Dr. David Bovaird, Jr. Visitors will be transported from St. John's Guild to Sea View Hospital (for tuberculous).

ST. MARY'S FREE HOSPITAL FOR CHILDREN—4. Clinic, Dr. Dever S. Byard.

WILLARD PARKER HOSPITAL — 2. Exanthems, cases, Dr. Henry W. Berg. 4. Diphtheria, cases and direct method of intubation, Drs. Eli Long and Henry L. Lynah.

DERMATOLOGY

HOWARD FOX, Chairman — WALTER J. HEIMANN, Secretary
JOHN A. FORDYCE — BOLESLAW LAPOWSKI
JAMES C. JOHNSTON — WILLIAM B. TRIMBLE
JEROME KINGSBURY — HENRY H. WHITEHOUSE
JAMES McF. WINFIELD

Centralized clinics will be held at the New York Academy of Medicine by dermatologic representatives of the medical schools, hospitals and institutions of Greater New York, instead of individual clinics.

MONDAY AFTERNOON, JUNE 4

NEW YORK ACADEMY OF MEDICINE—2. General dermatologic clinic (from 100 to 150 rare cases).

TUESDAY MORNING, JUNE 5

NEW YORK ACADEMY OF MEDICINE—10:30. Leprosy clinic (from fifteen to twenty-five lepers).

TUESDAY AFTERNOON, JUNE 5

NEW YORK ACADEMY OF MEDICINE—2. General dermatologic clinic (from 100 to 150 rare cases).

NEUROLOGY

EDWARD D. FISHER, Chairman — ISADOR ABRAHAMSON, Secretary
WILLIAM BROWNING — BERNARD SACHS
FOSTER KENNEDY — M. ALLEN STARR
JOHN J. McPHEE — WILLIAM STEINACH
FREDERICK TILNEY

MONDAY MORNING, JUNE 4

MONTEFIORE HOME AND HOSPITAL—9. Cases illustrating pituitary diseases, Dr. H. Climenke; cases dystonia musculorum, Dr. Moses Keschner; reeducational exercises in tabes dorsalis, Dr. Morris Grossman.

MONDAY AFTERNOON, JUNE 4

BELLEVUE HOSPITAL—2. Neurologic clinic, Bellevue Hospital wards, Dr. Edward D. Fisher.

CITY HOSPITAL, boat from foot East 53d Street half-hourly—3. Clinic: organic nervous conditions, Dr. William Steinach.

MONTEFIORE HOME AND HOSPITAL, conveyance from Academy of Medicine to the Home and return—2. Globus pallidus syndrome—cases, Dr. J. Ramsey Hunt; moving pictures in the study of nervous diseases; neoplasms of brain: cases; pathologic specimens, Dr. S. P. Goodheart; neurologic conditions associated with polyarthritis; pathology and treatment polyarthritis, Drs. S. P. Goodhart, I. Strauss; cases showing varieties of tremor; myopathies, Dr. Isador Abrahamson.

NEUROLOGICAL INSTITUTE—2. Neurologic surgery, Drs. C. A. Elsberg, Alfred S. Taylor.

POLYCLINIC HOSPITAL—2. Operations: cases cerebral spastic paralysis, hydrocephalus, Dr. William Sharpe.

POST-GRADUATE HOSPITAL—2. Treatment paresis by intraventricular injection salvarsan and mercury; cases, Dr. Graeme Hammond.

TUESDAY MORNING, JUNE 5

CENTRAL AND NEUROLOGICAL HOSPITAL, Blackwell's Island; boats from foot of East 70th Street every half hour—9. Psychic symptoms superimposed on organic nervous disease; cases, Dr. J. J. Walsh; thalmic syndrome; cases; paraplegic tumors spinal cord; cases, Dr. Joseph Byrne; brain tumors; cases illustrating tremors, Dr. Isador Abrahamson; cases illustrating types sensory disorders; cases illustrating pituitary diseases, Dr. Hyman Climenke; laminectomy operations, Dr. Harold Neuhof.

POST-GRADUATE HOSPITAL—9. Psychologic mechanism hysteria; cases, Dr. E. S. Jelliffe.

TUESDAY AFTERNOON, JUNE 5

BELLEVUE HOSPITAL—2. Methods and cases in addiction and alcoholic wards, Dr. Charles A. Dana.

CITY HOSPITAL—2. Clinic, Dr. E. L. Hunt.

FORDHAM HOSPITAL—2. Brachial palsy, Dr. Alfred S. Taylor.

KINGS COUNTY HOSPITAL—3. Clinic, Dr. William Browning.

MOUNT SINAI HOSPITAL—2. Operative clinic, Dr. C. A. Elsberg. 3. Clinic, Dr. Bernard Sachs.

NEUROLOGICAL INSTITUTE—2. Neurologic surgery, Drs. Alfred S. Taylor, C. A. Elsberg.

POST-GRADUATE HOSPITAL—2. Teaching nervous diseases; cases, Dr. J. J. McPhee.

VANDERBILT CLINIC—2. Clinic, Drs. M. Allen Starr, Frederick Tilney.

MENTAL DISEASES

CARLOS F. MacDONALD, Chairman — GEORGE H. KIRBY, Secretary
WILLIAM MABON — WILLIAM L. RUSSELL
MENAS S. GREGORY — THOMAS W. SALMON
MAX G. SCHLAPP

MONDAY AFTERNOON, JUNE 4

BELLEVUE HOSPITAL—3. Psychopathic and alcoholic divisions; psychiatric, drug and alcoholic cases, Dr. M. S. Gregory.

MANHATTAN STATE HOSPITAL, Ward's Island (boat leaves East 116th Street every half hour)—3. Demonstration—pathologic laboratory—cerebral arteriosclerosis, brain tumors, Alzheimer's disease, pellagra, Dr. C. O. Cheney.

NEW YORK CITY CHILDREN'S HOSPITAL, Randall's Island (boat leaves East 125th Street every half hour)—2. Psychiatric and neurologic clinic, Drs. L. Pierce Clark, Walter Timme and John T. MacCurdy.

TUESDAY MORNING, JUNE 5

MANHATTAN STATE HOSPITAL, Ward's Island (boat leaves East 116th Street every half hour)—10:30. Staff conference and clinic, Dr. George H. Kirby.

POST-GRADUATE HOSPITAL—10. Clearing house for mental defectives; clinic, Dr. Max Schlapp.

SING SING PRISON, Ossining, N. Y.—10. Psychiatric clinic, Dr. Bernard Glueck.

TUESDAY AFTERNOON, JUNE 5

BLOOMINGDALE HOSPITAL, White Plains (via Grand Central Station)—2. Occupational and other therapeutic activities, Dr. William L. Russell.

NEUROLOGICAL INSTITUTE—5. Psychiatric clinic, Dr. Joseph Collins.

NEW YORK CITY CHILDREN'S HOSPITAL, Randall's Island (boat leaves East 125th Street every half hour)—2. Feeblemindedness, Dr. W. B. Cornell; institutional methods of examination, classification and obtaining services of specialists; tests for mental care.

(To be continued next week)

Marriages

JOHN R. LILLIENDAHL, M.D., Shippan Point, Stamford, Conn., to Miss Mabel Hume Andrews, at Noroton, Conn., April 19.

P. A. SURG. ROBERT FRANCIS JONES, U. S. Navy, to Miss Ann Elizabeth Penniman, in Savannah, Ga., April 24.

ANTHONY F. DEGRAFFENRIED, M.D., Bayside, L. I., N.Y., to Miss Amanda Butt of Adairville, Ky., April 21.

EDGAR ALLEN JOHNSON, M.D., New York City, to Miss Lola Estelle Beatty of Coaling, Ala., April 25.

HARRY WEBSTER BURNETT, M.D., Dayton, Ohio, to Miss Elizabeth Vale of Franklin, Ohio, April 19.

CHARLES FRANKLIN MOON, M.D., Superior, Wyo., to Miss Olga C. Olsen of Harlan, Iowa, April 23.

MARY A. MACMILLAN, M.D., Spokane, to Mr. Henry B. Rodney, at Great Falls, Mont., April 7.

WILL AMBROSE THOMPSON, M.D., to Miss Nelle O'Toole, both of Liberty, Ind., April 22.

ARTHUR WILLIAM KOESSEL, M.D., to Miss Eleanora Knoeller, both of St. Louis, April 21.

EDGAR WARD HILL, M.D., Dayton, Ohio, to Miss Helen Vale of Franklin, Ohio, April 19.

LESTER IRVING OFNER, M.D., to Miss Clara Pines, both of Chicago, recently.

FELIX J. BAUR, M.D., to Miss Helen M. Sweeney, both of Chicago, April 4.

Deaths

George H. Moody, M.D., San Antonio, Texas; Tulane University, New Orleans, 1896; aged 44; a Fellow of the American Medical Association, and vice chairman of the Section on Nervous and Mental Diseases in 1911; president of the State Medical Association of Texas, in 1916; president of the Medical Association of the Southwest, in 1909; once president of the Bexar County Medical Society and Fifth District Medical Society; a member of the American Medico-Psychological Association; for six years a member of the staff of the state insane hospitals at San Antonio and Austin; founder of the Moody Sanitarium for Mental and Nervous Diseases, San Antonio; died April 29.

DeWitt Webb, M.D., St. Augustine, Fla.; College of Physicians and Surgeons in the City of New York, 1863; aged 77; formerly a Fellow of the American Medical Association; a member and once president of the Florida Medical Association; acting assistant surgeon, United States Army, in 1886; mayor of St. Augustine, in 1912; at one time a member of the New York State Legislature; a member of the State Legislature of Florida, in 1903; president of the St. Augustine Historical Society and Institute of Science; died in the Flagler Hospital, St. Augustine, April 12.

Ephraim Cutter, M.D., West Falmouth, Mass.; Harvard Medical School, 1856; University of Pennsylvania, Philadelphia, 1857; aged 84; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; a well known microscopist and a food expert; formerly professor of morphology and applied medicine in the College of Physicians and Surgeons, Boston; a prolific contributer to the literature of dietetics and morphology; for many years a practitioner of New York City; died at his home, April 25, from cerebral hemorrhage.

Herbert McIntosh, M.D., Boston and Cambridge, Mass.; Bellevue Hospital Medical College, 1896; aged 60; a Fellow of the American Medical Association; president of the Thurber Medical Association in 1899; a specialist in roentgenology; assistant to the department of nervous and mental diseases of the Massachusetts General Hospital; author of a "Practical Hand Book of Medical Electricity"; medical examiner (coroner) for the Seventh Norfolk District from 1896 to 1901; who was admitted to the bar in 1888; died at his home in Cambridge, Mass., April 24.

John Lawrence Dawson, M.D., Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1881; aged 57; a Fellow of the American Medical Association; fermerly president of the South Carolina Medical Association and the Medical Society of South Carolina; emeritus professor of medicine in his alma mater; visiting physician to the City Hospital, Charleston, and in charge of the eye and ear clinic of the Shirras Dispensary, Charleston; died at his home, February 20, from pulmonary emphysema.

Henry T. Godfrey, M.D., Omaha, Neb.; Rush Medical College, 1865; aged 76; formerly a Fellow of the American Medical Association; a member of the Nebraska State Medical Association; until 1911 a practitioner of Galena, Ill., where he was one of the founders of St. Mary's Hospital; district surgeon of the Chicago and Northwestern System; assistant surgeon of the One Hundred and Fifty-Sixth Illinois Volunteer Infantry, during the Civil War; died at the home of his daughter in Omaha, April 17.

Henry McHatton, M.D., Macon, Ga.; Bellevue Hospital Medical College, 1881; aged 61; a Fellow of the American Medical Association; and president of the Medical Association of Georgia in 1904, and of the Macon, Ga., Medical Society in 1890; a founder and member of the board of trustees of the Macon Hospital, and later chairman of the board; assistant surgeon of the Central of Georgia Railway; died at his home, April 22, from endocarditis following influenza.

Adoniram Judson Banker, M.D., Columbus, Ind.; Medical College of Indiana, Indianapolis, 1876; Bellevue Hospital Medical College, 1880; aged 71; formerly a Fellow of the American Medical Association; formerly professor of principles of surgery in the Central College of Physicians and Surgeons, Indianapolis; proprietor of the Columbus Surgical Hospital; local surgeon for the Pennsylvania and Big Four systems; died at his home, April 23.

Edwin McLaren Williams, M.D., Memphis, Tenn.; College of Physicians and Surgeons in the city of New York, 1896; aged 43; once president of the Memphis and Shelby County Medical Society; assistant to the chair of anatomy and demonstrator of anatomy in Memphis Hospital Medical College; chief sanitary inspector of Memphis, from 1900 to 1905; died at his home, April 12.

John William Anderson, M.D., Richmond, Va.; University of Maryland, Baltimore, 1854; aged 82; a practitioner of Alabama until the Civil War; and during the war engrossing clerk in the Confederate Senate; later deputy clerk of the Hustings Board of Richmond, and examiner of real estate titles; who was admitted to the bar in 1884; died at his home, January 9, from uremia.

Sherman F. Chase, M.D., Caro, Mich.; Detroit Homeopathic Medical College, 1872; aged 72; one of the organizers and Supreme Medical Examiner of the Order of Gleaners; coroner of Tuscola County, Mich., for twenty years; for several years president of the village of Caro; died suddenly at the home of his nephew in Bay City, March 30, from acute gastritis.

Nathan Rosencrantz, M.D., San Francisco; Cooper Medical College, San Francisco, 1888; University of Wurzburg, Germany, 1888; aged 49; formerly a member of the Medical Society of the State of California; for four years city physician of San Francisco; surgeon to the Municipal Railways; died in Lane Hospital, San Francisco, April 17, from diabetes.

Lyman Little Whitaker, San Antonio, Texas (license, Texas); a practitioner since 1858; aged 82; a veteran of the Civil War; at one time surgeon general of the Grand Army of the Republic; for many years surgeon of the San Antonio & Aransas Pass and Gulf Shore railroads; assistant surgeon to the Southern Pacific System; died at his home, April 16.

Joseph Martin Good, M.D., Williston, Fla.; Chattanooga, Tenn., Medical College, 1898; aged 46; a member of the Florida Medical Association; while driving across a railway track at Raleigh, Fla., April 20, was run over by a train, sustaining a crushing injury of both feet at the ankles, and died nine hours later in St. Luke's Hospital, Jacksonville.

Edward V. MacDonald, M.D., Chicago; Harvard Medical School, 1886; aged 58; a Fellow of the American Medical Association; professor of principles of medicine in the Chicago Hospital College of Medicine; for many years a member of the staff of Cook County Hospital; died at his home, April 28, from heart disease.

Madison G. Nixon, M.D., Columbia, Ill.; St. Louis Medical College, 1865; aged 73; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; a veteran of the Civil War, in which he served as a surgeon of U. S. Volunteers; died at his home, January 12, from cerebral hemorrhage.

Otto Leslie Castle, M.D., Kansas City, Mo.; University of Michigan, Ann Arbor, 1909; aged 32; a Fellow of the American Medical Association; who established the pathologic laboratory at the Kansas City General Hospital, and conducted it for three years; died at his home, April 30, from typhoid fever.

Alexander Thomson, M.D., Sumas, Wash.; College of Physicians and Surgeons, Baltimore, 1909; aged 44; a member of the Washington State Medical Association; and since 1912 a member of the staff of the Dalton Hospital, Sumas; died in that institution, April 19, after an operation for acute appendicitis.

John Wesley Pollard, M.D., Los Angeles; Cincinnati College of Medicine and Surgery, 1889; aged 56; formerly health officer of St. Johns, Mich., and physician of Clinton County, Mich.; surgeon to the Clara Barton Hospital, Los Angeles; was found dead in his office, April 14, from heart disease.

Roscoe George William Kinder, M.D., Rockford, Ill.; College of Physicians and Surgeons, Chicago, 1901; aged 41; a Fellow of the American Medical Association; a member of the attending staff of the Rockford City Hospital; died in that institution, April 19, from acute suppurative peritonitis.

Herschel N. Waite, M.D., Johnson, Vt.; Eclectic Medical College of the City of New York, 1882; aged 67; formerly a Fellow of the American Medical Association; a member of the Vermont State Medical Society; health officer of Johnson for nine years; died at his home, March 9, from nephritis.

William Appleton Bell, M.D., Somerville, Mass.; Harvard Medical School, 1876; aged 66; a member of the Massachusetts Medical Society, and formerly president of the Somerville Medical Society; visiting physician to the Somerville Hospital; died at his home, April 3, from angina pectoris.

John Calvin Sutherland, M.D., St. Joseph, Mo.; St. Joseph, Mo., Hospital Medical College, 1879; aged 78; a member of the Missouri State Medical Association, and for many years a practitioner of Savannah, Mo.; died in St. Joseph Hospital, St. Joseph, April 24, after a surgical operation.

Justo del Risco, Jr., M.D., Center Moriches, N. Y.; College of Physicians and Surgeons in the City of New York, 1879; aged 58; formerly a practitioner of Brooklyn, and for many years a member of the staff of the DeMilt Dispensary; died in Brooklyn, April 13, from heart disease.

Frank G. Williams, M.D., Jacksonville, Fla.; Southern Medical College, Atlanta, Ga., 1891; formerly surgeon to the Camp Lumber Company, White Springs, and local surgeon of the F. C. and P. Railway, at Maclenney, Fla.; died in a hospital, in Jacksonville, April 20.

Erastus Test, M.D., Lafayette, Ind.; University of Michigan, Ann Arbor, 1868; Indiana Medical College, Indianapolis, 1873; aged 80; for more than half a century a teacher and since 1888 professor of mathematics in Purdue University, Lafayette; died at his home, April 22.

Sigmund Beck, M.D., Brooklyn; New York University, New York City, 1892; aged 50; formerly a member of the Medical Society of the State of New York; for many years visiting pediatrist to the Coney Island and Bay Ridge hospitals; died at his home, April 22.

William Edward Douglas, M.D., Middletown, N. Y.; Bellevue Hospital Medical College, 1876; aged 62; a Fellow of the American Medical Association; and a member of the medical staff of Thrall Hospital, Middletown; died at his home, April 21, from nephritis.

Samuel Joseph Bassford, M.D., Portland, Me.; Medical School of Maine, Brunswick, 1881; aged 68; a Fellow of the American Medical Association; died in St. Barnabas Hospital, Portland, March 16, from secondary hemorrhage, following a surgical operation.

Landon Augustus Colquitt, M.D., Rio Vista, Texas; Vanderbilt University, Nashville, Tenn., 1895; a member of the State Medical Association of Texas; aged 64; died at his home, April 19, from heart disease.

Henry Frost, M.D., Marshall, Va.; Medical College of the State of South Carolina, Charleston, 1861; aged 77; a member of the Medical Society of Virginia; died at his home, March 23.

John Buchanan Wilson, M.D., Ottumwa, Iowa; Trinity Medical College, Toronto, Ont., 1879; aged 44; a Fellow of the American Medical Association; died in Kansas City, Mo., April 20.

The Propaganda for Reform

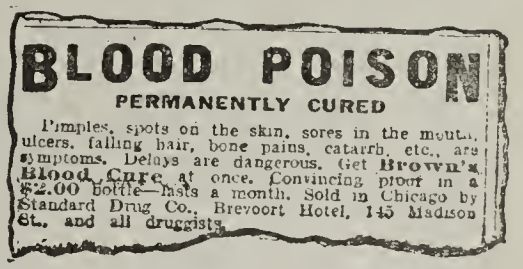
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED NOSTRUMS

Whitehall's Megrimine.—The Dr. Whitehall Megrimine Co., South Bend, Ind., shipped in interstate commerce two batches of "Dr. Whitehall's Megrimine" which the government declared was misbranded. One of the batches was analyzed by the Bureau of Chemistry and reported to contain 211.88 grains of acetanilid to each avoirdupois ounce. Caffein and salol also were present. The average weight of the contents of one capsule was 5.66 grains. The second batch consisted of white capsules and pink capsules. The contents of the former, according to the analysis of the Bureau of Chemistry, were found to be a mixture of acetanilid (210.3 grains per avoirdupois ounce) caffein and salol. The average weight of the contents of one capsule was 6.24 grains. The pink capsules were found to contain antipyrin 98.03 per cent. and cayenne pepper. The government charged that the claim that these products were effective for the relief of all forms of headache and neuralgia, were a stimulant and tonic for the nerves and for relieving nervous exhaustion were false and fraudulent and made knowingly and wantonly. The company pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 4540.*]



Brown's Blood Treatment.—This preparation was manufactured and sold by the Brown Co., 935 Arch St., Philadelphia, and had formerly been called "Brown's Blood Cure." The preparation was analyzed by the federal chemists, who reported that it contained 5.65 grams of potassium iodid and 0.1 gram of a mercury compound to each 100 c.c. It was claimed to be a cure for syphilis in all its forms and to be effective in the treatment of all forms of rheumatism, chronic sores, chronic ulcers, scrofula, boils, carbuncles, eczema, contagious blood poison and various other conditions. These claims were declared to be knowingly and wantonly false and fraudulent. The company pleaded guilty and was fined $100.—[*Notice of Judgment No. 4443.*]



Classe's Great Penetrating Liniment.—William P. Diggs of St. Louis, who traded under the name W. P. Diggs & Co., sold this preparation, which contained 64 per cent. alcohol, 10 minims of tincture of opium to the ounce and 38 minims of chloroform to the ounce. Government chemists reported that analysis showed the liniment to be "an alcoholic solution of ammonia, chloroform, opium, camphor, oil of sassafras, oil of origanum and a thujone-containing oil such as thuja." The government declared that the claims that this liniment would prevent blood poison from wounds, was a remedy for tuberculous sores, would remove goiter and was a certain cure for colic in horses and mules were knowingly, reck-

lessly and wantonly false and fraudulent. Diggs pleaded guilty and was fined $10 and costs.—[*Notice of Judgment No. 4424.*]

Brown's "935" Injection (Formerly H. W.).—The Doctor Brown Company, Philadelphia, shipped in interstate commerce a quantity of "Brown's '935' Injection (formerly H. W.)." The Bureau of Chemistry reported that the preparation was "a dilute solution of acetate and sulphate of zinc." Some of the claims made for it were:

"Invaluable as a Preventive and in the Treatment of Chronic Gonorrhoea, Gleet, Whites, Etc."

"A Preventive and a Certain and Speedy Remedy for Chronic Gonorrhoea, Gleet, Whites, Etc."

These and similar claims were declared false and fraudulent. The company pleaded guilty and was fined $75.—[*Notice of Judgment, No. 4143.*]

Correspondence

TYPHOID IN AMERICAN CITIES

To the Editor:—I wish to comment on how false may be the impression of betterment of any one city's record comparable to neighboring cities as shown in the recent fifth annual report on typhoid fever. Each year the footnote reads that a false exaggeration is possible because nonresident deaths are recorded as well as resident deaths. For the cities in Connecticut there was reported to the state board of health for 1916, as total typhoid deaths, Bridgeport, 11; Hartford, 20, and New Haven, 12. This would give a rate per hundred thousand population of 9, 18.1 and 8, respectively. As printed in The Journal, the rates read 9, 6.3 and 8, respectively. The difference I find is that Hartford alone of the three cities returned resident deaths alone, seven in number. Instead of leading, Hartford either has a record no different from the previous year, or else if nonresident deaths do not count, New Haven's record becomes 5.3, with four nonresident deaths excluded. It would seem probable that other cities may have done the same to obtain a record, in which case such a point should be considered in obtaining the sixth annual report.

Also I would ask if it were not possible for a more critical criticism to be made of individual cities in terms of their own problems. For example, in 1915 the report asks why New Haven should continue to have ten times as much typhoid as Cambridge. Massachusetts probably and Rhode Island for certain are on record as having house closets even in rural neighborhoods. New Haven like the South, unlike the North, has yet numerous privies on sewered streets, let alone countless numbers on unsewered streets. New Haven's greatest sanitary expert, Prof. William H. Brewer, professor of sanitary science, Sheffield Scientific School, as president of the board of health placed himself yearly, even daily, on record for years that New Haven's typhoid problem was but one of privies. The survey for Springfield, Ill., placed that city also in the same class. Were it possible to make every city health officer criminally liable for typhoid deaths in excess of a rate of 10, I believe many cities the country over would have both active officials as well as a low typhoid rate by merely counting the number of privy vaults in their cities before abolishing them. Privy vaults and typhoid are not a special province of the South. An increase of population in Bridgeport due to munition workers should not explain an increased rate when New Haven had as great an increase of population for the same reason. Your compiler of statistics can then force improved rates from some cities by merely compelling the health officials of these cities to record resident and nonresident deaths separately as well as publishing their declaration as to the definite individual problem of that city which may not be water, milk or foods which yearly are the presumed factor.

D. M. Lewis, M.D., New Haven, Conn.

[Comment.—The point raised regarding the possible false impression obtained by comparing one city with another, due to one city giving the total number of typhoid deaths and another only the number of deaths in cases arising in the city, was taken into account. Effort was made to secure the total number of deaths from typhoid fever in each of the cities named. It is conceded that, in order to be fair, the comparison should be made on this basis in each instance, and the footnote referred to was appended to call attention to the possibility of error in this respect. If figures were called for to show separately the number of typhoid deaths of nonresidents, or in cases arising from causes within and without the cities, the judgment or opinion of the health boards or officers compiling the figures would enter in and the conclusions deduced might be still more unfair than in the first instance. The suggestion that our study should be more critical of individual cities in terms of their own problems is perhaps pertinent, but this would be practically impossible. The further suggestion "to make every city health officer criminally liable for typhoid deaths in excess of 10" would be extremely unfair in view of the grossly inadequate assistance and appropriations for health work in every city in the land, and the shortcomings in other conditions bearing on typhoid fever, over which the city health officer has no possible control.—Ed.]

SHORTAGE OF SALVARSAN AN INTOLERABLE BURDEN

To the Editor:—I have noted with great interest and satisfaction the beginning of a determined effort on the part of the Chicago and some other medical societies, to do away with the salvarsan patent burden. It is a relief, at last, to see the city men taking up a matter which has become an intolerable burden to us all. I hope and pray that this will not prove merely a sporadic effort, but that The Journal and all active medical periodicals as well as every county medical society will make this matter a propaganda which cannot be ignored by Congress. D. Powell Johnson, M.D., Muscatine, Iowa.

THE DATING OF BIOLOGIC PRODUCTS

To the Editor:—The report of the Council on Pharmacy and Chemistry on this subject (The Journal, March 3, 1917, p. 728) seems to me a distinct advance. In a discussion of the matter with those active in the Council, it was suggested that a statement of the procedures adopted in the Bureau of Laboratories of the Department of Health, New York City, as well as our attitude toward additional requirements, would be of interest to the readers of The Journal. In the course of this statement, certain of the regulations of the Council are questioned. This is not to be interpreted as a criticism, as the regulations adopted by the Council are evidently preliminary and no doubt will be amplified with further experience in their enforcement.

Our present rules covering the distribution of biologic products are as follows:

1. The label on all bacterial vaccines must state the date of preparation. (This means the day suspensions are made, standardized and killed.)
2. The label on all serums other than antitoxins shall state the date of bleeding.
3. The label on antitoxins shall give the "Date tested XXXX," this being the date of last test on this preparation.
4. The label on vaccine virus shall, like the antitoxins, have the "date tested," this being the date of last test.

We have no intention of extending the periods of potency of bacterial vaccines (four months) or of the serums (nine months) other than the antitoxins until we have very specific data on which to act. The only possible exception is typhoid vaccine. The additional and necessary potency tests demanded by the Hygienic Laboratory as at present carried out mean practically a month's time in preparation. We may be compelled, as soon as we have sufficiently fair presumption to act on, to label the vaccine for four months' potency after completion of the tests. Comparative work indicates that it may be possible to determine the antigenic value in about ten days. The Hygienic Laboratory is at work on this problem, and if the shorter period method is successful, no change will be necessary for the present.

It might be well to state briefly our method of handling vaccine virus. The green virus is shipped to the laboratory

in a portable ice chest, the temperature of which varies from 5 to 8 C. It is immediately finished on its arrival and placed in cold storage on the same day, the temperature of storage being —15 C. As a rule, two weeks at least must elapse before sufficient purification takes place so that the virus will pass the bacteriologic tests required by the Hygienic Laboratory. Potency tests are then undertaken. This consists of a vaccination of children, and 100 per cent. of "takes" is necessary to pass a virus. The period of time in cold storage before potency tests are made varies from four to eight weeks. As soon as a potency test is completed, a return date of six months later is placed on this batch of virus (three months in summer) whether it is issued at this time or not. All viruses are retested every month. When issue is started, tests are made biweekly, and should they fail to give 100 per cent. of "takes," the virus is recalled. As the batch is issued, the date of the last test is stated; but the date of return remains the same for all of this batch, as stated above. All virus is kept in cold storage till issued. We have nearly always on hand parts of batches which have been in cold storage six months or more after the first potency tests. This, being continually tested, if 100 per cent. potent, is used locally in the department. We reserve the privilege of issuing such virus in emergencies, if we have a guarantee that it will be used promptly. Within the city limits the distribution stations are controlled by inspection so that adequate refrigeration is maintained. Naturally we have no responsibility as regards vaccine virus purchased by others for distribution.

I think you will agree with me that the methods employed more than meet the demands of the Council and, with the human potency tests, comprise as near an ideal system as can be devised for the protection of the purchaser.

In the regulations in their present form there are several points which seem to me to leave opportunities for misunderstanding if not for actual fraud. For instance, "the date of killing of the bacteria shall be taken as the date of manufacture" (Section 3). Does not this leave a loophole by which bacterial suspensions could be placed in cold storage and heated at any time thereafter, and this given as the date of killing?

The intention of Section 4 is not clear to me. As I understand it, it seems to defeat the purpose of the preceding paragraphs. Does this mean that serums other than antitoxins and bacterial vaccines can be placed in cold storage for 364 days after actual preparation or date of bleeding and then issued with a new date (issue), implying that the latter date is the date of preparation or of bleeding? If so, I do not see how your regulations will improve present conditions.

The same objection holds as regards the "date of manufacture" of vaccine virus. I agree that the potency will be maintained to a large extent under the conditions given, but why not qualify, for example, that the actual date of potency test within the periods mentioned, will be accepted, the date of "testing" to be stated, not a pseudodate of preparation?

I cannot but feel that a uniform demand for the date of preparation should be demanded for all bacterial vaccines, the date of bleeding on all serums, and the last date of potency tests for antitoxins and for vaccine virus would be better than to allow substitute terms such as date of issue, etc. The duration of potency allowed could then be based on the facilities for storage and the influence of the latter on potency.

Another point which I should like to raise, which undoubtedly the Council is considering, is the labeling of certain products as to their contents and, wherever feasible, as to their potency. For instance, pneumococcus serum means nothing without a statement as to "type," and furthermore there seems no reason why the potency of the serum in relation to "type" should not be required. In the case of some serums, such statements are not immediately feasible because we know relatively little, first, as to the relationships of the bacteria used for immunization and, secondly, as to determining potency. Even the results of imperfect tests in some instances are preferable to none at all, and would at least indicate that every effort was being made to keep the product up to its highest efficiency. At least the physician has a right to know everything concerning the content and potency of a product. When because of a lack of knowledge we cannot guarantee either the applicability to a given case or the potency of a product, we should frankly say so.

One great step in this direction would be a demand for the discontinuance of the term "polyvalent" unless evidence is submitted that a product is truly polyvalent. For instance, a polyvalent pneumococcus or streptococcus vaccine or serum is a practical impossibility with our present knowledge, yet such terminology is used and the physician misled.

WILLIAM H. PARK, M.D., New York.
Director, Bureau of Laboratories, Department of Health, City of New York.

COMPULSORY HEALTH INSURANCE

To the Editor:—May I point out one feature of the health insurance bill as at present drafted which, while seemingly of especial interest to the medical profession, is really of equal interest to the community, but which is usually ignored? Certainly its importance to the beneficiaries of the bill and hence to the general community seems to be overlooked. I refer to the fact that no specific price is set for the services of the physicians who will be required to do the actual work in caring for and protecting the health of the workers. It is stated by the sponsors for the bill that it is desirable to leave the determination of fees to the commission. It is estimated by those favoring the bill that for $2,000 annually physicians need make only from twenty to thirty calls a day, and we are given to understand that such an assured income is a very liberal one for a physician, while the amount of work required of him is sufficiently light to permit him ample time for sleep, rest, recreation and study. Striking an average with these figures, we find that twenty-five calls a day total 9,125 calls a year, for which a return of $2,000 a year is to be considered liberal! This figures out 22 cents for each call. Do the well intentioned sponsors of the bill really believe that human beings practicing medicine are so different from human beings in other walks of life that for 22 cents they will render service worth much more than 22 cents? Or do they believe that medical service rendered at a cost of 22 cents a call ever was or ever will be competent and thorough? It is well for all to understand that incompetent, hasty and slipshod medical service is much worse than none at all, for unaided nature can do better by the sick than the careless and hasty physician. It also cannot be too emphatically stated that no decent and self-respecting physician who cares anything about the quality of his work and about the effect of his service on his patients' health, can, single handed, make twenty-five calls a day and have left time enough to eat, rest, sleep, study and even sometimes play. In these swiftly moving times, what physician can keep afloat who has not time to read and study? And what human being can profit from reading and study attempted when physically and mentally exhausted? Therefore let all concerned clearly understand that, if it is sought to compel the earner to have medical attention which he now often fails to get, though he may sorely need it, the medical attention is worth having only if it is carefully and competently administered, and careful and competent medical service cannot be had at a price which will buy only the poorest and most incompetent. An underpaid doctor will not do good work; an overworked doctor cannot do good work.

M. SCHULMAN, M.D., New York.

Repairing Rubber Gloves.—N. I. Spriggs, M.D., a correspondent in the *Lancet,* March 31, 1917, describes his method of repairing rubber operating gloves by vulcanizing them, similar to the manner in which automobile tubes are repaired. Spriggs devised an electric vulcanizer for the purpose which he says is used in many military and civil hospitals, and a saving of 50 per cent. in glove bills may be effected in this way. The patches applied in this manner are so small as to be almost impalpable, they do not come off even after repeated sterilizations, a new finger can be put on, a long slit can be repaired, a new wrist affixed or two damaged gloves made into one good one.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DETECTION OF TUBERCLE BACILLI IN THE FECES

To the Editor:—In THE JOURNAL, Feb. 17, 1917, p. 588, in an abstract of an article in *Hygica,* mention is made of the Rch ether extraction method of detecting tubercle bacilli in the feces. Can you furnish me with the technic of Reh's method? Also with the technic of the Engleson method likewise mentioned in the abstract?

HAROLD H. FOX, Tallahassee, Fla.

ANSWER.—The Reh method was described in the *Zeitschrift für Tuberkulose,* 1913, **21,** 209, and lauded as extremely simple and reliable, its superiority over other methods in vogue being shown by the tabulated findings with comparative tests with the Kozloff, antiformin and a diluted ether method. The lump of stool in an Esbach glass is stirred with a glass rod into enough freshly distilled boiled water to make a soft paste, solid enough not to flow when the glass is tilted. Then ether is added and the whole is briefly shaken, the glass stoppered with rubber. Then the ether is poured off into a centrifuge glass. A single centrifugation answers, and even this can be dispensed with, as the sediment settles soon on setting the glass aside. The ether is then decanted and the sediment is shaken up with a little remnant of the ether and poured out on the object glass. It adheres to the glass and the Ziehl stain is then applied. The sediment may be found to consist predominantly of bacteria. Positive findings were obtained in the feces when they were not to be found in the sputum in some cases, and in others when there was no expectoration. Engleson's method consists merely in scraping the rectal mucosa with an ordinary sound which has been hollowed out at one end to make a spoonlike cavity. The sound is introduced for a few centimeters into the rectum and drawn around to scrape the surface. The grayish slimy mass thus collected in the spoon cavity is smeared directly on the object glass.

LITERATURE ON WHOLE TIME HEALTH SERVICE

To the Editor:—Please inform me where I can find literature on the subject of whole time health service, and also where I can get information as to the names of cities and large towns which employ a whole time health officer.

Have any articles on this subject appeared in THE JOURNAL during the past year?

S. H. BOYER, M.D., Duluth, Minn.

ANSWER.—

Abercrombie, T. F.: Plea for All Time Health Officer in Every County, *Georgia Med. Assn. Jour.,* February, 1916.
Way, J. H.: Rural Sanitation in South, Two Vital Forces, Whole Time County Health Officer and Specialized Units of Health Work by State Boards of Health, *South. Med. Jour.,* March, 1916.
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THE TWO MASCAGNIS: MUSICIAN AND ANATOMIST

To the Editor:—Kindly inform me if you have given in your column of "Tonics and Sedatives" Mascagni, the author of "Cavalleria Rusticana" and other works, as being an investigator of the lymphatics a century ago? See THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 17, 1917, page 850, first column. I hear Morgagni exclaim: "What is fame?"

E. E. BLAAUW, M.D., Buffalo.

ANSWER.—This item does not belong in Tonics and Sedatives. The statement to which Dr. Blaauw refers occurs in an editorial on "The Lymphatics and Infections of the Urinary Tract."

No one can charge the deficit in our knowledge of the lymphatics to the novelty of the subject, for more than a century has elapsed since the lymph system in its entirety was described by Mascagni.

Paolo Mascagni was an Italian anatomist who lived from 1755 to 1816. He wrote a most complete work on lymphatics. This work was entitled "Vasorum lymphaticorum corporis humani historia et iconographia," Sienne, 1787, in-fol., with forty-one plates.

Pietro Mascagni was an Italian composer, born 1863. Besides various musical works and songs, he wrote the operas "Cavalleria Rusticana," "L'Amico Fritz" and "I Rantzau."

Giovanni Battista Morgagni, 1682-1771, was also an Italian anatomist and pathologist who is regarded as the founder of pathologic anatomy, and his most famous work is "De sedibus et causis morborum per anatomen indagatis" libri V, Venice, 1761. Numerous anatomic structures are associated with his name. He did no special work on the lymphatics.

Dr. Blaauw's sense of hearing must be very acute if he hears Morgagni complain because he is not credited with something he never did.

LUBRICATING JELLY

To the Editor:—1. What is the composition of "K-Y Lubricating Jelly"?

2. Can you furnish a formula for a simple nongreasy lubricating jelly?

S. T.

ANSWER.—1. The composition of "K-Y Lubricating Jelly" has not been divulged. Examination of the advertising matter reveals only meaningless statements, such as: "This is a judicious combination of vegetable products . . . Combined in well balanced proportions with non-irritating antiseptics . . . ," "It incorporates a sufficient quantity of mild antiseptics (of the Thymol class) . . ." and ". . . contains *NO* formaldehyde."

2. Probably a simple tragacanth jelly, which can be made cheaply, will produce the same effects as those of the proprietary preparation. The following formula was published by Mr. J. K. Thum, apothecary at the German Hospital, Philadelphia (*Druggists Circular,* September, 1915, p. 586):

LUBRICATING JELLY

Tragacanth, whole	3 gm.
Glycerin	25 c.c.
Phenol	1.5 gm.

Distilled water, a sufficient quantity to make 300 c.c. The tragacanth is broken in small pieces, and put into a wide-mouthed bottle; the other ingredients are added and the bottle frequently shaken.

In regard to this formula, Mr. Thum writes:

It has been used in our gynecologic department for years. . . . For the last six years we have been dispensing it in collapsible tubes throughout the hospital for general work.

USE OF SALVARSAN IN TABES WITH OPTIC ATROPHY

To the Editor:—Is salvarsan contraindicated in a case of moderately advanced tabes in which there are symptoms, one eye being almost blind. Any information you can give me on the treatment of tabes will be greatly appreciated.

Please omit my name.

L. L. A.

ANSWER.—It is asserted by some observers that salvarsan occasionally produces optic atrophy. Others, however, including men who have had extensive experience in the use of this drug, believe that it has no injurious effect on the eye. As blindness caused by optic atrophy occurs in about 10 per cent. of cases of tabes, it is well to warn the patient of this fact, and that his vision is liable to become impaired after treatment with salvarsan. If given at all, it should be administered early in the disease.

THE OLD AUTOMOBILE SUPPLY SCHEME

To the Editor:—For the benefit of those who might be as easy as I, please publish this. A man representing a firm known as the Smith Morris Service Company, of 2417 State Street, Chicago, called on me stating that by depositing $15 with him I would be a member of the Smith Morris Service Company and would receive all automobile supplies that I might purchase from the said company at cost f. o. b. factory for two years from date. I tried him out on half to show what I could save, the balance to be paid when I saw the good it would do me. I was done good. My letters to the firm so named came back "unknown."

M. BURNETT WEAVER, M.D., Miamisburg, Ohio.

COMMENT.—There are not many who would acknowledge their error as Dr. Weaver has done. The scheme is, of course, an old one, and is being worked right along.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, June 19-21. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA, Regular: Palatka, June 19-20. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 14-16. Sec., Dr. C. St. Clair Drake, Springfield.

IOWA: Iowa City, June 7-9. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, June 19-21. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.

MARYLAND: Baltimore, June 19. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MICHIGAN: Ann Arbor, June 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 5-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 19-20. Sec., Dr. W. S. Leathers, Oxford.

MISSOURI: St. Louis, June 18. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW JERSEY: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, 438 East State St., Trenton.

NEW YORK: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.

OHIO: Columbus, June 11-14. Sec., Dr. George H. Matson, State House, Columbus.

OREGON: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.

SOUTH CAROLINA: Columbia, June 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 15-16. Sec., Dr. A. B. De Loach, Scimitar Bldg., Memphis.

TEXAS: Austin, June 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, June 19-22. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

District of Columbia January Report

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, Jan. 9, 1917. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, of whom 8 passed and 5 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	84.6
Chicago College of Medicine and Surgery		(1915)	85.5
Rush Medical College		(1914)	82.9
University of Maryland		(1913)	78.6, 82.2
Cornell University		(1911)	88.2
Temple University		(1915)	77
University of Virginia		(1914)	87.1
	FAILED		
Baltimore Medical College		(1905)	71.9
College of Physicians and Surgeons, Boston*		(1916)	72.7
Minneapolis College of Physicians and Surgeons		(1909)	73.4
Meharry Medical College		(1916)	69.6, 69.9

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Howard University		(1912)	W. Virginia
Medico-Chirurgical College of Philadelphia		(1904)	New Jersey
University of Virginia		(1908)	W. Virginia

* This college reported not recognized by the Massachusetts Medical Society.

Indiana January Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Jan. 9-11, 1917. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed, including 1 osteopath. One candidate did not complete the examination. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1917)	87.2
University of Michigan Medical School		(1915)	93.8
University of Pennsylvania		(1913)	92.1

South Dakota January Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Pierre, Jan. 10, 1917. The total number of subjects examined in was 15; total number of questions asked, 125; percentage required to pass, 75. The total number of candidates examined was 8, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1916)	77.7
Rush Medical College	(1915)	86.1; (1916)	86.1
Kentucky School of Medicine		(1893)	80.5
Detroit College of Medicine and Surgery		(1916)	87.7
University of Minnesota		(1916)*	87.3
Washington University		(1910)	79.5
John A. Creighton Medical College		(1909)	85.1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1913)	Colorado
University of Pennsylvania		(1914)	Minnesota

* In 1917, on completion of a year's internship, will receive diploma dated 1916.

Vermont February Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the practical and written examination held at Montpelier, Feb. 13-15, 1917. The total number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 3, of whom 2 passed and 1 failed. One candidate was granted a reregistration license by examination. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1915)	76.9
Tufts College Medical School		(1916)	85.4
	FAILED		
Kentucky School of Medicine		(1906)	59.1

Book Notices

A MANUAL OF PHARMACOLOGY AND ITS APPLICATIONS TO THERAPEUTICS AND TOXICOLOGY. By Torald Sollmann, M.D., Professor of Pharmacology in the School of Medicine of Western Reserve University. Cloth. Price, $4.50 net. Pp. 901, with illustrations. Philadelphia: W. B. Saunders Company, 1917.

A LABORATORY GUIDE IN PHARMACOLOGY. By Torald Sollmann, M.D., Professor of Pharmacology in the School of Medicine of Western Reserve University. Cloth. Price, $2.50 net. Pp. 355, with 62 illustrations. Philadelphia: W. B. Saunders Company, 1917.

The manual, the larger of the two books, is intended for both study and reference. According to the preface:

> Pharmacology comprises some broad conceptions and generalizations, and some detailed conclusions, of such great and practical importance that every student and practitioner of medicine should be absolutely familiar with them. It comprises also a large mass of minute details which would constitute too great a tax on human memory, but which cannot safely be neglected. It is the ambition of this book to present both types of information without confusion. The matter in the larger print aims to give a connected and concise statement of the essentials of pharmacology. The smaller print need not be considered by the reader who wishes to obtain merely a general knowledge of pharmacology. It contains more detailed data for consultation. Side headings have been introduced liberally to facilitate this use.

The manual is of such broad scope that only a few of the most important subjects can be be mentioned in a review; for example, under the treatment of disease are considered the chemical and physical basis of pharmacology, the manifestations of pharmacologic actions, classification of drugs according to selective action, the administration of drugs, conditions influencing absorption, the excretion of drugs, dosage (posology), and conditions influencing drug actions. Introductory topics include pharmacy, toxicology and prescription writing. The book gives a concise description of each drug, its source and its chemical and physical properties. The pharmacologic actions of the drug are then discussed in a comprehensive and painstaking way, and the therapeutic possibilities and limitations discriminatingly indicated. Drugs

of doubtful value are considered as fully as their importance warrants. The principal drug preparations and their dosages are listed. Exhaustive references to the literature are everywhere given, and for this all those interested in the study of medicine will be grateful to Dr. Sollmann. By placing the fundamentals in coarse print and the supplementary information in fine print, he has admirably succeeded in combining a manual and a reference work: The subject matter in coarse print, if considered alone, constitutes a textbook in pharmacology, while the book as a whole is practically an encyclopedia of the subject. The book is sound, contains a wealth of material well digested, and is a distinct credit to American pharmacology. The busy practitioner who wishes to know the present-day therapeutic status of any drug likely to be encountered should possess this book, as it gives an up-to-date estimate of drugs, which every practicing physician will find of direct interest and value. The time is past when the "clinical" estimate for a drug can longer be based on uncritical observations and statements handed down from book to book. Physicians who are abreast of the times must know the scientific evidence for the value of drugs, and for this they can obtain no better work than Dr. Sollmann's manual.

A Laboratory Guide in Pharmacology contains concise directions for performing experiments. In Part I the exercises include general reactions of plant constituents, pharmaceutic preparations, isolation of poisons, special tests for the more important alkaloids, glucosids, neutral principles and aromatic and aliphatic compounds and heavy metals, chemical study of the excretion of drugs in man, chemical antidotes, adsorption by colloids, selective solvents, osmosis and diffusion, effects of drugs on hemoglobin and on ferments, and many other topics. Part II is devoted to experiments on animals, and includes localization of actions, muscular contraction, perfusion experiments, the fate of drugs, and metabolism, with many subdivisions showing the effects of drugs on respiration, temperature and kidney excretion. Two sizes of type are used in the text. The more important topics are given in coarse print. These are confined strictly to the bare essentials needed by students who intend to become general practitioners of medicine, special stress being laid on the facts which have a direct practical bearing. Longer course demonstrations, etc., are introduced as optional in fine print. These are intended primarily for the instructor and investigator, and include numerous references to the literature, where more detailed information and different methods may be found. As the pharmacologist must be a chemist primarily, many of the exercises and tests described should be of distinct value to pharmaceutic and physiologic chemists, as well as to practicing physicians.

Pharmacology is one of the correlated medical sciences of recent growth, yet at the present time it stands on a firm footing. It is preeminently a laboratory and experimental subject. It can be approached in no other way. There is scarcely a branch of medical science that requires such specialized knowledge. Pharmacologic experimentation is fundamentally necessary for the development of the science of medicine, for the ultimate object of medicine is to cure disease, and the methods of attempted cure must be subjected to the most searching analysis regarding their efficiency and freedom from danger. The old days of therapeutic nihilism are past, not to return. Synthetic chemistry has been largely instrumental in accomplishing the transformation. Hosts of new drugs and chemicals are ready for therapeutic analysis. It is evident, therefore, that the pharmacologist must be a specialist, and it is equally evident that the author of pharmacology should be one who has been trained and developed as a specialist. Yet it is unfortunately true that most of the authors of pharmacologies in English are clinicians who have had early experience as pharmacists. They have had little, if any, personal experience or training in pharmacology. They are not specialists. For this reason it is a great pleasure to turn to such books as these by Dr. Sollmann, written by a man with great technical knowledge. He speaks with the authority of one with extensive personal experience. His discrimination is therefore good, his criticisms just, and his conclusions justifiable.

Medicolegal

Validity of Laws Fixing Minimum Percentage of Butter Fat for Ice Cream

(Hutchinson Ice Cream Co. et al. vs. Iowa. Crowl vs. Pennsylvania. (U. S.), 37 Sup. Ct. R. 28)

The Supreme Court of the United States, in these two cases, which were argued together, affirms judgments of the state supreme courts upholding state statutes which prohibited the sale of ice cream containing less than a fixed percentage of butter fat, the Iowa statute making 12 per cent. the required minimum, and the Pennsylvania statute 8 per cent. Mr. Justice Brandeis delivered the opinion of the court, which says that the statutes were assailed as invalid under the fourteenth amendment to the federal constitution. The plaintiffs in error (defendants) did not contend that the particular percentage of butter fat set by Iowa and Pennsylvania were so exacting as to be in themselves unreasonable. Thirteen other states have by similar legislation set 14 per cent. as the minimum, and five other states 12 per cent.; only eight states have fixed a percentage as low as Pennsylvania, and the United States Department of Agriculture has declared 14 per cent. to be standard. The main objection urged was this: To require that ice cream, in order to be legally salable, must contain some butter fat is a regulation so unreasonable and arbitrary as to be a deprivation of property without due process of law and a denial of the equal protection of the laws. To support this contention the following trade facts were shown: The ice cream of commerce is not iced or frozen cream. It is a frozen confection—a compound. The ingredients of this compound may vary widely in character, in the number used, and in the proportions in which they are used. These variations are dependent on the ingenuity, skill and judgment of the maker, the relative cost at a particular time or at a particular place of the possible ingredients, and the requirements of the market in respect to taste or selling price. Thus, some Philadelphia ice cream is made of only cream, sugar and a vanilla flavor. In making other Philadelphia ice cream the whites of eggs are added; and according to some formulas vanilla ice cream may be made without any cream or milk whatsoever; for instance, by proper manipulation of the yolks of eggs, the whites of eggs, sugar, syrup and the vanilla bean. All of these different compounds are commonly sold as ice cream, and none of them is necessarily unwholesome. Plaintiffs in error contended that as ice cream was shown to be a generic term embracing a large number and variety of products, and the term as used does not necessarily imply the use of dairy cream in its composition, it is arbitrary and unreasonable to limit the ice cream of commerce to that containing a fixed minimum of butter fat. But the legislature may well have found in these facts persuasive evidence that the public welfare required the prohibition enacted. The facts show that, in the absence of legislative regulation, the ordinary purchaser at retail does not and cannot know exactly what he is getting when he purchases ice cream. He presumably believes that cream or at least rich milk is among the important ingredients; and he may make his purchase with a knowledge that butter fat is the principal food value in cream or milk. Laws designed to prevent persons from being misled in respect to the weight, measurement, quality or ingredients of an article of general consumption are a common exercise of the police power. The legislature defines the standard article or fixes some of its characteristics, and it may conclude that fraud or mistake can be effectively prevented only by prohibiting the sale of the article under the usual trade name, if it fails to meet the requirements of the standard set. Laws prohibiting the sale of milk or cream containing less than fixed percentages of butter fat present a familiar instance of such legislation. This court has repeatedly sustained the validity of similar prohibitions. The conviction here under review was for selling the "compound" as ice cream, so that this court is not called on to determine whether the state may, in the exercise of its police power, prohibit the sale even of a wholesome product, if the public welfare appears to require such action

—and if, as here, interstate commerce is not involved. Nor is it necessary to consider whether the statutes are or are not assailable as health measures; and on this the court expresses no opinion.

Speculation as to Cause of Condition Not Tolerated

(Anton vs. C., M. & St. P. Ry. Co. (Wash.), 159 Pac. R. 115)

The Supreme Court of Washington affirms a judgment of nonsuit, on the ground that the testimony was insufficient to hold the defendant to a liability for the plaintiff's condition, where he claimed that tuberculous shoulder joint was caused by a fall which he had while working for the defendant as a section hand. The court says that it had the established facts that tuberculosis coming from a bruise is the unusual, rather than the usual, thing, and that it often develops without a known cause; and a controversy of opinion, one surgeon saying that he would assume as the most likely thing in the world that the fall caused the injury, and another saying that the theory of the plaintiff was impossible. While the law permits expression of opinion, when doctors disagree in their diagnosis and prognosis in a field in which the reliance of laymen must depend on professional skill and learning in an obscure science, it will not tolerate speculation as to the cause of a condition. That must be proved with reasonable certainty. The court is not to be understood as limiting the extent or scope of medical expert testimony or proper prognosis based on established facts. That is a very different thing from what was attempted in this case, which was to fix a proximate cause for a disease becoming suddenly aggressive seven months after a slight injury, and which may have developed from some other cause or without a traumatic intervention. The law will note and compensate for consequences of injuries reasonably certain to occur, and will base its judgments on opinion evidence, but the court knows of no cases holding that the proximate cause of a disease can be traced by opinion evidence to an accident when the testimony, considering the lapse of time and the nonobservation of medical men, goes no further than to show that the injury might have been a sufficient cause. The disease with which the plaintiff was afflicted was not shown to be the usual, natural or probable consequence of the slight injury sustained. The contrary was shown.

Roentgenographic Plates Alone Not Evidence

(Bartlesville Zinc Co. vs. Fisher (Okla.), 159 Pac. R. 476)

The Supreme Court of Oklahoma reverses a judgment obtained by Plaintiff Fisher, for personal injuries, on account of error in the admission in evidence of certain roentgenographic plates tending to prove the existence of certain physical defects in and about the bony structure of his head. The evidence afforded to identify the plates was given by a physician who testified that from an examination of the plaintiff, based on symptoms related to him, he was unable to find the cause of the plaintiff's trouble, and sent him to another physician to have a roentgenographic plate made, and that he was not present when the plates were made. The witness further testified that his evidence, relative to the plaintiff's injuries, was based on the information divulged by these plates. The expert who made the plates did not testify, nor did any one who was present at the time the plates were made. The court says that the plates were not admissible in evidence, nor could they be, until they were properly identified or shown to have been made by trustworthy instruments properly used by a person skilled in making, reading and interpreting such plates, and further shown to be correct representations of the bony structure of the plaintiff's head. The admission of roentgenographic plates in evidence rests fundamentally on the theory that they are the pictorial communication of a qualified witness who uses this method of conveying to the jury a reproduction of the object of which he is testifying; this being true, the roentgenographic plates must be made a part of the testimony of some qualified witness, and the witness should qualify himself by showing that the process is known to himself to give correct representations, and that it is a true representation of such object.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, June 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Missouri State Medical Association, Springfield, May 14-16.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
New Hampshire Medical Society, Concord, May 16.
Ohio State Medical Association, Springfield, May 14-16.
Oregon State Medical Association, Portland, June 28-30.
Rhode Island Medical Society, Providence, May 31.
South Dakota State Medical Association, Yankton, May 28-30.
Washington State Medical Association, Spokane, June 17-19.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

April, VII, No. 4

1 Death Rates in Old and Young States. T. D. Tuttle, Seattle. —p. 359.
2 Study of Application of Score System to Sanitary Quality of Public Water Supplies in New York State. T. Horton and E. S. Chase, New York.—p. 380.
3 Bacillus Coli in Milk; Preliminary Report. F. A. Baldwin, St. Louis.—p. 391.
4 Report of Committee on Sanitary Control of Waterways. H. P. Eddy and Others.—p. 407.
5 Report of Committee on Refuse Collection and Disposal. S. A. Greeley and Others.—p. 412.
6 Progress Report of Committee on Venereal Diseases. W. F. Snow and Others.—p. 414.
7 Method of Distributing and Collecting Diagnosis Outfits for Bureau of Laboratories in Cleveland. R. G. Perkins, Cleveland. —p. 416.

Annals of Surgery, Philadelphia

April, LXV, No. 4

8 Lightning—Some of Its Effects. C. F. Hegner, Denver.—p. 401.
9 Spinal Cord Surgery; Report of Cases. H. Neuhof, New York. —p. 410.
10 *Treatment of Wound Infection by Peroxid-Phenol Solutions. J. O'Conor, Buenos Aires.—p. 438.
11 Case of Angioneurotic Edema with Visceral Crises. W. L. Duffield, Brooklyn.—p. 445.
12 Case of Stab Wound of Deep Epigastric Artery. P. G. Skillern, Jr., Philadelphia.—p. 450.
13 Case of Retroperitoneal Hernia into Duodenal Fossae. P. I. Nixon, San Antonio, Texas.—p. 456.
14 Isolated Abscess of Liver Complicating Appendicitis. H. O. Bruggeman, Fort Wayne, Ind.—p. 462.
15 *New Operation for Procidentia Uteri. W. T. Helmuth, New York.—p. 469.
16 Gross Pathology of Median Bar (Prostate) Formation. A. Randall, Philadelphia.—p. 471.
17 *Hemangioma Cavernosum of Bone; Report of Case. J. M. Hitzrot, New York.—p. 476.
18 Chronic Medullary Abscess of Long Bones; Report of Cases. W. M. Brickner, New York.—p. 483.
19 Treatment of Fractures of Femur, Especially in Old. G. T. Vaughan, Washington, D. C.—p. 491.
20 Fractures Through Neck of Astragalus. A. H. Montgomery, Chicago.—p. 495.
21 Supernumerary Bones of Foot; Roentgen-Ray Study. S. Kleinberg, New York.—p. 499.

10. Treatment of Wound Infection.—A further report is made by O'Conor of the good results which he has obtained

by treating desperate cases of infected railway wounds by four hourly irrigation with hot peroxid solution (2 ounces to the liter) followed instantly by hot phenol lotion (½ ounce to the liter), and the application of hot perchlorid of mercury fomentations (wrung dry). As to the best method of drainage, he recommends that, when the general symptoms, as indicated by elevation of pulse and temperature, and coated tongue, are combined with a foul discharging wound, ether should be administered, a tourniquet applied well above the lesion, and four to six incisions made into parts in which fluctuation or bogginess is indicated on digital palpation, always carrying one or two such incisions into, or from, the original wound. Next carefully inspect the wound and make digital pressure all round exterior of wound; if any leaking into cavity is observed, a closed forceps or director is pushed into track, and secondary collection located, a direct incision is made into the latter, and if there is no fear of anatomic sacrilege, there ought to be no hesitation in extending this incision in such a manner as to throw pocket, sinus and original wound into one open chasm. The cardinal factor in this treatment is the conversion of a septic cavity or cavities into one large open sore, and, O'Conor says, in nine cases out of ten, if this is properly done, and followed by four hourly irrigation with hot "peroxid phenol" lotions and hot fomentations, with absolute rest on a splint, the onset of repair is only a matter of hours, or at most a few days. When feasible, submersion in warm peroxid lotion, once or twice daily, is a useful adjunct.

15. **New Operation for Procidentia Uteri.**—After amputation of the cervix, and repairing the perineum, Helmuth opens the abdomen in the median line as usual. The operation proceeds now as in the usual hysterectomy, the round ligaments, broad ligaments and fallopian tubes being severed, and the peritoneum sewed down to the attachment of the bladder and around the cervix. The next step Helmuth believes to be original. The uterus is split longitudinally downward, to the point where the bladder is attached to the cervix, and the endometrium dissected out, from each cut section. Two incisions are made through the aponeurosis and body of the rectus muscle, and through the peritoneum; each incision being distant one-half inch from the central incision through the rectus muscle, and each running in a direction parallel to it (the central incision). Each of these incisions should be large enough to permit one segment of the bisected fundus to be drawn through it. The central incision through the rectus muscle and peritoneum is sutured, and the two parts of the uterus are brought together, being then sewn over the now united aponeurosis and muscle. The skin and connective tissue are closed in after the usual fashion, over the fixed fundus of the uterus.

17. **Hemangioma Cavernosum of Bone.**—Hitzrot's patient, man, aged 25, complained of pain in the right shoulder, with some swelling about the joint. He dates his illness to an injury received six years ago while playing basket ball. This pain, etc., persisted for four months. Four years later, the pain reappeared in the shoulder after some unusual exertion and at this time the pain was chiefly evident on attempts to use the arm. Following this attack there was crepitus in the joint. This second attack was also relieved by baking and salicylates. Off and on since then the patient has suffered from slight pain in the shoulder joint following active use of that joint, and this pain was always relieved by salicylates. Examination: right deltoid prominent; tenderness over upper end of humerus not definitely localizable to any one spot; irregular mass, hard in character, attached to upper end of bone; distinct crepitation and pain in the joint when the arm was abducted against resistance. Roentgenogram showed a tumor mass composed of a bony shell with bony trabeculae dividing it into numerous cyst-like compartments which occupied the upper end of the humerus from the head well down to the deltoid attachment. The tumor seemed to spring from the outer surface of the bone, and except for the intertrochanteric region, did not seem to involve the shaft. The tumor was chiseled away from shaft of humerus, from greater tuberosity and from its attachment to the head, and removed in practically one piece with the underlying periosteum. The cavity in the head was scraped thoroughly and a small sequestrum surrounded by altered blood clot was removed. The surrounding shaft of the bone and the greater tuberosity presented a slightly eroded appearance, but was otherwise practically normal. The cavity in the head was then widened, and a piece of the deltoid attached to the clavicle was placed in the cavity to fill it, and sutured there. Pathologic report: cavernoma of bone with organization of extravasated blood.

Boston Medical and Surgical Journal

April 19, CLXXVI, No. 16

22 Treatment of Pernicious Anemia. R. C. Larrabee, Boston.—p. 553.
23 Retroversion of Uterus; Its Etiology and Rational Treatment. J. T. Williams, Boston.—p. 558.
24 Point Scale for Measurement of Intelligence in Adolescent and Adult Individuals. R. M. Yerkes, Boston, and C. S. Rossy, New York.—p. 564.

Canadian Medical Association Journal, Toronto

April, VII, No. 4

25 War Nephritis. R. D. Rudolf, Toronto.—p. 289.
26 Abdominal Wounds as Seen at Casualty Clearing Station. E. Archibald.—p. 298.
27 War Surgery. D. Hingston.—p. 307.
28 Subacute Combined Sclerosis. G. S. Mundie and R. J. Erickson, Montreal.—p. 311.
29 *Duodenal Ulcers in Infancy. A. Brown, Toronto.—p. 320.

29. **Duodenal Ulcers in Infancy.**—Brown cites the case of a child admitted to the hospital on three successive occasions with a diagnosis of marasmus or atrophy, and on the final admission, duodenal ulcer. His age on the first admission was 3 months and just previous to death, 5 months. During the previous three months he had not thrived, and suffered alternately from constipation and diarrhea. The stools gradually reverted from the loose green type to those of a soapy character. One day the child passed four dark colored, almost black stools of a tarry consistency. The test for occult blood was strongly positive. He was considerably weaker and more pale, he was listless, more dehydrated, with respirations of 76 and pulse 104—a provisional diagnosis of duodenal ulcer with hemorrhage was made at this juncture. Almost immediately the duodenal catheter was passed and about 5 c.c. of a bright yellow bile, filled with many brown flecks and numerous bright red flakes and streaks was obtained. This material showed a positive guaiac and microscopic test. A blood examination at this period revealed a severe degree of secondary anemia, the red cells being but 2,900,000 and the hemoglobin 38 per cent. A blood transfusion was immediately performed and 150 c.c. of the father's blood introduced. Following transfusion the infant passed two fairly large currant jelly stools and died from the effects of the hemorrhage eight hours later. Postmortem examination showed the organs to be normal with the exception of the stomach and duodenum, the former contained a coffee-ground material, while the latter was filled with 1½ ounces of blood clot of a currant jelly consistency due to the admixture of mucous. Situated 1.5 cm. from the pylorus was a fairly large "punched out" ulcer with a shelving base. Directly opposite this larger one were two smaller ones apparently in the process of healing as the margins were much more indurated and presented no bleeding points. Both of these measured approximately 4 mm. each.

Colorado Medicine, Denver

April, XIV, No. 4

30 Cesarean Section; Operation of Choice. L. H. McKinnie, Colorado Springs.—p. 102.
31 Immediate Submucous Operation for Traumatic Deflections of Septum. O. Orendorff, Canon City.—p. 108.

Illinois Medical Journal, Chicago

April, XXXI, No. 4

32 Appendicitis Complicating Pregnancy. A. P. Heineck, Chicago.—p. 215.
33 Complement Fixation Test in Diagnosis and Determination of Cure of Gonorrhea. L. D. Smith, Chicago.—p. 222.
34 Clinical Laboratory, Roentgen-Ray and Necropsy Findings in an Obscure Intestinal Disorder. H. M. Francis, Woodstock. p. 228.
35 Surgical Care of Trachoma and Its Sequelae. E. E. Edmondson, Mt. Vernon.—p. 230.
36 Hemorrhoids with Reference to Modern Ideas. R. H. Barnes, St. Louis.—p. 231.

37 Pyelotomy vs. Nephrotomy. J. Welfeld, Chicago.—p. 233.
38 Pneumonia. O. O. Hall, Milford.—p. 234.
39 Indications and Results in Radical Mastoid Operation; Résumé of Twenty-Six Cases. C. B. Welton, Peoria.—p. 235.
40 Tuberculosis of Hip in Children. E. L. Hendricks, Lanark.—p. 238.
41 Modern Treatment of Diabetes. C. H. Lovewell, Chicago.—p. 240.
42 Alcoholism; Its Psychology and Its Rational Cure by Psychotherapy. A. H. Burr, Chicago.—p. 245.
43 Matters Medical Pertaining to Marriage, or Physician as Educator. A. J. Butner, Harrisburg.—p. 247.
44 Few Minor Ailments Potentially Important. D. S. Booth, St. Louis.—p. 260.
45 Etiology and Diagnosis of Acute Endocarditis in Children. G. H. Withers, Chicago.—p. 263.
46 Survival of Superstition as Found in Practice of Medicine. J. M. Beveridge, Oregon.—p. 267.

Journal of Biological Chemistry, Baltimore

April, XXIX, No. 3

47 Partition of Nonprotein Nitrogen in Blood of Fresh Water Fish. D. W. Wilson and E. F. Adolph, Fairport, Iowa.—p. 405.
48 Creatin and Creatinin in Whole Blood and Plasma. D. W. Wilson and E. D. Plass, Baltimore.—p. 413.
49 *Studies in Bence-Jones Proteinuria. A. E. Taylor, C. W. Miller and J. E. Sweet, Philadelphia.—p. 425.
50 Determination of Cholesterol in Blood. W. R. Bloor, Boston. p. 437.
51 Diurnal Variations in Creatin Excretion. W. Denis, Boston. —p. 447.
52 Direct Determinations of Permeability. R. P. Wodehouse, Cambridge, Mass.—p. 453.
53 Microtitration of Ammonia, Observations on Normal Human Blood. G. D. Barnett, San Francisco.—p. 459.
54 Studies on Cholesterol. Influence of Bile Derivatives in Bloor's Cholesterol Determination. G. Luden, Rochester, Minn.—p. 463.
55 Hourly Elimination of Certain Urinary Constituents During Brief Fasts. I. Neuwirth, New York.—p. 477.
56 Corn as Source of Protein and Ash for Growing Animals. A. G. Hogan, Manhattan, Kan.—p. 485.
57 *Chemical Nature of Vitamins. Structure of Curative Modifications of Hydroxypyridines. R. R. Williams, Washington, D. C. p. 495.
58 Dietary Deficiencies of White Bean, Phaseolus Vulgaris. E. V. McCollum, N. Simmonds and W. Pitz, Madison, Wis.—p. 521.

49. **Bence-Jones Proteinuria.**—The only noticeable abnormality of the viscera in the case of myeloma studied by the authors was several old healed lesions of the lungs. The pleural cavities contained considerable clear straw-colored fluid. The long bones were not affected; but in the bones of the pelvis, ribs and vertebrae the marrow occupied a much greater space than usual, with marked thinning of the walls; the body of the sacrum was so spongy as scarcely to resemble bone at all, and the bony structure of the ribs in some places was not over 0.5 mm. in thickness. The subsequent histologic examination showed undoubted myeloma, a fact of interest, since the Roentgen ray had indicated no osseous abnormality. The urine contained 3.6 per cent. of Bence-Jones protein and there was also considerable albumin. The pleural fluid contained 0.11 per cent. Bence-Jones protein. The blood gave a well marked test; the protein appeared to amount to about 0.2 per cent. A method of separating the protein and of preparing a protein-free urine is also described. The authors believe that the protein is no proteose, but a higher protein of definite biologic stamp of endogenous origin, and might be derived either from the tumor cells of the myeloma, or produced through an interrupted or aberrant synthesis of some normal body protein.

57. **Chemical Nature of Vitamins.**—Preliminary experiments are described by Williams which suggest that nicotinic acid may exist in a betain form and that the curative properties of Funk's vitamin fractions of yeast and rice polishings may have been due in part to this isomeric form of nicotinic acid or a polymer or simple derivative of it.

Journal of Experimental Medicine, Baltimore

April, XXV, No. 4

59 *Passage of Neutralizing Substances from Blood into Cerebrospinal Fluid in Poliomyelitis. S. Flexner and H. L. Amoss, New York.—p. 499.
60 *Neutralization of Virus of Poliomyelitis by Nasal Washings. H. L. Amoss, New York, and E. Taylor, Burlington, Vt.—p. 507.
61 *Relation of Meninges and Choroid Plexus to Poliomyelitic Infection. S. Flexner and H. L. Amoss, New York.—p. 525.
62 *Survival of Poliomyelitic Virus for Six Years in Glycerol. S. Flexner and H. L. Amoss, New York.—p. 539.
63 *Cultivation and Immunologic Reactions of Globoid Bodies in Poliomyelitis. H. L. Amoss, New York.—p. 545.
64 *Pathologic Effects of Streptococci from Cases of Poliomyelitis and Other Sources. C. G. Bull, Baltimore.—p. 557.
65 *Serum Treatment of Twenty-Six Cases of Epidemic Poliomyclitis. H. L. Amoss and A. M. Chesney, New York.—p. 581.

59. **Neutralizing Substances in Poliomyelitis.**—Flexner and Amoss found that the cerebrospinal fluid taken very early and quite late in the course of acute poliomyelitis exhibits no neutralizing action on filtered poliomyelitic virus. The blood serum on the sixth day of the disease already contains the neutralizing principles. The injection of sterile horse serum into the cerebrospinal meninges in monkeys increases their permeability, so that they permit the immunity neutralizing principles passively injected into the blood to pass into the cerebrospinal fluid. The passage in passively immunized monkeys takes place during a relatively brief space of time and apparently only while the inflammatory reaction produced by the horse serum is at its height. It is established for monkeys and rendered probable for man that the intraspinal injection of immune serum in poliomyelitis is curative. In monkeys normal serum exerts no such action, and at present nothing can be stated definitely regarding the therapeutic effect of normal serum in man except that probably any benefits which may arise from its employment would be attributable not to the action of the serum as such, but to the escape of circulating immunity principles in the blood made possible by the aseptic inflammation set up by it in the meninges. As the immunity principles appear in the blood only after several days, and the reported favorable effects of the immune serum treatment relate to the first days of illness, the employment of normal serum is thus not indicated, while that of an immune serum is.

60. **Neutralization of Virus of Poliomyelitis.**—The results of fifty-six experiments by Amoss and Taylor showed that washings of the nasal and pharyngeal mucosas possess definite power to inactivate or neutralize the active virus of poliomyelitis. This power is not absolutely fixed, but is subject to fluctuation in a given person. Apparently inflammatory conditions of the upper air passages tend to remove or diminish the power of neutralization. But irregularities have been noted, even in the absence of these conditions. The neutralizing substance is water soluble and appears not to be inorganic; it appears to be more or less thermolabile, and its action does not depend on the presence of mucin as such. It is suggested that the production of healthy carriers through contamination with the virus of poliomyelitis may be determined by the presence or absence of this inactivating or neutralizing property in the secretions.

61. **Mechanism of Defense in Poliomyelitis.**—The importance first of the meningeal choroid plexus complex in preventing infection with the virus of poliomyelitis, and next of immune serum in offsetting the disadvantages and dangers arising from defects in the mechanism, is apparent, as is the bearing of the experiments reported by Flexner and Amoss on the serum therapy of epidemic poliomyelitis. The meningeal choroid plexus complex, normally is capable of excluding the circulating virus from the central nervous organs. The complex plays a part also in preventing infection from virus present on the nasal mucosa. Aseptic fluids which irritate, inflame, or even slightly alter the integrity of the meninges and choroid plexus, diminish or remove their protective function. Normal monkey or horse serum, isotonic salt solution, and Ringer and Locke's solutions, when injected into the meninges, promote infection with the virus of poliomyelitis introduced into the blood, the nose, or the subcutaneous tissues. Simple lumbar puncture and the withdrawal and return of the cerebrospinal fluid in normal monkeys, hemorrhage having been absolutely avoided, do not promote infection with virus injected into the blood; while the replacement of the cerebrospinal fluid of one monkey with that of another does in some instances lead to infection. Simple lumbar puncture attended with even very slight hemorrhage opens the way for the passage of the virus from the blood into the central nervous tissues, and thus promotes infection.

Hence, changes in the structure or function of the meningeal choroid plexus complex, too slight to be detected by chemical

and cellular changes in the cerebrospinal fluid or by morphologic alterations, suffice to diminish in an essential manner its protective powers. Of all the irritant fluids tested by the authors, immune serum alone injected into the meninges is not succeeded by infection from the virus introduced into the blood. The protective property of the immune serum is capable of overcoming the promoting action of normal monkey and horse serum and the other irritants mentioned.

62. **Survival of Poliomyelitic Virus.**—In the course of investigations on poliomyelitis conducted at the Rockefeller Institute, specimens of nervous tissues from human beings and monkeys, the subjects of poliomyelitis, have been regularly put aside in 50 per cent. glycerol in the refrigerator, the temperature of which has been kept at approximately 4 C. Some of the tissues were set aside in 1910, and others later. Flexner and Amoss recently tested certain specimens for activity and ascertained that monkeys may be infected with samples 6 and 4 years old. The symptoms and lesions caused by this virus are identical with those produced by that contained in the more recently collected spinal cord and medulla. The authors suggest that this power of survival under adverse conditions may not be without significance in respect to the recrudescence of poliomyelitis in a given locality and after a lapse of years.

63. **Globoid Bodies in Poliomyelitis.**—See editorial "Bacteriology of Poliomyelitis," The Journal, April 14, 1917, p. 1122.

64. **Streptococci from Poliomyelitis.**—See editorial, "Bacteriology of Poliomyelitis," The Journal, April 14, 1917, p. 1122.

65. **Serum Treatment of Epidemic Poliomyelitis.**—Amoss and Chesney describe in some detail the method used and the results attained in twenty-six cases of acute poliomyelitis treated with human serum from recovered and convalescent cases of the disease. Of twelve cases which showed paralysis at the time serum was first given, one patient died ten hours after the serum was given, two patients suffered some degree of extension of the paralysis, while the remaining nine showed no extension of the paralysis. Of fourteen cases in which no paralysis was detected at the time serum was administered, two patients developed respiratory paralysis and died; and two others developed some degree of weakness or partial paralysis of certain muscle groups. The ten remaining cases (71 per cent.) never showed any detectable weakness. In the ten instances in which no paralysis occurred, the fever, sometimes high, tended to fall rapidly to normal, the average time of the fall being 25.7 hours. These cases demonstrate the harmlessness of the serum when introduced intraspinally under suitable conditions. The earlier in the course of the disease the serum is employed in suitable doses, the more promise there is of benefit. The question of multiple and repeated injections of the serum has not yet been worked out. In the cases here reported and especially in the group in which no paralysis existed at the time of the first injection, the pathologic process either did not progress at all, or where there was extension, as in two cases the upper segment of the spinal cord became rapidly involved, and was followed by respiratory paralysis and death. Probably in cases in which some degree of muscular weakness develops soon after the injection of serum, reinjection twelve to twenty-four hours later may be advantageous.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

April, IX, No. 7

66 *Action of Strychnin in Certain Types of Cardiac Irregularities. M. I. Smith, Ann Arbor, Mich.—p. 365.
67 Endermic Reactions. Urticaria by Amins and Aromatic and Urea Derivatives. T. Sollmann, Cleveland.—p. 391.
68 Proportion in Which Epinephrin Distributes Itself Between Corpuscles and Serum in Relation to Technic of Testing for Epinephrin in Blood. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 393.
69 *Pharmacology of Vagina. J. A. Waddell, Charlottesville, Va. —p. 411.

66. **Action of Strychnin in Cardiac Irregularities.**—Strychnin is shown by Smith to have a depressant action on the excised heart of the frog and the rabbit. It slows the rate, and lessens the amplitude and the irritability of the heart. In sufficient concentration it may delay or prevent the irregularities produced in the isolated heart by aconitin, by ouabain, and by occluding certain branches of the coronaries. This is shown to be due to strychnin lessening the enhanced irritability of the heart which gives rise to such irregularities. Irregularities arising from impaired conductivity (cocain irregularity), or from excessive depression of the myocardium (apocodein and ergotoxin irregularities) are aggravated by strychnin. It is suggested with the greatest reserve that strychnin may have a place in the therapy of ectopic beats originating in the ventricles.

69. **Pharmacology of Vagina.**—Waddell presents the results of a study of the excised vaginae of nonpregnant nulliparous and multiparous animals. Spontaneous rhythmic contractions are exhibited by both the circular and the longitudinal musculatures of the excised vaginae of dogs, cats, rats, rabbits, guinea-pigs, sheep, hogs and cows, when suspended in oxygenated Tyrode's solution at body temperature. The application of drugs produces on the circular musculature of the excised vagina the same response as on the longitudinal. The excised vaginae of rabbits, dogs, hogs and sheep are stimulated by epinephrin, while those of cats, rats, guinea-pigs and cows are depressed. Accordingly, the motor sympathetic innervation is the more powerful in the former species; and the inhibitory, in the latter. After ergotoxin, the excised vagina of the rabbit is depressed, not stimulated, by epinephrin, so that the organ in this animal possesses an inhibitory sympathetic innervation as well as a motor. By nicotin, the excised vagina of the rabbit is stimulated and then depressed, a phenomenon which confirms Keiffer's demonstration of ganglion cells within the wall of the organ. Arecolin and physostigmin stimulate the excised vagina, which is in agreement with Falk's conclusions as to the presence of a parasympathetic innervation. Pilocarpin usually stimulates the excised vagina, but it at times produces depression in that of the rat. Atropin antagonizes the stimulating action of arecolin, physostigmin, and pilocarpin on the excised vagina. Scopolamin either produces no effect or a depressant one on the excised vagina. Ergot and hydrastis increase the amplitude of contractions but produce little change in the tone of the excised vagina. Morphin, cocain, pituitary extract, and barium chlorid stimulate the excised vagina. The excised vagina of the nonpregnant animal reacts to drugs, in most instances, like the uterus of its species.

Kansas Medical Society Journal, Topeka

April, XVII, No. 4

70 Recurring Dermatitis of Face, with Associated Atrophic Changes in Affected Areas. R. L. Sutton, Kansas City, Mo.—p. 91.
71 Indian Medicine Man. F. L. McDaniel, Osawatomie.—p. 95.
72 Bone Graft vs. Plate. H. L. Charles, Atchison.—p. 96.
73 Possible Rôle of Glands with Internal Secretion in Problems of Psychiatry. F. A. Carmichael, Osawatomie.—p. 98.
74 Iritis. O. R. Wolfe, Beverly.—p. 101.

Medical Record, New York

April 21, XCI, No. 16

75 Yellow Jacket and Flowery Kingdom. S. E. Jelliffe, New York. p. 663.
76 Pneumonia Analysis of Fifty-Three Cases. H. M. Moses, Brooklyn.—p. 666.
77 Constipation of Rectal Origin. W. F. Burrows and E. C. Burrows, New York.—p. 671.
78 Cervical Glandular Enlargements in Children. I. W. Kahn, New York.—p. 672.
79 Nonsurgical Treatment of Strictures. S. Steiner, New York. p. 676.
80 Case of Imperforate Anus. B. P. Thom, New York.—p. 678.
81 Modern Belief in Spontaneous Generation. C. L. Redfield, Chicago.—p. 679.
82 Available Means of Organization for National Service Among Medical Women of United States. M. S. Macy, New York. p. 681.

Michigan State Medical Society Journal, Grand Rapids

April, XVI, No. 4

83 *Adhesions of Pelvic Colon. J. T. Case, Battle Creek.—p. 145.
84 Evolution of Anesthesia. W. H. Dodge, Hancock.—p. 152.
85 Radial Cholesterin Stone in Gallbladder Surgery. H. J. Vanden Berg, Grand Rapids.—p. 158.

86 Intestinal Toxemia and Intestinal Stasis. C. D. Aaron, Detroit. p. 160.
87 Administration of Salvarsan in Concentrated Solution. T. H. Smith, Detroit.—p. 165.
88 Hemorrhage During Latter Half of Pregnancy. A. M. Campbell, Grand Rapids.—p. 167.
89 Errors in Diagnosis; Case and Its Lessons. C. W. Hitchcock, Detroit.—p. 170.
90 Ocular Changes in Multiple Sclerosis. W. R. Parker, Ann Arbor. p. 172.
91 Two Cases of Bladder Tumors; Carcinomatous Transformation of Papilloma; Medullary Squamous Celled Carcinoma. L. L. Youngquist, Ann Arbor.—p. 174.
92 History of Transfusion of Blood; Report of One Hundred and Fifty Transfusions. R. D. McClure, Detroit.—p. 178.

83. Abstracted in THE JOURNAL, Sept. 9, 1916, p. 835.

New York Medical Journal

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93 Historical Notes on Medical School of University of Pennsylvania, with Some Discussion of Recent Problems in Medical Teaching. C. K. Mills, Philadelphia.—p. 673. To be concluded.
94 Ureteral Bougie as Aid to Diagnosis. C. H. Chetwood, New York.—p. 677.
95 American Physician and Preparedness. M. Ashford, Fort Leavenworth, Kan.—p. 679.
96 Early Diagnosis of Lobar Pneumonia. T. F. Reilly, New York. p. 681.
97 Newer Aspects of Infection in Pneumonia. E. Steinfield, Philadelphia.—p. 687.
98 Ritual Circumcision. M. S. Reuben, New York.—p. 688.
99 Administrative Control of Sick Indigents. C. Barker, New York. p. 690.
100 After-Treatment of Poliomyelitis. A. C. Geyser, New York. —p. 692.

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101 Empyema of Nasal Accessory Sinuses and Its Nonsurgical Treatment. H. Smith, New York.—p. 721.
102 Historical Notes on Medical School of University of Pennsylvania, with Some Discussion of Recent Problems in Medical Teaching. C. K. Mills, Philadelphia.—p. 725.
103 Four Plus Wassermann. D. M. Kaplan, New York.—p. 728.
104 Ionization Treatment of Cancer of Eyelids. G. B. Massey, Philadelphia.—p. 731.
105 Artificial Pneumothorax in Pulmonary Tuberculosis. S. Simon, Denver.—p. 734.
106 Successful Treatment for Pneumonia. S. Stern, Atlantic City, N. J.—p. 740.
107 Don'ts in Proctologic Practice. A. A. Landsman, New York.—p. 744.
108 Drug Addiction and Harrison Antinarcotic Law. J. C. Densten, Scranton, Pa.—p. 747.

Surgery, Gynecology and Obstetrics, Chicago

April, XXIV, No. 4

109 *Fascia Transplantation into Visceral Defects. H. Neuhof, New York.—p. 383.
110 Operative Immobilization of Spine. F. De Quervain and H. Hoessly, Basel, Switzerland.—p. 428.
111 *Effect of Removal of Gallbladder. E. S. Judd and F. C. Mann, Rochester, Minn.—p. 437.
112 *Simulation of Corpus Luteum and Retention Cysts of Ovary with Ectopic Pregnancy and Early Uterine Abortion. I. C. Rubin, New York.—p. 443.
113 Observations at British Base Hospital in France. K. Speed, Chicago.—p. 454.
114 Odontomata. C. W. Bonney and A. G. Ellis, Philadelphia.—p. 459.
115 Tubercular Cervical Adenitis in Children. W. E. Ladd, Boston. —p. 467.
116 *Surgical Research of Great Omentum. S. L. Bloomhardt, C. F. Andrews and R. R. Hetherington, Philadelphia.—p. 474.
117 *Experimental Studies of Pancreas. H. H. Patrie, L. A. Pyle and C. F. Vale, Philadelphia.—p. 479.
118 *Transplantation of Ureters into Intestines. J. S. Baird, R. L. Scott and R. D. Spencer, Philadelphia.—p. 482.
119 *Experimental Studies in Colonic Dilatation. J. Alexander, J. H. Arnett and J. A. H. Magoun, Philadelphia.—p. 484.
120 Technic for Drainage or Excision of Seminal Vesicle. J. H. Cunningham, Jr., Boston.—p. 487.
121 Treatment of Compound Fractures of Humerus and Femur by New Apparatus. H. T. Buckner, Seattle, Wash.—p. 491.
122 Immediate Complete Amputation of Umbilical Cord. R. L. Dickinson, Brooklyn.—p. 498.
123 Permanent Nerve Block for Chronic Intractable Pain. F. G. Dyas, Chicago.—p. 500.
124 Spiral Wire Drainage Tube for Surgical Drainage. F. A. Glasgow, St. Louis.—p. 501.
125 Medicinal Treatment of Amebic Abscess of Liver. W. Allan, Charlotte, N. C.—p. 503.
126 Two Fracture Devices. J. E. Cannaday and H. D. Hatfield, Charleston, W. Va.—p. 505.

109. **Fascia Transplantation Into Visceral Defects.**—This is a detailed report of an extensive experimental and clinical study which confirms the statements previously made by others that the free transplantation of fascia has a wide field of usefulness. In Neuhof's work large vesical defects (up to about one-half the bladder wall) were replaced by fascia with uniform success. The immediate anatomic and functional results of replacement of extensive ureteral defects by tubes of fascia were satisfactory. Large tracheal defects (involving as much as three cartilage rings and most of the anterior aspect of the organ) were invariably replaced successfully. Large esophageal defects were replaced successfully in all experiments. Perforation through the transplant invariably followed its simple implantation into gastric defects. On the other hand, smooth healing always occurred, even with very large defects, when gastro-enterostomy, with or without pyloric exclusion was added. Fascia transplantation into small defects in the upper part of the small intestine was occasionally successful, succeeded more often in the lower part of the small intestine, was most successful in the large intestine. In the latter, larger defects could often be satisfactorily replaced. The (altered) transplant became firmly and permanently adherent to large defects made in the liver. Large defects of the pleura and diaphragm were satisfactorily replaced by fascia. Good immediate results were obtained in transplanting fascia over large defects of the lung. The immediate functional and anatomic results of transplanting fascia into large defects of the pericardium were good. Large defects of the spinal dura were satisfactorily replaced by fascia. The clinical aspects are discussed in each of these groups of experiments. In addition, two clinical reports on fascia transplantation into defects of hollow viscera are appended. In one it is demonstrated for the first time that a large urethral defect can be very satisfactorily and very simply replaced by fascia. A similar demonstration is made in a large tracheal defect; this is the second case recorded in which fascia has been transplanted into a tracheal defect.

111. **Effect of Cholecystectomy.**—On the basis of experimental evidence Judd and Mann conclude that after removal of the gallbladder, all of the ducts outside the liver dilate. The sphincter at the entrance of the common bile duct into the duodenum is the chief factor in producing this dilatation. After cholecystectomy, this sphincter can withstand only a small percentage of the pressure which it normally maintains. When all the muscle fibers are dissected free from the intramural portion of the duct, the biliary tract does not dilate after the removal of the gallbladder.

112. **Simulation of Ovarian Cysts and Ectopic Pregnancy.**—From an analysis of the histologic findings in the cases personally encountered by Rubin, it appears that corpus luteum cysts and retention cysts of the ovary may simulate early terminated intra-uterine or extra-uterine pregnancy without either of these conditions actually having been present. On the other hand, it is more likely that in the majority of instances these retention cysts result secondarily through early embryonal death whether the impregnated ovum lodged within the uterus or within the tube. The ovum is in these instances disintegrated and absorbed and restitution (involution) takes place without the external or internal hemorrhage which we are accustomed to see in uterine or ectopic abortion. Rubin concludes that in all probability a great many nontragic ectopic pregnancies terminate in this way.

116. **Surgical Research of Great Omentum.**—The authors are convinced that their experimental work has shown the omentum to be quite capable of caring for gastric and intestinal perforations of varying sizes; that it can be used to advantage in anastomotic work, and is capable of preventing gangrene of large areas of intestine wall. Omental adhesions are less dangerous, and therefore are preferable to adhesions between adjacent loops of intestine. In excision of hepatic tumors the omentum may be utilized to advantage to give a broad base for the hemostatic suture of the excision wound. In drainage of the common bile duct, wrap the omentum around the drain to prevent leakage. Also where a part of the common duct has been removed a new duct may be constructed of omentum. For the relief of pyloric stenosis, cut

through the stenosed area and lay the omentum over the wound. Use the omentum to strengthen lines of abdominal vascular suture. In all resection of bowel and anastomosis wrap the free border of the omentum around. The omentum can be used to prevent gangrene; therefore in strangulation of the intestine from numerous conditions, as, for example, strangulated hernia, volvulus, etc., where there is doubt as to the viability of the intestine, the omentum may have one of its greatest fields of usefulness. Likewise in mesenteric thrombosis where there is doubt as to the blood supply to a certain area.

117. **Studies of Pancreas.**—The results of the authors' experiments were as follows: Four dogs in whom the duct was stripped from the uncinate process and anastomosed to the duodenum, made an uneventful and perfect clinical recovery. Necropsies after four, ten, eleven and twelve weeks, respectively, showed that the new ducts in all were patulous and of normal size. There was no evidence of leakage or suppuration, and only a few adhesions were present. The main and accessory ducts were closed in all four. Two dogs, in which the uncinate process and the head were amputated and the duct of the proximal end was stripped up and implanted into the duodenum, made a perfect recovery and showed no clinical symptoms. They were necropsied six and one-half and seven and one-half weeks after the operation and the implanted ducts were found open. There were a great many adhesions to the wound, and otherwise both were good specimens. A series of ten dogs in which the duct was stripped from the tail and used for the anastomosis, one dog died of distemper pneumonia seven days after the operation but the specimen even in that time showed a good result. Six dogs made good recoveries, clinically. Four of these dogs necropsied at five, five and one-half, seven and eight weeks after the operation, showed the old ducts closed and the implanted ducts open, except for one in which no patulous ducts could be demonstrated. There was no fat necrosis, leakage, suppuration, pancreatitis or pancreatic atrophy, and scarcely any adhesions. In two dogs killed seven weeks after operation, the main ducts were found patulous, due to the fact that the authors had neglected to suture a loop of omentum between the cut ends. The remaining three dogs of this series developed acute pancreatitis and died, one, three and five days, respectively, after operation.

118. **Transplantation of Ureters Into Intestines.**—This work would seem to confirm the conclusions reached by others, that when the periureteral lymphatics are not directly in contact with a virulent infection there is no ascending infection of the kidney. By passing the ureter through a normal opening into the intestine the authors were able to eliminate this focus of virulent infection, which gains a foothold in the intestinal wound when an abnormal opening is made. Also that valve action as the ureteral opening is of inconsequential value.

119. **Colonic Dilatation.**—The authors are of the opinion that until the causes of chronic intestinal stasis are better understood the operation of simple ileocolostomy should be abandoned, for in a large number of cases the same cause which produced the indication for the operation will also cause its failure. There is obviously no use in operating on a colon to rest it by a short circuiting operation when the entire wall has already been damaged beyond recovery. This is one more reason for giving up simple ileocolostomy. The operation should be abandoned until the cause of the intestinal stasis and the pathology which it produces are thoroughly understood.

Wisconsin Medical Journal, Milwaukee

April, XV, No. 11

127 Pediatrics and Its Relation to General Practitioner. W. R. Ramsey, St. Paul, Minn.—p. 397.
128 Myoclonus; Report of Case of Unverricht's Myoclonus Epilepticus. B. B. Rowley, Milwaukee.—p. 401.
129 Ectopic Pregnancy; Thirty-Seven Cases Treated by Operation. C. M. Echols, Milwaukee.—p. 408.
130 Some Business Aspects of Medical Career. W. E. Fairfield, Green Bay.—p. 415.
131 Chronic Colitis and Its Roentgenologic Findings. F. B. McMahon and R. D. Carman, Rochester.—p. 419.
132 Method for Obtaining Blood from Infants and Young Children for Wassermann Test. A. L. Kastner, Milwaukee.—p. 430.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 7, I, No. 2936

1 Pathology and Etiology of Infectious Jaundice Common at Dardanelles, 1915. C. J. Martin.—p. 445.
2 *Cases of Infection of Hemothorax by Anaerobic Gas Producing Bacilli. T. R. Elliott and H. Henry.—p. 448.
3 Case of Spirochetosis Icterohemorrhagica. R. Rimmer.—p. 453.
4 Cerebrospinal Meningitis. W. E. C. Dickson.—p. 454.
5 Case of Traumatic Pneumonia. J. Geoghegan.—p. 455.

2. **Hemothorax Infected by Gas Producing Bacilli.**—Infection by anaerobic bacilli according to Elliott and Henry occurs in about 10 per cent. of all cases of hemothorax from gunshot wounds of the chest that are seen in base hospitals in France. The infection leads to the development of malodorous gas which may occasionally be so abundant as to stimulate a large air pneumohemothorax, while the toxic features of the infection for the time being remain in the background. In the majority of cases the septic features are much more prominent than gas formation. The most serious of these features are jaundice, a rapid pulse (which may be the index of commencing pericarditis), and semidelirious restlessness. Less dangerous is the febrile type with a brilliant hectic flush on the cheeks. Diagnosis depends on exploratory puncture. In cases with the clinical aspect of sepsis it may be necessary to repeat the exploration on successive days, because it is a characteristic of anaerobe infection that the bacilli frequently fail to spread at once throughout the hemothorax, so that their presence is often missed at the first searching. Life can be saved in at least four-fifths of the cases if the infected blood is promptly drained away. A day's delay in putting such treatment into force, when once the infection is well established, may mean death to the patient. The clinical pictures caused by the sepsis vary widely in the individual cases of infection, but these differences cannot yet be correlated with the various forms of anaerobic bacilli that are proved to be present in each particular case.

Lancet, London

April 7, I, No. 4884

6 Paget's Disease of Nipple. W. S. Handley.—p. 519.
7 *Treatment of Severe Infected Gunshot Injuries of Shoulder and Elbow Joints. R. H. J. Swan.—p. 524.
8 *Cultivation of Malarial Parasite in Vitro. L. S. Dudgeon and C. Clarke.—p. 530.
9 Tetanus and Its Antitoxin. W. Turner.—p. 532.
10 Study of Dysentery. A. C. Inman and D. G. Lillie.—p. 533.
11 Case of Traumatic Dislocation of Knee Joint. H. Platt.—p. 534.
12 *Operative Treatment of Abdominal Aneurysm. W. I. de C. Wheeler.—p. 535.
13 Record of Sixty-One Cases of Neoplasms of Skin Treated by Roentgen Rays or Radium. A. A. R. Green.—p. 544.

7. **Treatment of Infected Gunshot Injuries of Shoulder and Elbow Joints.**—In all septic cases Swan makes it a routine practice of giving an injection of a mixed polyvalent streptococcus and proteus vaccine, and the wounded area is carefully roentgenographed to determine the nature and extent of any bony injury and the presence of metal fragments. Swan considers this preliminary injection of "antisepsis" vaccine of as much importance as the prophylactic injections of antitetanic serum, as by its means the spread of anaerobic infection is limited. If the ends of the bone entering into the formation of the shoulder or elbow joint are severely fractured, and if there is evidence of septic infection in the joint, he does not hesitate to open the latter freely, remove all completely detached fragments, and saw off the ends of the bone; the whole cavity is flushed with a forcible stream of hot, sterile water, and after arresting the bleeding, gauze is very lightly inserted into the cavity, into which are brought three or four small perforated tubes attached to a reservoir containing Dakin's solution or hypertonic saline, by which the cavity is frequently flushed. The incision is left freely open, perhaps one suture being used at the upper end. In the case of the shoulder Swan makes use of an oblique anterior incision between the deltoid and pectoralis major muscles, opening the joint at the side of the long tendon of the biceps.

If possible, the tuberosities and rotator tendons are left intact, but if the fracture involves the tuberosities they are removed, the periosteum being stripped from the upper part of the shaft and the bone divided through the surgical neck. A stab incision is then made from the posterior aspect of the joint backward to come out behind the shoulder, or the bullet track used, if conveniently placed, and a drainage tube inserted, the flushing tubes being introduced by the anterior incision. The arm is then fixed in a fully abducted and slightly flexed position.

In the elbow Swan uses a free, median, posterior incision, separating the tissues close to the bone, and, so far as possible, preserving the triceps tendinous attachment, and, of course, the ulnar nerve. The lower end of the humerus is projected from the wound and removed as may be found necessary, usually above the epicondylar line. The olecranon is removed together with the upper cartilaginous surface of the coronoid process and the cupped disk of the head of the radius. The cavity is then flushed with hot sterile water, lightly filled with gauze, and the irrigation tubes introduced. The arm is put up, flexed, and supinated, the wound being left freely open. After a few days, when granulations appear on the surface, passive movements are commenced and the forearm put up in a different angle of extension each day. As the wound fills up voluntary actions are encouraged.

8. **Cultivation of Malarial Parasite.**—A medium consisting of citrated normal saline containing varying strengths of glucose was used by Dudgeon and Clark. At first the strengths of glucose used were 2 and 5 per cent., and later two other strengths, 7.5 and 10 per cent., were tried. The strength of the sodium citrate in the medium was 1.5 per cent. A marked increase in the number of parasites in the culture tubes was noted in 9 of 31 cases of malaria. The present paper embodies the results obtained from 51 cases of clinical malaria. Using this medium, a diluted plasma with the addition of dextrose, the characteristic form which can be recognized as a plasmodium is what is termed here the "dot" form. In size it is smaller than the fine ring, the nucleus staining as a bright red dot and the protoplasm an intense blue, semilunar in shape. The appearance suggests the merozoite. Typical ring forms were infrequent. Of 10 patients whose control blood films after careful examination were considered as negative, "dot" forms were found in five cultures. Of 19 cases of malignant malaria, 4 only gave completely negative results in the citrate plasma medium, while 17 cases of the benign tertian parasite failed to grow under the same conditions. As a corollary of this, where film examinations are inconclusive as to the type of parasite, a positive culture in this medium points to malignant infection. The presence of quinin in the serum used in the culture medium influences the development of the plasmodium, the benign tertian parasite especially, in vitro.

12. **Operative Treatment of Abdominal Aneurysm.**—In three cases of abdominal aneurysm wire was introduced into the sac by Wheeler. In the first case of aneurysm of the aorta in the region of the celiac axis, operated on in August, 1910, a cage of 150 inches of Colt's wire was introduced. At the time of operation the aneurysm was thin walled and seemed ready to burst. The patient is still alive and well, at daily work in a brewery. The aneurysm has consolidated, and a loud systolic murmur present before operation has disappeared. The second patient, also reported in 1910, died in 1916, from rupture of the aneurysm, when acting as a stoker on board a patrol trawler. A wisp of 105 inches of wire was introduced in this case. The third patient was operated on in 1912 and died about a week after the introduction of the wire from rupture of the aneurysm following intestinal obstruction. A gastro-enterostomy was performed in this case as the aneurysm was obstructing the pylorus. The loop of jejunum fixed to the stomach became strangulated by pressure between the abdominal wall and the aneurysm; the consequent vomiting led to rupture of the sac.

Practitioner, London

April, XCVIII, No. 4

14 Operations for Appendicitis. J. E. Adams.—p. 301.
15 Some of Evils of Curetting. H. R. Andrews.—p. 314.
16 Scopolamin and Morphin in Labor. R. W. Johnstone.—p. 317.
17 Some Recent Vaccine Therapy. A. Fleming.—p. 322.
18 His Bundle Lesions. J. S. Goodall.—p. 328.
19 Venous Pulse. H. L. Flint.—p. 337.
20 Diseases of Nervous System. H. C. Thomson.—p. 352.
21 Treatment of Acute Lobar Pneumonia, with Special Reference to Cyanosis, Blood Pressure and Maintenance of Heart's Strength. A. Graham-Stewart.—p. 359.
22 Syphilis. G. C. Franklin.—p. 383.
23 Hematoma of Umbilical Cord at Childbirth, with Severe Hemorrhage Following Double Ligature of Cord. P. R. Cooper.—p. 389.
24 Enterospasm Following Shell Shock. P. C. C. Fenwick.—p. 391.

Archives de Médecine des Enfants, Paris

March, XX, No. 3, pp. 113-168

25 Diagnosis and Treatment of Congenital Stenosis of the Pylorus. C. G. Grulee and Dean Lewis (Chicago).—p. 113. Conclusion.
26 *Pseudomembranous Pneumococcus Infection in Nose or Throat. T. Reh (Geneva).—p. 131.
27 Metastatic Abscess Consecutive to Acute Suppurative Appendicitis. A. Androutsellis.—p. 143.
28 *Black Sweat in Girl of Fourteen. (Chromidrose et bromidrose chez une fille de 14 ans.) J. Comby.—p. 147.
29 Trychophyton Scalp Disease in Children. (Le kérion de Celse chez les enfants.) J. Comby.—p. 149.

26. **Pneumococcus Diphtheria.**—Reh reports eleven cases encountered at Geneva in which the symptoms, the false membranes and the course of the disease seemed to be unquestionably typical diphtheria, but bacteriologic examination showed them to be of pneumococcus origin. The patients were all children between 8 months and 7 years old. One had a pseudomembranous conjunctivitis, 4 a pseudomembranous sore throat, 5 membranous croup, with expulsion of the false membranes, and one had croup with the false membranes extending into the finer bronchi, and terminating fatally. All the others recovered rapidly and without complications. In treatment he advises diphtheria antitoxin as it is impossible to exclude diphtheria under two or three days, but bacteriologic examination is important for the prognosis, as pseudomembranous pneumococcosis develops like a purely local affection, without complications, and soon subsides. The sudden and stormy onset, the rapid course and usual absence of complications correspond to what we know of the ephemeral vitality and virulence of the pneumococcus. Comby insists that the false membrane cannot be distinguished in any way from that of diphtheria. No contagion developed from Reh's cases. Three of the children required intubation; in one the tube had to be introduced nine times with a total intubation of over twenty-seven days.

28. **Colored Sweat.**—Comby's patient is a girl over 14 who has never menstruated and is rather delicate and nervous, and has had leukorrhea for years. There is also a tendency to keratosis in the family. The child sweats readily; the sweat is of a disagreeable, pungent odor and the underclothing in the axillae becomes discolored with blackish stains as if stained with ink. The case resembles that reported by Blanchard in 1907 in a boy of 13 with black sweat below the eyes. A black pigment in this case was deposited around the sweat pores of the lids; it seemed to be of the nature of choroid pigment. Comby has also encountered a case of yellow chromidrosis. This was in a man of 28 who from childhood had had his flannel undervest stained yellow in the axillae. Linen and cotton did not take the stain. Chabbart in 1895 reported a case of yellow chromidrosis in a boy of 13 and related that the parents also had this yellow chromidrosis. It is possible, Comby suggests, that the leukorrhea in his case reported in detail may have some connection with the chromidrosis. He adds that chromidrosis is always regional, and may be blue, red or black, yellow or green. There is evidently some chromogen in the sweat which produces the color on oxidation from the air.

Paris Médical

March 10, VII, No. 10, pp. 197-212

30 *Experimental and Histologic Study of Shell Shock of the Internal Ear. War Deafness. (Commotion des labyrinthes.) Prenant and A. Castex.—p. 197.
31 Paralysis of the Sensory Pneumogastric. M. Vernet.—p. 202.
32 Indications for Extraction of Projectiles. A. Binet.—p. 206.
33 Successful Treatment of Comminuted Fracture of the Thigh. (Comment nous avons soigné la fracture de cuisse par coup de feu du sous-lieutenant-aviateur Jean Chaput.) Chaput and Truchet.—p. 209.

March 17, No. 11, pp. 213-228

34 *Renal Insufficiency with Gastro-Intestinal Disturbance in Soldiers on Active Service. C. Mattei.—p. 214.
35 *Paradoxic Pulse as Sign of Pericarditis with Effusion. P. Chavigny.—p. 219.
36 *The Nervous Disturbance with "Trench Foot." (Troubles objectifs de la sensibilité cutanée dans les gelures des pieds; l'acrotrophodynie paresthésique des tranchées.) J. Cottet.—p. 222.

30. **Shell Shock of Internal Ear.**—Prenant and Castex reproduced on six rabbits and ten guinea-pigs lesions similar to those induced in soldiers by the explosion of a shell near by. The cage with the animals was placed close to cannon during a cannonade and the deafness that resulted was tested with a shrill whistle, the barking of dogs, and thorough examination by all the modern otologic and galvanic tests. Conditions as to the hearing were found precisely like those of the common war deafness. The middle ear seemed to escape, but the labyrinth crushed down, a kind of rupture of the cochlea. This affords ample explanation for the gravity of war deafness.

34. **Insufficiency of the Kidneys and Gastro-Intestinal Derangement.**—Mattei relates that among the 620 soldiers admitted to his service devoted to intestinal disease, there were quite a number in whom the bowel symptoms seemed to be secondary to severe derangement of the kidneys. Aside from 25 with complete renal insufficiency and from 25 with true dysentery and albuminuria, there were 61 of this group. Some of the cases ran an acutely fatal course, but in all the somnolent aspect arrested attention from the first. Recovery did not occur in any case until the urea content of the blood had returned to the normal range. When the urea content kept high, the sickness kept up, with somnolency, headache, vomiting, epistaxis and eruptions. In the few cases that came to necropsy, the digestive tract showed only minimal changes but the kidneys were badly diseased. The bacteriologic blood findings were negative but the stools presented various bacilli including the dysentery bacillus and ameba. Four-fifths of the patients had a history of some severe infectious disease more or less recently, scarlet fever, measles, diphtheria or typhoid fever. He remarks that it is difficult in his service to learn whether the men have or have not had syphilis. He explains the whole trouble as the effect of intense overwork, with sleeplessness and errors in diet, with resulting lessened resistance on the part of the bowels and some intestinal infection setting up diarrhea. The previously damaged kidneys suffer from the diversion of fluids to the intestines, and nitrogenous waste accumulates, with toxic disturbances, setting up a vicious circle with the kidneys bearing the brunt of the trouble. Treatment directed to the kidneys gave the greatest benefit.

35. **Pericarditis with Effusion.**—Chavigny insists that the paradoxic pulse is not peculiar to mediastinopericarditis, as many believe. It is encountered also with certain aneurysms, stenosis of the larynx and croup, but as a rule it is the sign of pericarditis with large effusion. He adds that pericarditis with effusion is of two forms: "those that are diagnosed but which do not exist in reality, and those which are genuine but are overlooked in the clinic." But the paradoxic pulse can almost be counted on; he found it pronounced in his four cases of pericaditis with retrocardiac effusion. Surgical measures are indicated at once. He cured two of his four patients with an emergency pericardotomy, and thinks that it might have proved effectual in the fourth case if it had been accepted. In this latter case there were none of the classic signs of the affection, the disease was latent throughout, but the paradoxic pulse gave the clue. The man was pale, with pain in the lower side of the left thorax and there was evidence of a pleural effusion but all this was not enough to explain the extreme dyspnea.

36. **Trench Frostbite.**—Cottet relates that the condition known as trench frostbite is more properly a neuritis; both arms and legs may be affected. Cold and wet affect the nerves and the trophic disturbances which result may long persist. He is convinced that there is probably always some local predisposition, and urges the necessity for seeking out the soldiers with this predisposition in order to guard them against factors liable to bring on trouble. Those predisposed have various paresthesias. Up to the knee and elbow thermic and contact sensations are dull as also the sensation for pain. This hypo-esthesia can be determined symmetrically on both legs, in segmental arrangement, and occasionally on the arms likewise. The sensation in feet and hands may vary.

Presse Médicale, Paris

March 5, XXV, No. 14, pp. 129-144

37 *Transfusion of Defibrinated Blood and of Rinsed Corpuscles after Hemorrhage. E. Hédon.—p. 129.
38 *Diagnosis and Treatment of Gastric Ulcer; Technic for Excision. V. Pauchet.—p. 132.
39 Present Status of Sphygmomanometry. (Etude comparée des méthodes générales de sphygmomanométrie.) J. A. Barré and A. Strohl.—p. 134.
40 Present Status of Knowledge of Secondary Sexual Characters. Editorial.—p. 137.

March 8, No. 15, pp. 145-152

41 *Bone Grafts. (Remarques sur la greffe osseuse.) L. Imbert.—p. 145.
42 Keloids on War Wounds. (Cheloïdes et blessures de guerre.) J. Etienne.—p. 146.

37. **Transfusion of Blood After Hemorrhage.**—Hédon recalls that in 1902 he reported successful experiments on almost exsanguinated rabbits, restoring them to clinical health by injecting saline to which he had added red corpuscles thoroughly washed from all traces of blood serum. The corpuscles were taken from the blood of an animal of the same species. On the other hand, defibrinated blood seems to possess certain toxic properties in transfusion, but his recent research has shown how this can be avoided. He remarks that direct transfusion of the whole blood is undoubtedly the preferable method, but when this is not practicable, defibrinated blood or rinsed corpuscles may prove an effectual substitute. The rinsed corpuscles method offers possibly a means to restore the purity of the blood when, in the course of intoxications or infections, it contains the toxic principles in the fluid part while the red corpuscles are still intact. In such circumstances repeated venesection is indicated, and by collecting, rinsing and reinjecting the red corpuscles, large amounts of blood can be withdrawn as the patient in this way will lose only the blood serum. Fleig has reported a case in which this blood-letting plus transfusion of corpuscles was applied several times, and each time the symptoms of uremia disappeared at once afterward, and the man left the hospital much improved. Jurevitch and Rosenberg announced in 1914 that rabbit red corpuscles rinsed in a solution of sodium chlorid and sodium citrate retain their vital properties outside the body for several hours, and exsanguinated animals recuperate under reinjection of the rinsed corpuscles while the controls all die. He adds that Peyton Rous and Turner are even more emphatic in stating that washed red corpuscles kept even for three or four weeks answer the purpose. The solution they found most favorable for human reds is a mixture of three parts of blood and two parts of an isotonic solution (3.8 per cent.) of sodium citrate and five parts of an isotonic solution (5.4 per cent.) of glucose, keeping the whole chilled, at a temperature of from 1 to 3 C.

Hédon's experimental research and clinical experience have shown that fresh defibrinated blood is quite toxic, but that this toxicity rapidly subsides. Dilution does not seem to attenuate the toxicity, but letting the blood stand for a few hours, kept chilled, seems to annul all toxicity. Addition of sodium citrate to fresh defibrinated blood in amounts sufficient to prevent coagulation reduces its toxicity but does not annul it altogether. But when the defibrinated blood is several hours old, addition of sodium citrate seems to do away with the last tendency to toxicity. The proportions in his experimental tests were 0.3 gm. of sodium citrate to 60 c.c. of the defibrinated blood. An additional precautionary measure is to start with a small hypotoxic injection, half an hour before the main injection. This seemed to be the effectual factor in the survival of two rabbits when all the controls promptly succumbed. The two rabbits had been given an intravenous injection of 6 c.c. of fresh defibrinated blood after 50 c.c. of blood had been withdrawn. Half an hour later the remainder of the defibrinated blood (45 c.c.) was injected without mishap. In conclusion he reiterates that defibrinated blood should never be used fresh, but only after it has been kept

for several hours, twenty-four hours if it can be kept chilled. It should be filtered slowly through paper moistened with saline, and then diluted with physiologic solution to which 3 per thousand sodium citrate can be added. The injection should be made slowly, possibly commencing with a small injection. Hayem reported that in his experiments on dogs the red corpuscles injected in the defibrinated blood in time die off, but that this is masked by the very active blood production set in play by the injection.

38. **Gastric Ulcer.**—Pauchet insists that operative measures are indicated when a gastric ulcer becomes chronic and attacks of hyperchlorhydria return. He extols excision as the simplest and most rational method of treatment, and describes the preferable technic for this, with eight illustrations, especially when the ulcer is in the lesser curvature. In this location, gastro-enterostomy is usually futile. After recovery from the operation, the patient should be supervised both by the physician and the roentgenologist as chronic ulcer often is but one link in a chain of disturbances. It sometimes accompanies chronic disease in the gallbladder or appendix, a Lane's kink, ptosis or insufficiency of the pancreas, kidneys or liver.

41. **Repair with Bone Grafts.**—Imbert denies that a bone graft bridging a gap can produce callus enough to fill up the gap. But the gap gets filled up, nevertheless, and he ascribes this to the stimulation of callus production in the stumps by the presence of the graft. The graft serves also to direct the callus production along the desired lines. Its stimulating action is most pronounced, naturally, when the bone graft is introduced into the center of the stumps rather than when it is applied to the side.

Progrès Médical, Paris

March 10, XXXII, No. 10, pp. 77-84

43 *Topography of the Sensory Modifications in the Course of Physiopathologic Disturbances. (Constitution d'un syndrome radiculo-sympathique réflexe.) L. Lortat-Jacob, R. Oppenheim and A. Tournay.—p. 77.

44 *Hystero-Traumatism with the Physiopathologic Clinical Picture Cured by Reeducation. J. Ferrand.—p. 81.

43-44. **Sensory and Motor Disturbances of Reflex Origin.**—The disturbances described are classified as physiopathologic, the mind not being a direct factor. The disturbances are more of a reflex nature, but the reflex mechanism involved is more extensive than Charcot's conception of reflex functioning. The entire root, spinal cord and sympathetic systems may be involved, as is described, with a few typical illustrations. Ferrand reports an instructive case—already subjected to two useless operations—and emphasizes that treatment should be along the lines of that for hystero-traumatism, ranging as required from moral suasion to the most painful electric currents. By these means treatment is often crowned with success. The physiopathologic symptoms, he reiterates, are nothing new, and they do not contraindicate psychotherapy. He does not approve of this term "physiopathologic" nor of "reflex"; both indicate that hysteria is not responsible for the manifestations, while he is convinced that they fit into Charcot's frame of hystero-traumatism.

Policlinico, Rome

March 25, XXIV, No. 13, pp. 405-436

45 Means to Facilitate Medical and Surgical Work at the Front. (Proposte per il servizio sanitario chirurgico del R. Esercito al fronte.) R. Alessandri and R. Bastianelli.—p. 405.

46 Artificial Devices to Aid in Overcoming Paralysis of Peripheral Nerves. G. Dragotti.—p. 410.

47 *Tendon Plastics to Counteract Traumatic Radial Paralysis. L. Isnardi.—p. 413.

48 *Quantitative Test for Uric Acid in the Urine. A. Angiolani. —p. 415.

49 Plea for More Necropsies. (Scintille vivificatrici nella materia morta.) E. B. Lay.—p. 415.

February, Surgical Section No. 2, pp. 49-96

50 Extraction of Projectiles Under Roentgen Control. E. Fioretti. —p. 49.

51 *Mixed Tumor of Tonsil Region. B. Quarella.—p. 60.

52 Use of Pedunculated Skin Flap after Removal of Optic Endothelioma. (Sopra un caso di resezione dell'ottico, per endotelioma, mediante il mio processo modificato.) S. Calderaro.—p. 75. Commenced in No. 1, p. 40.

53 Mycosis of the Throat. (Zymonematosi indigena della gola.) G. Basile.—p. 88. To be continued.

47. **Tendon Graft for Radial Paralysis.**—Isnardi's patient had been wounded in the arm six months before, and the radial paralysis had long shown its permanent character. The hand drooped on the wrist almost parallel to the forearm and although nothing was done to conquer the paralysis yet great benefit was derived from bringing the hand up into a line with the forearm. This was accomplished by resecting 2 cm. from each extensor tendon and suturing the stumps. When an operation on the nerve is not deemed advisable, he thinks this shortening of the tendons might prove advantageous both for hand and foot. He has not been able to persuade any of the soldiers with sciatic paralysis to submit to this operation as, he says, they are afraid they will be cured too well. He remarks that the government is inspired by an unhealthy sentimentalism in allowing the soldiers the right to refuse even rational operative measures which would reduce crippling inability. At least, he declares, this refusal on their part should be taken into account in computing the pension later.

48. **Quantitative Test for Uric Acid in the Urine.**—Angiolani mixes 250 c.c. of the urine with 10 c.c. of concentrated hydrochloric acid and sets aside for twenty-four hours in a cool place. The uric acid crystals which collect are rinsed repeatedly on a filter with water acidulated with hydrochloric acid. Then 20 or 25 c.c. of a 10 per cent. solution of potassium hydrate is poured on the filter which dissolves the uric acid crystals. The filter is rinsed further with 100 c.c. distilled water which is added to the filtrate, and sulphuric acid is added until the fluid is strongly acid. The uric acid present is estimated by titration with a 4:1,000 solution of potassium permanganate, made with distilled water; 1 c.c. of this solution corresponds to 0.00857 gm. of uric acid. The simplified formula, V representing the number of cubic centimeters of the permanganate solution, is: U (per thousand) $= 0.034 \times V$. A table is given showing the proportion of uric acid that corresponds to amounts of the permanganate solution from 1 to 48.5 c.c.

51. **Mixed Tumor of the Tonsil.**—Quarella reports a case which he calculates is the eighty-ninth case on record of a tumor in the tonsil, and the first on record of a mixed tumor of embryonal origin. His patient was a girl of 15 and the tonsil tumor was removed without mishap. It measured 5.5 by 3.5 cm. and had been first noticed as a very small bunch about four months before. The bibliography is appended, classified as the tumors were benign or malignant.

Riforma Medica, Naples

March 2, XXXIII, No. 9, pp. 225-252

54 *Improved Technic for Suturing the Liver. (Nuova tecnica per la sutura del fegato.) A. L. Soresi.—p. 240.

March 10, No. 10, pp. 253-280

55 Trophic Lesions Following War Wounds. (Contributo allo studio delle lesioni del simpatico nelle ferite dei nervi degli arti.) L. Ferrannini.—p. 253. Commenced in No. 9, p. 226.

56 Gas Gangrene After War Wounds. (La gangrena gassosa delle ferite di guerra.) C. Oliva.—p. 256. Commenced in No. 7, p. 172.

57 Foreign Body in the Bladder. (Contributo allo studio dei corpi estranei in vescica.) T. Cattaneo.—p. 263.

54. **Suture of the Liver.**—Soresi passes the needle through a small wheel made of fine silver wire. Each wheel has eight spokes and the diameter varies from 6 to 15 mm. as desired. By thus reenforcing the suture at each end, the threads never tear out and the suture takes less time, while these little wheels never caused the least inconvenience in his experimental research and in the numerous clinical cases in which they have been applied. The silver seems to have an electrolytic action which aids in warding off infection, while silver seems the metal best tolerated by the tissues. The suturing is done with catgut. He describes a case in detail in which both stomach and liver had been torn, and the patient, he is sure, owes his life to the speed with which the liver could be sutured at two points with the aid of four little wheels. He gives some illustrations showing how to make the most solid knot over the wheel.

Brazil Medico, Rio de Janeiro

March 10, XXXI, No. 10, pp. 81-88

58 *Suppuration in Goitrous Thyroid. (Um caso de estrumite.) F. Luz.—p. 82.

March 17, No. 11, pp. 89-96

59 Evolution of the Schistosomum Mansoni. A. Lutz.—p. 89. Commenced in No. 10, p. 81.
60 Poisonous Fishes of Brazil. (Sobre os peixes venenosos.) O. O. R. da Fonseca.—p. 90. To be continued.
61 Heliotherapy in Brazil. A. Moncorvo, Jr. Continuation.—p. 91.

58. **Suppuration in a Goiter.**—The woman of 50 had had the goiter for twenty-five years but it had never caused any disturbance until the last few months, when, after an attack of dysentery, a large tumor developed acutely in the thyroid with a fistula into the esophagus. The tumor grew so large it threatened suffocation. Some relief was obtained when pus was expelled into the esophagus. Luz incised and drained the tumor, finding calcareous degeneration in part of the thyroid. After the patient had recovered from this he resected the left lobe of the thyroid, the seat of the tumor, and there has been no further trouble since.

Semana Medica, Buenos Aires

XXIV, No. 1, pp. 1-28

62 Problem of Painless Labor Not Yet Satisfactorily Solved. (Sobre la supresion del dolor en el parto fisiologico.) J. A. Beruti.—p. 1.
63 *Paralytic Accidents After Treatment for Rabies. C. R. Mejio.—p. 10.
64 *Leprosy in Argentine Province. E. F. Solari.—p. 15.

No. 2, pp. 29-56

65 Malaria in Argentine Army during 1915. P. J. Garcia.—p. 29.
66 Anti-Tobacco League. (La lucha antitabaquica.) E. R. Coni.—p. 34.
67 Gonococcus Perinephritic Abscess Treated with Vaccine. (Absceso perinefritico a gonococos tratado con el Haptinogeno Gono Mendez.) J. C. Mira.—p. 37.
68 *Lymphocytosis in Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 39. Continuation.
69 Progress in Ophthalmology in Spain and Spanish America in the Present Century. J. Santos Fernandez.—p. 44.
70 Measles an Alimentary Arsenical Poisoning. S. V. de Castro.—p. 49.
71 Scarlet Fever an Alimentary Iodin Poisoning. S. V. de Castro.—p. 49.

63. **Paralysis After Pasteur Treatment for Rabies.**—Mejio reported six years ago ten cases of paralytic accidents consecutive to Pasteur treatment in prophylaxis of rabies. In each the symptoms suggested acute transverse myelitis in the dorsolumbar region. Since then he has encountered a number of cases but in this later series the disturbances were of the nature of peripheral neuritis, polyneuritis or acute ascending paralysis. In the total 19,800 persons who have been treated at the Pasteur Institute at Buenos Aires in his charge, twenty-four developed these paralytic accidents and in four the consequences were fatal. Only ninety-three of the many thousands treated succumbed to rabies, a total of 4.76 per thousand. He is inclined to think that the paralysis might be warded off by greater care in preparation of the virus and of the patient. The tendency is to shorten the course and this he warns may be disastrous. In seven of the eleven cases recorded here the paralytic phenomena were restricted to a limited region and soon subsided more or less completely. The region affected was exposed to the air and thus subject to chilling. The other four were the fatal cases mentioned above. One patient was a child of 6, apparently healthy a month after the Pasteur treatment. He then had a fall from a hammock and the next day his legs were paralyzed and the paralysis proved of the ascending type, fatal in two weeks. The ascending paralysis in the three other patients, all adults, developed a day or two after the close of the treatment and the men died in two or three weeks.

64. **Leprosy in Argentine Province.**—Solari states that the leprosy in the nineteen cases known in the province was imported, except in one family in which the two daughters had acquired the disease from the mother. He accepts a microbian and contagious character for leprosy, and reiterates that each leper that is isolated is a focus of contagion extinguished.

68. **Lymphocytosis in Syphilitics.**—Mayer and Gourdy's communications on this subject have been appearing weekly in the *Semana* for several months. The main points were summarized in these columns, Feb. 24, 1917, p. 668.

Siglo Medico, Madrid

March 24, LXIV, No. 3302, pp. 185-204

72 *Large Traumatic Hernia of the Diaphragm. Gil y Casares.—p. 186.

March 31, No. 3303, pp. 205-224

73 *Progressive Paralysis; Two Cases. (Dos casos de paralisis general progresiva de los enajenados.) E. M. Villapadierna.—p. 206. Commenced in No. 3302, p. 189.
74 The Pathology of Southern Spain. (Caracteristicas regionales de la patologia andaluza.) F. F. Martinez.—p. 216. To be continued.

72. **Hernia of the Diaphragm.**—The young man was under observation for over a year but did not seem to suffer chronically from the extensive protrusion of the stomach through a stab wound of the left diaphragm. The heart and pulse seemed to be normal and there was no dyspnea. The only disturbance was occasional dyspepsia with a sensation of oppression after eating. The Roentgen findings are given, showing how a sound introduced into the stomach could be seen high up in the left chest. The percussion and auscultation findings are described in detail. The diagnosis at first was traumatic hydropneumothorax but puncture was negative both for fluid and air.

73. **Progressive Paralysis.**—Villapadierna concludes his study of two recent cases and review of previous experience and the literature, with the statement that although spirochetes may be found in the brain of patients with progressive paralysis, yet the lack of favorable influence from specific treatment indicates that these spirochetes have undergone some profound biologic modification. This can be the only explanation for their nonresponse which is in such marked contrast to the behavior of the spirochetes in cerebral syphilis.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

December, 1916, XVI, No. 2, pp. 213-443. German Edition. Last indexed April 28, p. 1297

75 *Laking of the Red Corpuscles at Temperatures over 118 F. (Ueber das Lackfarbenwerden der roten Blutkörperchen durch die Wärme (Wärmehämolyse.) H. Takaki and H. Miyazaki.—p. 213.
76 *Further Research on Paroxysmal Hemoglobinuria. T. Kumagai and I. Ito.—p. 227.
77 *Modified Micromethod for Determining Sugar Content of Blood and Urine. (Mikromethode der Zuckerbestimmung im Blute und im Harne.) G. Momose.—p. 271.
78 *Proteus Infection of Middle Ear. (Ueber den Bacillus proteus vulgaris bei chronischen Mittelohreiterungen und deren Komplikationen.) T. Wada.—p. 289.
79 *Experimental Labyrinthitis. Y. Hosoya.—p. 333.

75. **Warmth Hemolysis.**—The hemoglobin may escape from the red corpuscles under the influence of temperatures between 48 and 70 C., but the corpuscle body does not become disintegrated, and hence the process is really merely laking, not hemolysis. It occurs at temperatures too low to melt the lipoid covering of the corpuscles. The temperature, time, concentration and tendency to anemia seem to modify the process according to mathematical laws.

76. **Paroxysmal Hemoglobinuria.**—Kumagai and Ito four years ago reported their conclusions from study of twenty-five cases of hemoglobinuria, and they now supplement this with a further series of five typical cases of paroxysmal hemoglobinuria and thirty in a latent stage. The detailed findings are given in numerous tables. They confirm the assumption that autohemolysis can occur only when at the time of the chilling both autohemolysin and complement are present in the blood. The red corpuscles of those subject to hemoglobinuria are not in the least more fragile than the reds of normal persons. Among other data presented as the results of the research described, is the fact that when the autohemolysis is prevented by an anticomplement present, the latter can be removed by means of adsorption by kaolin.

77. **Micromethod for Sugar Determination.**—Momose reiterates here his previous endorsement of the advantages of his modification of the Pavy-Kumagawa-Suto reduction test for sugar in blood or urine (1913). He says that the findings are reliable even with only 1 c.c. of blood while the technic is simple and easy. An illustration is given of the little apparatus as modified from the original design. The principle of the test is to drop the fluid—after expulsion of air oxygen—into the simmering ammoniacal copper solution and titrate with hydroxylamin.

78. **Proteus Infection of the Middle Ear.**—Wada has compiled thirty cases from the literature in which the *Bacillus proteus,* alone or with other germs, was found in chronic disease of the temporal bone and its complications. In twenty-seven the brain was involved, mostly with fatal outcome. He has encountered in his own practice seven cases of proteus otitis media; four were cured by operative measures, one recovered under palliative treatment, and the others are still under treatment. In two of the cases there were intracranial complications. Most of the others had caries with cholesteatoma. He ascribes his success to his early intervention. Operative treatment is the only protection against the spread of the infectious process and dangerous complications. The proteus seems to be a secondary invader, but it assumes pronounced pathogenic properties. Typhoid serum agglutinates the proteus. The latter is pathogenic for mice, guinea-pigs and rabbits, but not at all by way of the digestive tract.

79. **Experimental Labyrinthitis.**—Hosoya devotes 110 pages to his account of his research on monkeys, dogs, cats, rabbits and guinea-pigs, inoculating them directly through a long incision below the ear, underneath the musculature of the neck. The germs used were streptococci, staphylococci, typhoid, diphtheria, colon, plague and human and bovine tubercle bacilli, besides diphtheria toxins and caustics such as chromic and trichloracetic acid, the actual cautery and bullets. The article is accompanied by six full page plates, one colored, and five double-page tables showing the details and outcome of the experiments on sixty-one animals, under twelve headings. This experimental labyrinthitis displayed a constant tendency to spontaneous recovery except in the tuberculous cases.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 10, I, No. 6, pp. 353-432

80 Physiologic Acetonuria. J. Koopman.—p. 366.
81 *Drugs Now Available in Holland. (Geneesmiddelen in oorlogstijd.) P. van der Wielen.—p. 374.
82 Juvenile Paralytic Dementia; Four Cases. G. C. Bolten.—p. 378.
83 Glass Syringe Crushed in Vagina. (Een niet alledaagsch ongeval.) J. A. P. de Bruyn.—p. 388.

81. **Drugs in Wartime.**—A physician has appealed to the *Tijdschrift* for information in regard to the dependability of the drugs now available in the Netherlands, including the home-made substitutes for drugs formerly supplied by importation. The reply states that it can be accepted as the rule that none of the drugs now available comply in every respect with the requirements of the Pharmacopeia. But the impurities are usually of a harmless nature; they consist mostly of sulphates, chlorids and iron, and they are present in such amounts that they are readily demonstrated by the usual tests for such substances. In a recent course of extensive research by the writer, who is professor of pharmacy and materia medica at the University of Amsterdam, he found arsenic or lead only in a single instance each. He says that the manufacturing chemists in the past few years have supplanted the chemical drugs with synthetics (*chemicälien*), and if circumstances now are forcing a return to the simple chemical drugs, this, in his opinion, will be not a calamity but quite the reverse. He suggests that it might be well to issue a "war pharmacopeia," specifying the limits permissible to impurities—or rather by-substances—in the drugs now available, with the proviso that they are to be used as medicines and not as reagents. Among other articles discussed, he says that the price of cod liver oil is not more abnormal than the prices for other products. The Norwegian dealers keep the price up, and the only remedy is for the government to pay part of the price of each cask. Under the present circumstances a cheaper fat, possibly butter, has to be ordered in place of cod liver oil. He remarks in conclusion that the price of drugs is too high even for wartimes. They pass through many hands; even the wholesale dealers are second or third in the chain, and reliable market reports are not available now.

Hospitalstidende, Copenhagen

March 14, LX, No. 11, pp. 249-272

84 *Optochin in Treatment of Pneumococcus Infection. K. K. K. Lundsgaard.—p. 249.

March 21, No. 12, pp. 273-296

85 *Five Years of Radium Treatment of Cancer. (Oversikt över resultaten av kräftbehandling vid Radiumhemmet i Stockholm 1910-1915). G. Forssell.—p. 273.

84. **Optochin.**—Lundsgaard is an ophthalmologist, and he remarks that optochin has exceptional interest for his specialty on account of the possibility of its proving effectual in pneumococcus affections of the eye, and also of the amblyopia which sometimes has followed its use internally. As the pneumococcus is responsible for serpiginous ulcer of the cornea in about 95 per cent. of all cases, optochin in local application to the cornea has scored a triumph. It induces complete anesthesia of the cornea a few minutes after instillation of the 1 per cent. solution. Leber was the first to apply it here (1913), and all agree, he says, that for ulcus corneae serpens it is superior to all other means of treatment. The results will be still better when the general practitioner hastens to instill optochin at the first suspicion of ulcer of the cornea. The instillation should be repeated every hour, night and day, at first, to obviate the breeding of a refractory strain of pneumococci. Or an optochin salve can be used. The patient should recline after each instillation. The course of treatment takes ten days on an average. There is no need for any operation on the lacrimal sac. As to optochin blindness, he has seen a case in consultation and reviews several cases from the literature. The amblyopia is generally transient; the spasm of the vessels subsides and vision returns in some cases, but not in all. Serious sequels were left in some cases, so that the apprehension as to its internal use seems to be growing. His case presented the typical picture of optochin blindness. Totally or nearly totally blind at first, central vision gradually returned but colors cannot be distinguished, and the visual field is still extremely contracted, as if one were looking through a long narrow tube. The disturbance in the eyes seems to be from spasmodic contraction of the vessels, and he suggests that it might be possible to ward this off, perhaps, by giving some vessel-dilating drug along with the optochin.

85. **Five Years Radiotherapy of Cancer.**—Forssell gives an oversight of the results of treatment of 1,015 cancer patients at the Stockholm Radiumhemmet. The cases are classified by location, stage, etc., and the technic is described in detail. The main reliance was on radium, but the Roentgen rays were often used. In 207 cases of deeply rooted inoperable cancer in different organs, primary or recurrence, a clinical cure was realized in fourteen; thirty-five were permanently improved, and eighty-six did not seem to be influenced by the radiation. But 52.2 per cent. were notably improved by the treatment. Even among those only temporarily improved, the benefit was striking although it was not permanent.

Hygiea, Stockholm

LXXIX, No. 5, pp. 193-256

86 *Cutaneous Affection Resembling Primary Syphilid in Young Woman with Inherited Syphilis. (Utslag, liknande ett syfilitiskt första exanthem hos en 19-årig hereditärsyfilitiker.) N. Rhodin.—p. 193.

86. **Primary Syphilid with Inherited Syphilis?**—Rhodin was unable to find anything suggesting the primary sore of syphilis in the case described, but the eruption resembled in every respect the primary cutaneous manifestations of syphilis. The young woman was known to have inherited syphilis and presented numerous stigmata. The Wassermann test was positive, and he does not venture to decide whether the eruption was a tardy manifestation of the inherited disease or a sign of newly acquired superposed infection.

Norsk Magazin for Lægevidenskaben, Christiania

March, LXXVIII, No. 3, pp. 281-392

87 Experiences with Traumatic Tetanus at Christiania Hospital. H. J. Vetlesen.—p. 281.
88 *Fatal Tetany in Young Man. S. Kjølstad.—p. 307.
89 Tuberculous Ulceration on Dorsum of Penis. (Et tilfælde av tuberkuløse saar paa genitalia.) E. Bruusgaard.—p. 311.
90 *Tardy Manifestations of Inherited Syphilis with Negative Wassermann. E. Bruusgaard.—p. 316.
91 *Complications of Gastro-Enterostomy. O. Tandberg.—p. 325.
92 *Extrapleural Operations in Treatment of Pulmonary Tuberculosis; Eleven Cases. (Erfaringer om ekstrapleural torakoplastik.) P. Bull.—p. 335.

88. **Fatal Tetany in Adult.**—Kjølstad reports a case of fatal tonic convulsions in a man of 22. He had had an attack of convulsions about once a year during the last four years, always preceded by getting chilled. The attacks lasted a day or two, beginning with pains in the stomach and cramps in the limbs. The urine was normal but there was profuse diarrhea each time after the convulsions had subsided. In the intervals his health was good and he never had dyspeptic disturbances. The patient lived in a focus of endemic goiter. He succumbed in an unusually severe attack of the tetany, under increasing dyspnea and heart weakness. Necropsy was not permitted. He had worked as usual at roadmaking that January day up to his last attack, but had complained of cold feet. The attack came on after two hours in bed and proved fatal in forty-eight hours.

90. **Tardy Congenital Syphilis.**—The boy of 10 had always seemed to be healthy except for what was assumed to be lupus of the hard palate and nasal mucosa, which had begun two years before. The Wassermann reaction was negative, the Pirquet pronounced, but under potassium iodid the lesions have almost completely retrogressed. The assumption of syphilis was confirmed by examination of the boy's three sisters who all presented tertiary syphilitic lesions and stigmata, although not previously recognized as such. The five cases reported are instances of the damage wrought by failure to recognize the manifestations of inherited syphilis when they appear first as the child approaches puberty or the twenties with nothing to suggest syphilis before.

91. **Complications of Gastro-Enterostomy.**—Tandberg has had complications develop only in two of his fifty gastro-enterostomy cases of pyloric ulcer. These patients were men of 27 or 35, and seemed to be doing well after posterior retrocolic gastro-enterostomy with a short loop. In both at the eighth or ninth day the jejunum became occluded. The occlusion was corrected by a secondary operation in one case, but in the other further complications constantly developed, compelling five supplementary operations. No permanent relief was obtained until the pylorus and jejunum were resected and Roux' technic was applied ten months after the first laparotomy. Great palliative relief had been obtained by introducing a T drain, one end in the stomach, the other in the efferent loop, the stem emerging through the abdominal wall. There was no nausea or vomiting when this drain was in place, but they returned each time when it was removed. The gastro-enterostomy and also the pylorus were found permeable at each intervention, so the cause of the persisting nausea and vomiting is still a mystery. With the T drain it proved possible to supply adequate fluids and food and thus build up the patient's strength enough to stand the final resection.

92. **Operations for Pulmonary Tuberculosis.**—Bull's eleven cases of extrapleural thoracoplasty have convinced him that the general practitioner should not fail to give his patients the chance of recovery offered by these operations in suitable cases. That is, when a unilateral or predominantly unilateral tuberculous process is not cured by rational expectant treatment, including induced pneumothorax. Good results in such cases may still be obtained with an extrapleural operation on the chest wall. He works under paravertebral or local anesthesia, after giving 0.01 gm. morphin subcutaneously an hour and again fifteen minutes beforehand. He describes the incision and the technic with which he resects nine ribs to a total of 150, 160 or 183 cm. The operation is easier on women than on men as the ribs are thinner and they can be stripped more easily than in men. Four of his eleven patients were clinically cured; two have succumbed since to the progress of the disease, and three died from postoperative pneumonia or infection or both. One patient has been much improved during the few months to date, and one seemed to be benefited at first but died two years later with symptoms of intestinal tuberculosis. The fact that four or five apparently doomed, progressing cases were arrested and the patients restored to health and happiness justifies this extrapleural resection of the posterior portion of the ribs from the tenth or eleventh up to and including the second.

Ugeskrift for Laeger, Copenhagen

February 22, LXXIX, No. 8, pp. 279-308

93 *Carbohydrate Starvation in Infants. (Lidelser hos Smaabørn opstaaet efter langvarig Ernaering overvejende med Kulhydrater.) C. E. Bloch.—p. 279.

93. **Fatal Results from Too Exclusive Carbohydrate Feeding of Infants.**—Bloch relates that the child was 2 months old, a twin, of healthy parents. It weighed 2 kg. at birth and was fed with barley gruel exclusively. It seemed to be thriving until two months old when it began to decline, with diarrheic stools and emaciation, intertrigo on the buttocks and xerophthalmia. The temperature could not be brought above 34.3 C. and the child died within a month. The result of the carbohydrate starvation in this case was amylogenous atrophy. If the child is given milk occasionally it may develop universal edema as in another case described, with urine free from albumin and kidney cells. This type of disturbance from carbohydrate feeding has been called hydremic atrophy, but there is no atrophy. Cases of each type are illustrated, as also of a third type in which sclerema was accompanied by contracture of the neck and arms, the head being bent far back and the arms drawn up. This third child died at its sixth month. The extreme plumpness in this case was due to sclerema, not to edema alone, as in the other case. The mothers of both these "plump" children thought they were thriving satisfactorily until toward the end. The second child was moribund when first seen, all the organs, especially the heart, being so degenerated that it was impossible for the child to rally. Small and weak infants are more liable to develop the form with atrophy, while the older and stronger children are inclined to develop the dropsical type, especially if milk has been given now and then. The opisthotonos and other contractures can be corrected but they return as the pressure is removed. They subside permanently as the child recovers. Bloch does not regard them as actual tetany.

These carbohydrate children are peculiarly susceptible to infections. In treatment, albumin and fat must be given but great care is necessary not to give too much at first, especially of cow's milk, or chronic dyspepsia may become installed. The carbohydrates must not be suppressed entirely, and the gravest consequences may follow if these debilitated babes are put on water and tea alone. Breast milk is indispensable in the severer cases, and is best for all. The stools on too exclusive carbohydrate diet are acid, often loose and thin, with minute bubbles. As the stools grow more acid they may irritate the bowels as well as the skin, and the child suffers from amylogenous colitis. As soon as nourishment is given that does not ferment so readily, the colitis subsides, and on a more nourishing food the child gains rapidly in weight. Bloch has seen infants with this amylogenous colitis who had been treated erroneously with a constipating diet, bismuth and silver nitrate. The consequences were disastrous; in some cases scurvy developed. Albumin milk is particularly useful in this amylogenous colitis, but Bloch insists that the babe must not have all carbohydrates taken from it, so he adds 2 or 3 per cent. grape sugar to the albumin milk. He cites a case in detail to show the benefit from albumin milk after bismuth had failed to induce any improvement. Acorn coffee is useful also, and tannin albuminate. The latter, he says, is entirely harmless, and doses of a few grains a day can be given over long periods even to quite young infants. In some cases the bismuth salts are more effectual; the best, he thinks is bismuth subsalicylate, but he warns that bismuth is a poison and cannot be kept up long. It is important never to give bismuth or tannic acid preparations when the child is on a water or tea diet. Severe diarrhea with general symptoms calls for a day or two of water alone and then milk and water until all signs of intoxication are past. Not until then should carbohydrates be given. But with acute dyspepsia, as a rule, barley and oatmeal soup are useful, especially when the diarrhea is due to overfeeding with milk and there is much decomposition of albumin in the intestine. The barley soup must be thin, actual barley water, and there should not be more than 2 per cent. cane sugar. This rests the bowels and in a few days normal feeding can be resumed. He adds that cow's milk must be boiled for children with these bowel troubles.

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INDUSTRIAL POISONS ENCOUNTERED IN THE MANUFACTURE OF EXPLOSIVES

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CHICAGO

Accidental explosions are so great a danger in the industry of making explosives that they overshadow the less spectacular but quite as real danger of industrial poisoning. The outbreak of the great war was followed in Great Britain by a rapid increase in the notifications of occupational poisoning from certain substances as a result of the enormous increase in the manufacture of ammunition of all kinds. What the experience of France and of the Central Powers has been we do not know, but there is no reason to suppose that they have escaped this natural consequence. Nor is there any reason to suppose that we have escaped it, since we too began to increase greatly our production of the ordinary explosives soon after the war broke out, and also to manufacture quite new ones. Consequently, it seemed desirable to learn whether here too this industry has been attended with a serious amount of poisoning, and the United States Bureau of Labor Statistics asked me to make a study of it. I visited forty-one plants in which all sorts of explosives are made except ordinary gunpowder, black powder, for its manufacture does not involve exposure to poisonous fumes or dusts. Shrapnel plants also were omitted, because shrapnel consists of steel receptacles filled with bullets and black powder. The important explosives for such a study as this are nitrocotton, smokeless powder, picric acid, trinitrotoluene, fulminate of mercury, nitroglycerin and the mixed nitroglycerin powders, and some rarer, less used explosives, belonging to the nitro-aromatic series.

In these forty-one plants there were about 30,000 persons employed in work exposing them to poisons of various kinds. Only a minority were women, about 1,100, and of these only forty were doing work which involved serious risk. This, of course, is in great contrast to foreign munition works, in which the majority of the work is done by women, and in all probability women will from now on be employed in increasingly large numbers in our plants, for much of the work is such as women can do perfectly well. There were also few lads employed in this industry, in which carelessness may result so disastrously. But this is another feature which will probably change now.

At the time this study was made, between April and December, 1916, the industry was already large and important. The poisons to which workers are exposed are unfamiliar in this country, and it seems timely to describe them, the processes in which they are encountered, and the effects they may be expected to produce. After the war is over these plants will continue to operate, even if disarmament should follow, for there are many uses to which they can be put. The guncotton factories can produce celluloid, lacquers, artificial leather and photographic films; the picric acid plants can make dyes; trinitrotoluene can be used as a peace explosive. In addition, the compounds which have been produced for this manufacture will continue to be produced for other purposes. We shall continue to distil benzene and toluene and to make phenol (carbolic acid) long after the demand for explosives is over, so that this is not to be regarded as a temporary industry which need not demand much attention because the dangers connected with it will not last long. It has become a permanent part of our industrial life.

To discover how much illness has resulted from this kind of work is difficult; indeed, it is impossible to get full, accurate figures. Superintendents naturally hesitate to give information that may seem to put their employers in a bad light, and the company physician is often quite as unwilling. In other cases, the physician with the best will in the world cannot give usable information, because he has not the habit of keeping records and can only say vaguely that he has sometimes seen as many as twenty cases of "fume sickness" on a hot night, or that he remembers a man who died in the hospital but he was not sure what killed him, so he called it pneumonia. There were only twenty-eight factories from which trustworthy data could be secured, and I found that in those twenty-eight there had been during the preceding year a little more than 2,500 cases of industrial poisoning, with fifty-three deaths. I am quite sure that this figure is less than the truth, for many cases fail to be recognized by the ordinary practitioner.

These 2,500 persons were not all seriously poisoned. There were 111 who had nothing worse than a fulminate rash; there were 205 cases of mild anilin poisoning. But with the exception of these, the form of poisoning was always fairly serious and sometimes very serious. The 2,500 were divided as indicated in the accompanying table.

It will be noted that nitroglycerin, which has been manufactured for many years in this country, has not a single case to its credit, while benzene and toluene have proved very dangerous, and trinitrotoluene, a new explosive in America, is responsible for more trouble than any substance except the nitrogen oxids so commonly evolved in nitration works. The other substances were responsible for only a few deaths.

MANUFACTURE OF EXPLOSIVES

There is always danger of nitrogen oxid fumes in the manufacture of explosives, because they are

nitrated products and the processes of nitration are accompanied by the production of these fumes, which give rise to what is commonly called "fume sickness." Haldane states that mice die after half an hour in an atmosphere containing 0.05 per cent. of nitrogen oxids. The danger is greatest in the nitration of cotton to nitrocellulose, and in the nitration of phenol to picric acid, trinitrophenol.

NITROCELLULOSE

Cotton which has been previously purified and finely divided is mixed with acids and allowed to digest till the change to nitrocellulose has occurred. The acids are nitric — which is sometimes used in 100 per cent. strength — and sulphuric acid, the latter being added to take up the water liberated in the reaction which otherwise would dilute the nitric acid. When nitration is complete, the cotton is transferred to a centrifuge — called a wringer — and the acid removed, after which it is "drowned," that is, dropped into a large tank of water and washed thoroughly. It is in the wringing and drowning that the greatest danger of fumes arises. If the acid is not strong enough, the cotton matted or not thoroughly cleansed, or if a few drops of water find their way into the wringer, there may be a rapid decomposition with an evolution of nitrogen oxids so violent that the lid of the wringer is sometimes blown off, the acid splashed about, and

SOURCES OF POISONING

Poison	Men	Women	Total	Fatal Men	Fatal Women	Fatal Total
Nitrogen oxid	1,389	..	1,389	28	..	28
Trinitrotoluene	660	43	703	11	2	13
Benzene	14	..	14	7	..	7
Nitrobenzene and toluene	12	..	12	1	..	1
Ether	52	..	52	1	..	1
Phenol	2	..	2	1	..	1
Mixed acids	2	..	2	1	..	1
Sulphuric acid	4	..	4	1	..	1
Picric acid	7	..	7	..	..	..
Anilin	205	..	205	..	..	..
Fulminate	79	32	111	..	..	..
Ammonia	1	..	1	..	..	..
Mercury	1	..	1	..	..	..
Nitronaphthalenes	2	..	2	..	..	..
Chlorin	3	..	3	..	..	..
Total	2,433	75	2,508	51	2	53

the whole room filled with a fine spray of atomized acid as well as fumes. Such an accident results not only in fume poisoning but also in severe burns if the workmen are anywhere near. In drowning, the fumes are not so heavy, and there is not the danger of acid burns.

The higher the nitration, the greater the danger. Highly nitrated cotton is used for military guncotton, for the making of the so-called nitroglycerin powders, such as ballistite and cordite. We are manufacturing ballistite for our own use and cordite for the British. Both are mixtures of high nitration nitrocotton and nitroglycerin. Cotton of lower nitration is used for the manufacture of smokeless powder, and a still lower variety for celluloid and lacquers and photographic films.

I am told that improvements in technic have lessened the number of such fires, as they are called, in cotton nitration works since I visited them last summer and fall. At that time they were so frequent as to arouse no comment at all. Eight times during a visit to one large works I saw the angry, orange yellow fumes come pouring out, the workmen fleeing before them, and the general suspension of work till the air had had time to clear. The workmen become accustomed to the fumes in great measure, and I have been choked and blinded and speechless in an atmosphere that seemed to cause them no discomfort. There is, however, no real immunity to nitrogen oxid fumes. Old hands (any one who has worked as long as eight months in the explosive industry is an old hand) may succumb as quickly as new ones to an unusually severe exposure.

Cases of Poisoning from These Compounds.— The list given in the tables begins with 1,389 cases of poisoning from nitrogen oxids (995 from nitrocotton plants, 381 from picric acid, and thirteen from nitric acid works). These varied all the way from light to fatal. In light cases, the man "chokes up," the irritation of the fumes causing a spasmodic contraction of the bronchi such as takes place in bronchial asthma, and, indeed, the attack much resembles an asthmatic seizure. Often there is cramplike pain in the abdomen as well. These symptoms are relieved by the usual first-aid remedies, chloroform shaken up in water, and often the man can go back to work on the same shift, though it is considered safer to send him home to bed. Severe and fatal cases present the same picture as the gassed soldiers from the trenches. British and French medical journals have been full of the symptomatology and pathology of chlorin poisoning as it is seen at the front, and their descriptions would fit accurately the industrial nitrogen oxid cases in our explosive works. There is the same tardy onset of serious symptoms, the man usually going home in fair condition and some hours later developing intense and increasing dyspnea; the same gastric symptoms, which are, however, often masked by the much more distressing air hunger; the same gradual filling up of the lungs with fluid which usually results in death. Among the twenty-eight deaths from nitrogen oxid poisoning on my list, sixteen were from edema of the lungs.

There is not much fear that such a case would fail of recognition, but the less violent poisoning which results in various forms of pneumonia often passes for ordinary nonoccupational sickness. This is even more the case with slowly developing inflammations of the lungs, or a recurrence of pneumonia some weeks after the original trouble. In a hospital not far from a large cotton nitration works I found the record of a young man who was exposed to an unusually large amount of nitrous fumes, recovered from the immediate effects, and then for three days suffered from headache, but without any lung involvement. On the fourth day he was taken ill, and signs of consolidation of the lung developed rapidly. He was taken to the hospital, where the diagnosis of acute miliary tuberculosis was made, but after death his lungs were found to be gangrenous. Evidently this was a secondary effect of the original injury sustained from the acid fumes. Other instances of pneumonia, sometimes fatal, were related to me by physicians who knew the nature of the processes carried on in the plants and could interpret the dangers to which the men were exposed; but many others had never thought of inquiring as to the men's occupations, and it was only when I questioned them that they began to think back and wonder whether or not the pneumonias they had seen were of this class.[1]

1. J. N. Hall and C. E. Cooper (The Effects of the Inhalation of the Fumes of Nitric Acid, THE JOURNAL A. M. A., Aug. 5, 1905, p. 396) followed the subsequent history of a number of firemen who had breathed enough nitrogen fumes to affect them seriously. Two who recovered from the immediate effects died of pneumonia four and five weeks later. A necropsy on one of these showed bronchopneumonia with early fibrous change in the solid areas. Fraenkel has described a case of bronchiolitis obliterans in a man who died in the third week after he had inhaled nitrogen oxid vapors.

Another often unrecognized form of nitrogen oxid poisoning is even more rapidly fatal than pulmonary edema. Here the poison seems to act directly on the nervous centers, and the changes found after death are comparatively insignificant. For instance, a foreigner applied for work during the heat of last summer in a picric acid plant where the fumes are unusually bad and very little attention is paid to the safety of the men. He went on with the night shift, and at 4 in the morning he was found lying unconscious in the yard. An ambulance was sent for but he died before the hospital was reached. The necropsy showed only a slight congestion of the meninges, some congestion of the lungs, the heart empty, and the blood fluid and dark.

Fortunately we have a more carefully worked up postmortem examination of this form of nitrogen oxid poisoning. Dr. George Apfelbach of the Illinois Factory Inspection Department had the opportunity to examine the body of a man who, like the one just described, died during the first shift of work. This was in a cotton nitration works on a very hot night, but the fumes from the acid were not bad enough to make any of the other men apply for treatment at the company dispensary. He had worked only about four hours, when he went out saying that the fumes were too much for him, immediately became unconscious, and died in about half an hour. Dr. Apfelbach found the lungs congested; the alveoli containing frothy fluid; the bronchi, trachea and larynx reddened; the kidneys, brain, heart, stomach and intestines absolutely negative; the spleen congested, and the blood fluid, not clotting, and dark in color. A sample of the blood was submitted to Dr. William D. McNally of the coroner's office of Cook County, who found no methemoglobin, but did find the blood slightly acid and containing traces of nitric oxid.

Among the twenty-eight deaths from nitrogen oxid poisoning on our list, sixteen were from pulmonary edema, five were of this extremely rapid form, and seven were from pneumonia.

Inflammation of the throat is not rare, and is occasionally serious. I have records of three cases of laryngeal edema, in one of which intubation had to be performed. This man did not realize that the fumes had injured his throat until about six hours later, when pain and swelling began and increased, and he had to be sent to the hospital for the dangerously increasing dyspnea.

We do not know what are the effects of long continued exposure to these vapors, beyond the fact that they act on the enamel of the teeth, so that men on the nitration area soon lose their front teeth. The wire screening in the windows of company hospitals soon rots away; the men wear pure wool shirts because cotton will not last at all, but even the thread in the seams of shirts rots away and the garment falls apart. It seems incredible that acid strong enough to attack metal and enamel should be without any effect on the mucous lining of the respiratory tract, yet I have not been able to find any evidence of chronic trouble. This is perhaps explained by the continual labor turnover, which is great in all departments of a munition plant, but always greatest in the nitrating areas.

After the cotton is nitrated there is no further danger of poisoning in a nitration works, for the washing and purifying is quite harmless. The next step is the conversion of nitrocotton to smokeless powder or mixed powders; but this is usually carried on in another plant and will be described later, as it involves quite different poisons. The explosive that follows logically after nitrocellulose is picric acid, for its manufacture gives rise to a great deal of nitrogen oxid fume poisoning, more, I believe, in proportion to the men employed, than does the making of nitrocotton.

PICRIC ACID

This is chemically trinitrophenol, and is made by the action of mixed acids on phenol (carbolic acid). It is itself a poison, and so is phenol; it follows, therefore, that while in a nitrocotton works only a minority of the force are exposed to occupational poisoning, in one making picric acid, almost all are so exposed.

The making of picric acid seems to be comparatively simple and can be carried on with a primitive equipment. The consequence is that soon after the beginning of the war many picric acid works were started in abandoned factories or hastily constructed plants, and the production was rushed in a most reckless fashion in order to fill war contracts. The worst conditions I saw anywhere were in picric acid works, not only in the small plants, but also in large establishments employing some thousands of men. The moment the mixed acids meet the phenol, there is an evolution of nitrogen oxid fumes, and if nitration is done in partly open receptacles, and hand stirring required, and if no adequate exhaust system has been installed, there may be at times a condition inside the nitration sheds that is a menace to life. Unfortunately it is in just these recklessly managed plants that medical care of the men is poorest, and provision for personal cleanliness most insufficient.

A further danger in this industry is the handling of picric acid, especially if it is dried down to less than 1 per cent. of moisture, when it becomes very dusty to handle. As a usual thing it is shipped with 10 per cent. of moisture left in. Men who handle it and get dusted over with it suffer from a dermatitis which may be extremely irritating, as I can testify from my own experience after a visit to a drying house one hot day last July. The better managed companies take pains to protect their men by baths and changes of clothing, but in the newer plants "picric itch" is taken as a matter of course.

Systemic poisoning from picric acid has been known to the French for some time[2] because the favorite high explosive of the French, melinite, consists chiefly of picric acid. The British picric acid mixture is known as lyddite. There are not many cases of picric acid poisoning to be found in our plants, perhaps because this compound is slowly absorbed and labor in these places changes rapidly, the turnover being truly enormous in some of them. A few instances were related to me of symptoms such as the French describe, abdominal cramps, vomiting, diarrhea, loss of appetite and loss of weight, leading the man to quit work for fear of serious consequences.

An unusually severe form was described by Dr. T. F. Harrington of the Massachusetts Board of Labor and Industry:

> Two men spent Sunday repairing leaky ducts in the building in which nitration of phenol was carried on. The next day, one of them began to feel very weak, his pulse was small and irregular, he was pale with a slight bluish tint, and he had headache and dizziness and palpitation of the heart. The other man went to the company physician on Friday complaining that he had felt ill ever since his Sunday's job, had been unable to eat, had nausea, headache, cough and difficulty

2. Chéron: Jour. de thèrap., 1880, p. 121.

in breathing on slight exertion, and that he felt dull and confused and very weak. These men lost two and three weeks from work.

PHENOL

The synthetic preparation of phenol, C_6H_5OH, consists in sulphonating benzene, forming benzene sulphonic acid, $C_6H_5SO_2OH$, and then alkaline fusion by which the OH group is introduced in place of the sulphonic acid group. The greatest danger in this work has already been spoken of, fumes of benzene. Phenol burns are common; systemic poisoning seems to be rare.

A fatal case was reported by Dr. T. F. Harrington, of a young chemist who stepped into a pool of phenol waste and soaked his leg in it. Soon he began to complain of ringing in the ears, dyspnea and dizziness. Then he became dazed, excited and almost hysterical. He was allowed to leave the building in this condition, but evidently he soon lost consciousness, for the next morning he was found dead on the road. The leg was then greenish black up to the knee.

BENZENE[3] AND TOLUENE,[4] OR METHYLBENZENE

These two may be considered together, since their toxicity is about equal and the symptoms of poisoning much the same. Benzene is third on my list of poisons, and just half of the cases were fatal. This is partly because slight poisoning from benzene passes over quickly and excites little attention and the cases are not remembered. All those reported to me were serious.

Benzene and toluene are poisons with: (*a*) a specific action on the nervous system, leading to dizziness, confusion, transient excitement followed by dulness, muscular twitchings, stupor, coma, respiration rapid then slow, pulse rapid and temperature subnormal; (*b*) the production of multiple hemorrhages through a solvent action on the capillary endothelium, or through the lodgment of fat emboli, causing rupture of the capillary wall,[5] and (*c*) changes in the constituents of the blood, the most striking of which is a leukopenia.

Of the seven deaths from benzene on my list, five occurred in connection with repair work in or round a still. The other two patients were engaged in sulphonating benzene for the synthetic production of phenol. All were sudden, sometimes shockingly sudden. Thus one man went to the top of a still to stop a leak, was overcome, and died in less than five minutes' time, while two fellow workmen who went to his assistance were also overcome and with difficulty revived. In another case, the men were inside the still, which was supposed to be free from benzene, became excited and then stupified, and were pulled out quite unconscious; the one who had been in longer was revived with oxygen, and the other died.

I am indebted to Dr. H. S. Martland, pathologist of the Newark City Hospital, for the records of two necropsies performed by him on men who died from benzene poisoning as a result of inhaling fumes in the sulphonating room of a phenol works. One was found dead beside the "liming vat" into which the sulphonated benzene — doubtless carrying some unchanged benzene with it — flowed, and because of the heat was volatilized at once; the other was found dying near the benzene supply pump in the same room. Dr. Martland found in the first: cyanosis of the liver, spleen and kidneys, dilatation of the right heart with dark blood, pleural ecchymoses, and small areas of acute interstitial emphysema in the lungs. In the second man the changes were similar, but here a decided odor of benzene was perceived when the lungs were sectioned, and there were tiny hemorrhages into the pleurae and pericardium. The urine contained an abnormal quantity of phenol, but no benzene.

NITRO AND AMIDO DERIVATIVES OF THE BENZENE RING

There are several of these compounds made for use as explosives, and others that are steps in the production of explosives. Most important of the former is picric acid, already described, and trinitrotoluene (triton or T. N. T.); less important are the nitronaphthalenes, diphenylamin or diamidobenzene, tetranitranilin (T. N. A.), and tetranitromethylanilin (tetryl). For the production of explosives, we find nitrobenzene and amidobenzene or anilin, chlorobenzene and dinitrochlorbenzene.

These compounds have certain characteristics in common, but cases of industrial poisoning from different members of the group vary quite a little. Curschmann[6] believes that the higher the nitration the greater the toxicity; but sometimes the lower nitrations are more volatile or more easily absorbed through the skin and therefore in actual practice more dangerous. It must also be remembered that these explosives are often not chemically pure. Crude trinitrotoluene may contain not only dinitrotoluene, but also the far more poisonous dinitrobenzene, if the toluene contained an admixture of benzene.

Briefly described, the symptoms typical of poisoning by this group depend on a direct action on the nerve centers, respiratory, heat regulating and vasomotor, and on changes in the elements of the blood, the most important of which are the formation of methemoglobin and the destruction and subsequent regeneration of red corpuscles. Some would ascribe all the symptoms to the presence of methemoglobin, but Heubner[7] has shown that they may be produced in rabbits before methemoglobin is formed, through action on the lower centers, death occurring from respiratory paralysis.

The volatile compounds, such as anilin, nitrobenzene, diphenylamin (used as a constituent of smokeless powder) and nitrochlorbenzene, produce their effects rapidly. The following case is typical of nitrobenzene poisoning:

The man had been exposed to fumes of nitrobenzene and had become dizzy and faint, so that he was obliged to go out into the open air. His face, which had been flushed, grew cyanotic, his distress increased, and a severe throbbing headache came on, the pulse became rapid and small, and respirations quick and shallow. He was taken home and put to bed where he soon lost consciousness. He lay in stupor, deeply cyanosed, almost pulseless, for several hours; then convulsions came on, and he died in less than twenty-four hours after the beginning of the attack.

Blood drawn during such an attack is chocolate colored, but methemoglobin may not be demonstrable till later unless the red corpuscles are dissolved in water.[8] Hudson[9] finds quite constantly in nitrobenzene poisoning an early leukocytosis soon changing

3. Rambousek (Concordia, 1910, p. 448) thinks benzene the more toxic.
4. Lehmann (Arch. f. Hyg., 1911, **74**, 1) finds that narcosis from toluene is more rapid and lasts longer.
5. Santesson: Arch. f. Hyg., 1897, **31**, 336.
6. Curschmann: Internat. Cong. Indust. Hyg., Brussels, 1910.
7. Heubner: Zentralbl. f. Gewerbehyg., 1914, **2**, 409.
8. Roth: Zentralbl. f. inn. Med., 1913, **34**, 417.
9. Hudson: Med. Rec., New York, 1917, **91**, 89.

to a pronounced lymphocytosis, and destructive changes in the red blood cells. The urine is dark and contains urobilin, but no hemoglobin nor bilirubin.[10]

Nitrobenzene causes fewer cases of poisoning than anilin, but the cases are of a severer type. In the explosives industry I did not find serious trouble from anilin. There is a good deal of poisoning of a mild type in the one factory in which I found nitrobenzene being reduced to anilin and the latter used for the production of explosives, but the men are well protected against serious poisoning. It seems not to be so dangerous to breathe anilin fumes as to spill the oil over the skin, and in this plant such an accident is always followed by prompt stripping and bathing. Of course we shall probably begin to have chronic anilin poisoning as the Germans have described it, profound anemia simulating valvular heart disease, with its dyspnea and cyanosis. We ought also to be watching for the bladder tumors which the Germans have found to be unduly common among anilin workers.

The local effect of some of these compounds on the skin is much more pronounced than in the case of others; indeed, the irritating dermatitis caused by picric acid is so common as to constitute typical picric acid poisoning in the eyes of powder works physicians, while anilin gives little trouble of this sort. A more or less deep yellow staining of the skin and hair is caused by most of them. Picric acid workers are the most deeply dyed and are usually called "canaries" by the countryside. Trinitrotoluene causes a less vivid stain, tetranitromethylanilin a stain with a greenish tint. This yellow color is so conspicuous as to confuse the inexperienced and lead in some cases to a diagnosis of jaundice.[11]

The confusion is increased by the fact that the staining of the skin is not only a mechanical effect of contact with the dye, but is in part caused by its deposit in the deeper layers. White[12] experimented on himself with trinitrotoluene, which he rubbed into the skin of the arm, and a yellow color appeared under his nails. In the same way the sclera may turn yellow when there is no jaundice.

Dermatitis is said to be most severe from dinitrochlorbenzene, next from tetranitromethylanilin, then from trinitrotoluene, and then from picric acid.

TRINITROTOLUENE

Usually the cases of poisoning from trinitrotoluene do not conform to the type given above, for absorption takes place more slowly and there is time for degeneration in the parenchymatous organs. This may be true even of more volatile compounds than trinitrotoluene. In 1906 a case was reported in England of a man who died of acute yellow atrophy of the liver from nitrobenzene poisoning, but it is much more common in connection with trinitrotoluene. The British factory inspection reports now contain a new occupational disease, toxic jaundice. In answer to a question in the House of Commons last September, a member of the government said that there had been in the previous nine months 120 cases of toxic jaundice, with thirty-three deaths, and of these, ninety-five with twenty-eight deaths had been caused by trinitrotoluene, and the others by that new industrial poison used in aeroplane "dope," tetrachlorethane.

There are 703 cases of trinitrotoluene poisoning on my list, with thirteen deaths. I should have added six more deaths, had it not been for my rule not to include a case unless it was reported by the physician who saw it. These came to me at second hand, and first hand information was refused.

Trinitrotoluene is a new explosive in this country, though a plant in northern Wisconsin has been making it for some years. Even in England it was unknown before the war, for nitrobenzene had been used instead. Now it is made in great quantities, since it is the chief constituent used in high explosive shells, together with a detonator of fulminate of mercury with perhaps some tetranitranilin. There is, I believe, less danger of poisoning in the nitrating of toluene than in the subsequent handling of the trinitrotoluene, and the danger from nitrogen oxid fumes in nitrating seems to be slight. It is in the melting, pouring, pressing, boring and planing of the charges for shells that the greatest number of cases occur. There are both dust and fumes in this sort of work, sometimes to an excessive degree, especially in the boring process, when the detonator hole must be made in the solid charge. Even small amounts of dust may be dangerous. I found a woman suffering from a severe form of toxic hepatitis whose work had been weighing charges and scraping off with scissors a little of the trinitrotoluene if the charge was too heavy. She sickened after only five weeks' employment.

Typical trinitrotoluene poisoning is not rapid. The British show that 83 per cent. of their cases of jaundice have occurred between the fifth and sixteenth weeks of work.[13] I might cite the following cases from among those reported to me, as typical of various forms of trinitrotoluene poisoning. The first was only moderately severe:

> The man was employed on a machine for boring detonator holes in trinitrotoluene charges, and the shield that was supposed to hold the dust produced in boring was broken, so that he had to breathe contaminated air. He began to have an obstinate cough after three weeks' work, and expectorated yellow mucus which would stain water yellow. Later he was put into the molding room where trinitrotoluene is melted in great, partly open kettles, and fumes escape. By this time he felt very ill and attributed it to the fumes, which seemed to give him headache, nausea and even vomiting. He had pain about the navel and in the joints. At night the joints were swollen, especially the ankles. His headaches increased in severity, he had no appetite, and grew so weak that he was obliged to quit work.

This man paid several visits to the company physician, who regarded the symptoms as unimportant and sent him back to the same sort of work. British authorities emphasize the great risk of doing this, for at any moment a slight case may develop into one rapidly fatal. They attach importance to such symptoms as a persistent cough due to no known cause, unaccustomed shortness of breath, fatigue not explained by exertion, and pains coming on suddenly in the feet and legs. These persons should at once be shifted to safe occupations. That this may not

10. Mohr: Deutsch. med. Wchnschr., 1902, **28**, 73.

11. We read that, in the British and French armies, soldiers who want a leave of absence sometimes take a small dose of meliuite, which makes them vomit, suffer from cramps and diarrhea, and finally turn yellow, simulating in every way, except for clay-colored stools, an attack of hepatic jaundice.

12. White: Lancet, London, 1916, **1**, 400.

13. Lancet, London, Dec. 16, 1916.

be enough to save the patient is shown by the history of one of my patients:

A girl, aged 19, for some months had been dipping trinitrotoluene charges in melted paraffin, and then she was sent to work in the office. It was after she had left the trinitrotoluene department that she developed symptoms of poisoning. At first they were slight, nausea and constipation without jaundice, but they increased rapidly, persistent vomiting came on, deep jaundice, complete suppression of urine, and death after twelve hours of coma.

Two cases of the same kind in men were reported from another factory. Both patients had symptoms typical of acute yellow atrophy of the liver, vague discomfort and a feeling of weakness, then marked gastro-intestinal disturbance, griping pains across the abdomen, increasing jaundice, fever, dropsy, delirium, coma and death. There were also petechial hemorrhages over the body.

No necropsies were performed in any of these cases, but Martland[14] has recently published the record of such an examination of a fatal case of trinitrotoluene poisoning, and also of one that presented a picture of aplastic anemia.

Less typical forms of trinitrotoluene poisoning occur when there has been a massive exposure to the poison. Three instances of this were related by Dr. T. F. Harrington but one will suffice to illustrate this class of cases:

A man, aged 42, employed as a carpenter in a building in which toluene is nitrated, became dizzy from the fumes from a duct near which he was working. He went out into the air and revived, but when he tried to resume work the dizziness returned and he was obliged to quit and go home. The next morning he came back, but as soon as he reached the place at which he had been at work the day before, he was overcome with faintness and nausea and had to be helped out of the building, when he began to vomit. It was a 2 mile drive to his home, and the fresh air revived him somewhat; but the next day he felt chilly and suddenly became very ill, had convulsions, and died about midnight. As the cause of death the coroner's report gave "red cell destruction and secondary oxygen starvation, especially of brain and nervous system; general congestion of organs."

According to British authorities, women are no more susceptible to trinitrotoluene than are men, but the immature worker of either sex is decidedly more susceptible than the mature. These authorities advise forbidding the employment of persons under 20 years of age, since they have discovered that while the general mortality from toxic jaundice, recognized as such, was 33 per cent., among the eleven patients who were under 18 years of age, no less than eight died.

OTHER POISONS

Tetranitromethylanilin and Tetranitranilin.—These are powerful explosives, used to an increasing extent in Europe as constituents of detonators, but so far too expensive in this country to meet general use. Their manufacture involves the danger that inheres in such compounds as anilin, methyl alcohol and nitric acid, and they are poisons belonging to the nitro-aromatic group. I did not find any trouble among workers with these substances, except a rather distressing dermatitis among the men drying and packing tetranitromethylanilin.

Fulminate of Mercury.—Mercury is digested with nitric acid, and the resulting nitrate is mixed with alcohol, during which latter process there is a lively evolution of fumes of complicated composition, the most important constituent being ethyl nitrite. There is some risk of mercurial poisoning—I was told of one case of salivation—and the ethyl nitrite fumes may be strong enough, especially in hot humid weather, to make work almost intolerable; but there seems to be no serious depression from it.

Fulminate is extremely explosive and is the essential part of percussion caps and detonators. There are several thousand men and women employed in making caps and detonators in our munition plants. Apparently, from German reports, mercurial poisoning is not unknown among such workers. Not long ago Oppenheim[15] reported cases of fulminate dermatitis from Austrian works, and among thirteen there were eight with "stomatitis mercurialis." The British Health of Munition Workers Committee found mercurialism from this source rare, but the occurrence of anorexia, headache, nervousness and depression among fulminate workers may be attributable to this element.

It is well to bear in mind the possibility of this form of industrial poisoning in fulminate workers, for at present the only kind recognized by American physicians seems to be the dermatitis, which is quite common. I found it more prevalent among men than among women, probably because women dread a disfiguring eruption more than men do and take more pains to protect themselves. Among 1,070 women working in one plant, only thirty-two had had skin lesions as a result of handling the fulminate, while thirty-six of the 505 men had had them.

Smokeless Powder.—This is not a powder at all, nor are the so-called nitroglycerin or mixed powders. They resemble in appearance chopped brown macaroni or spaghetti or vermicelli, with many tiny canals running the length of the string. In order to make these powders, nitrocotton is dehydrated and then changed to a rubber-like consistency by mixing with some partial solvent, ether-alcohol, or amyl acetate, or a mixture of nitroglycerin and acetone. Then the rubbery mass is pressed through macaroni machines and the cords cut into proper lengths, during which a great deal of the solvent evaporates.

Ether-Alcohol.—Ordinary smokeless powder, not cordite or ballistite, is made by driving the water out from nitrocotton by alcohol in a hydraulic press. So far as I have seen, the alcohol used is always ethyl. In making celluloid, large quantities of methyl alcohol may be used, but not in powder work. The alcohol fumes may be very strong at times, but the real trouble comes from the ether, especially in the pressing and cutting department, in which the temperature must be kept at from 85 to 95 F.

Acute ether intoxication, "ether jag," is so usual as to be taken as a matter of course. New hands suffer almost always, and some men cannot become accustomed to it. They pass through all the stages of anesthesia, excitement, with loud laughter and singing or unreasonable anger, and then increasing dulness, so that by the time the company physician sees them they are usually already somnolent. They are put to bed and the next day they have headache, more or less nausea and general discomfort. Most company physicians refuse to believe that the ether has any further effect, or that systemic symptoms are to be expected after long exposure to it; but it is not difficult to find instances of men who have had to quit work because of chronic indigestion, constipation, loss of weight and strength,

14. Martland, H. S.: Trinitrotoluene Poisoning, The Journal A. M. A., March 17, 1917, p. 835.

15. Oppenheim: Wien. klin. Wchnschr., 1915, **28**, 1273.

and loss of appetite because of the continual taste of ether in the mouth.

Nephritis also is noted by some physicians as a possible result, and one company physician is careful to shift to other work men who show any symptoms of kidney involvement. The fatal case of ether poisoning on my list was one of uremia, but the man was a syphilitic and doubtless had damaged kidneys when he went to work.

Sometimes the narcosis is profound and is accompanied by signs of irritation in the lungs, which may develop into a bronchopneumonia. Since diphenylamin is added to many of these smokeless powders, one should remember that the symptoms of an amidobenzene may be also present in poisoning from this solvent.

In 1910, Sand[16] presented the results of experiments on dogs with ether-alcohol fumes. His findings are significant in connection with the possible chronic poisoning of these ether workers in explosive manufacture. The ether-alcohol administered in vapor form, 500 gm. being evaporated during ten hours in a kennel 1 cubic meter in size. These animals showed all the manifestations of "ether jag" as they are seen in industrial poisoning. Then tolerance was gained and they did not suffer in health; in fact, three of them gained somewhat in weight; but when two were killed and examined, a general condition of stasis was found in the organs and brain, with fatty degeneration in the liver and in the kidney epithelium.

Amyl Acetate; Acetone.—These are the solvents used for other powders. Amyl acetate is called banana oil by the workmen; and perhaps because of its strong, sickeningly sweet odor, they attribute to it the headache, dizziness, smarting of the eyes, and other symptoms from which they suffer when using a mixture containing it.[17] Lehmann,[18] however, experimenting on men as well as on animals, found it slightly toxic, and in powder works, when it is not used in combination with other poisons, it does not seem to cause any discomfort. Acetone is listed by Sommerfeld as a poison, but Kobert thinks industrial poisoning from it hardly thinkable. I found the men in one plant using it as an eye wash when they got a foreign particle in the eye, and in another plant the physician told me that acetone was a good substitute for iodin in the treatment of slight wounds.

Nitroglycerin.—It sounds strange to say that this very dangerous explosive is the safest of all, but that is true if one is considering poisoning, not accidents. Indeed, it is probably true of accidents also, because we have been making nitroglycerin a great many years and have learned how to do it, as we have not learned how to make the newer explosives. All the precautions taken in nitroglycerin works against accidents serve also as preventives of poisoning: strict cleanliness of the premises, separation of different processes so that as small a number of men as possible will be in any one building, close watch against decomposition during nitration, and prompt drowning of the charge when that occurs.[19]

There are a few other poisons given off in gaseous form during the preparation of compounds used in this industry. There is chlorin gas, which passes off during the early stage of nitric acid manufacture, when the sulphuric acid acting on Chili saltpeter meets the common salt that is always present as an impurity. Most acid works try to provide in some way for the carrying off of these fumes, and they are in any case so irrespirable that men get away as soon as possible, before much harm has been done. There is ammonia from the aqua ammonia used in dynamite plants for ammonium nitrate, which is added to the "dope." Sulphur dioxid, very irritating and dangerous, is given off in the making of sulphuric acid and at one stage in the manufacture of phenol.

This hasty review of the substances which are necessary for the production of explosives is enough to show that it is an industry full of dangers to the workers quite aside from the ever present danger of violent explosions. Indeed, it offers an unusually rich field of research for those who are interested in the effect of volatile poisons on the human subject.

Hull House.

16. Sand, René: Internat. Cong. Indust. Hyg., Brussels, 1910.
17. Paint removers and varnish removers which smell strongly of amyl acetate contain in addition such volatile poisons as benzene, methyl alcohol and carbon disulphid, but the odor of the banana oil overpowers or masks the others.
18. Lehmann: Arch. f. Hyg., 1911, **74**, 1.
19. The singular absence of symptoms such as one would expect in nitroglycerin workers has been discussed by C. E. Laws (Nitroglycerin Head, THE JOURNAL A. M. A., March 5, 1910, p. 793); by G. E. Ebright (The Effects of Nitroglycerin on Those Engaged in Its Manufacture, ibid., Jan. 17, 1914, p. 201), and by Hudson (Med. Rec., New York, 1917, **91**, 89).

THE THERAPEUTIC VALUE OF PERTUSSIS VACCINE IN WHOOPING COUGH*

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This study was made during the late summer of 1916, as part of the investigation by the Research Laboratory of the New York City Health Department on the value of pertussis vaccine in whooping cough.

Because of the infantile paralysis epidemic, car strikes and the expiration, October 1, of the lease of the building used for clinical purposes, the number of patients used for this study is far less than we could wish. The deductions, however, are suggestive, and show the danger of drawing conclusions too hastily and without making a critical comparison with control cases.

Dr. Luttinger, in his report of May, 1915, pointed out the pitfalls in accepting the statements of patients in the clinic; but in spite of the difficulties he encountered, he gathered from his records that pertussis vaccine lessened the duration of the whoop by 37.5 per cent. as against treatment with drugs. Hoag[1] is enthusiastic about the vaccine, claiming a reduction of the whoop to from sixteen to nineteen and one half days, after from three to ten injections of the vaccine, in contrast to the duration, from fifty to one hundred and forty-five days, in cases in which only one injection is given. Many other physicians, who have received and used the New York Health Department pertussis vaccine, verbally and by letter have reported most encouraging results. Drs. A. F. Hess and Matthias Nicoll are among those who are skeptical of the marked curative effects of a vaccine. Dr. Hess believes it has some prophylactic value. Before tabulation of our records, we had the impression that pertussis vaccine had had a somewhat favorable influence on the disease, but in scientific work, impressions,

* From the Bureau of Laboratories, New York City Health Department.

1. Hoag, W. B.: Am. Med., 1916, **11**, 255.

naturally, cannot count against the recorded fact. We believe now that the hope for a favorable reaction intensified the memory of those responses which were favorable, and impressed these cumulative mental records on our minds more strongly than the unfavorable, making them seem more numerous than they actually were.

In spite of the preponderance of favorable comments on the vaccine which were chiefly impressions, the directors of the whooping cough studies felt that further control work was necessary to determine the real and permanent place of pertussis vaccine in our therapeutic armamentarium.

Whooping cough is not easily studied. There is not the control of observations as in an illness confining the patient to bed. Like all diseases, it varies in degree according to epidemics, season, individual reaction, sudden (as they are not with pertussis vaccine), it must make a difference whether the interpreter of the symptoms is an optimist or a pessimist.

As Dr. Luttinger has pointed out, the ideal place to study the disease is the hospital, where the children may be controlled and watched by trained observers. Unfortunately, the children brought to the hospital with pertussis, or those who contract it there, do not represent the average. They more commonly have advanced cases with complications, or cases so severe that the parents are alarmed. Children with early cases contracted in the hospital usually leave when they have recovered from their primary trouble. On the whole, under present conditions, these cases are not favorable for testing the vaccine.

A pertussis crèche, in which children could be segregated during the day while the parents are at work,

TABLE 1.—AVERAGE DURATION OF THE DISEASE, ACCORDING TO SYMPTOMS

	Whoop or Paroxysmal Cough Developed after Injections Began				Injections Given During First Week of Whoop				Injections During Second Week of Whoop				Controls Terpin Hydrate Medication or Milk Injections		Dilute Milk Injections; Whoop or Paroxysmal Cough Developing after Injections		Dilute Milk Injections First Week; Whoop or Paroxysmal Cough	
	Pertussis Vaccine		Influenza Vaccine		Pertussis Vaccine		Influenza Vaccine		Pertussis Vaccine		Influenza Vaccine							
	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.	Number of Cases	Aver. Duration, Wks.
Mild onset; 3 or 4 injections																		
Cough	25	7–8	21	7–8	23	8	6	7–8	4	8–9	4	9–10	5	9	4	5	5	7–8
Whoop	21	2–3	18	4–5	22	4–5	5	4–5	4	3–4	3	7–8	5	2–3	2	2–3	3	3–4
Vomiting	17	3	14	3–4	19	3–4	3	4–5	3	2–3	3	<1	4	2–3	1	<1	4	2–3
Parox. cough	4	4–5	3	4–5	1	6–7	..	....	...	....	1	3	...	....	2	2–3	2	3–4
Moderate or severe onset; 3 or 4 injections																		
Cough	5	10	7	7–8	43	8	34	8–9	36	8–9	22	9–10	18	11–12	1	8–9	1	12
Whoop	4	5–6	6	4–5	41	5–6	32	4–5	34	5–6	22	5–6	17	6–7	1	4–5	1	2–3
Vomiting	5	4–5	6	2–3	39	4	30	3–4	31	4–5	19	5	11	6	1	4–5	1	11
Parox. cough	..	....	1	5–6	2	6	2	6	2	5	...	....	1	4–5				
Mild onset; 2 injections																		
Cough	2	5–6	2	7	1	7–8	2	5	...	....	2	11–12						
Whoop	2	3–4	2	2–3	1	1–2	2	3	...	....	2	9–10						
Vomiting	1	<1	..	....	..	....	..	....	...	....	2	5						
Moderate or severe onset																		
Cough	1	7–8	3	7–8	2	10	2	11–12	3	9–10	7	8–9						
Whoop	1	5–6	3	6–7	2	6	2	9	3	6–7	7	6–7						
Vomiting	1	6–7	3	5–6	2	4–5	2	5	3	1–2	7	4–5						
Mild onset; 1 injection																		
Cough	1	7–8	1	10–12	4	6–7	1	6–7	2	7–8	1	9–10						
Whoop	1	3–4	1	7–8	3	5–6	1	3–4	2	6	1	2–3						
Vomiting	..	....	..	....	4	2	1	<1	2	2–3	1	3–4						
Parox. cough	..	....	..	....	1	4–5	0	0										
Moderate or severe onset																		
Cough	..	....	..	....	2	9	3	7–8	4	7–8	8	8–9						
Whoop	..	....	..	....	2	5–6	2	3–4	4	5–6	8	6–7						
Vomiting	..	....	..	....	2	2–3	2	4–5	4	3	8	4–5						
Parox. cough	..	....	..	....	..	....	1	8–9										

etc. Members of the same family, ill at the same time, react differently. While one person in a family exhibits a mild and short paroxysmal stage of the disease, another, under apparently the same conditions, suffers a severe and alarming attack. The others may escape entirely. It is unsafe, therefore, to draw comparisons between the vaccine treated and the nonvaccine treated in a single family. Most of our impressions are probably obtained thus.

The only statistics which can be of value are those culled from a large number of cases and carefully and critically observed, so that the extreme variations of the disease itself and the errors which must creep in when one has to depend on the word of parent or guardian for our knowledge of the progress of the disease are leveled down and reduced to a minimum.

The personal equation of the examiner, too, must be reckoned with. When results are not striking and would afford a fair opportunity of study; but, as far as we know, there are none. Of course, the child could not be observed at night. It is at this time of the twenty-four hours that the mothers, according to Dr. Luttinger, report favorable results from the vaccine. Unless such a crèche could be located in a whooping cough neighborhood, its value, from the sanitarian's point of view, would be minimized by the danger of conveying infection during transportation of the child to it.

The clinic, then, at present in New York is the available, but not altogether satisfactory place for trying out the effects of the vaccine. Leaving out the question of the danger of transmitting contagion during the journey to and from the clinic and in the waiting room, we cannot get away from the fact that we are obliged to rely on the untrained, if not ignorant, unintelligent or mendacious parent or guardian for

our facts. As often as not, they try to answer to please the questioner; or exaggerate symptoms, hoping for better treatment; or they lessen symptoms to get a discharge for the child to go to the country or return to school, etc.

Unless the child coughs in the clinic or presents some corroborative suggestive symptoms, such as subconjunctival hemorrhage, ulcer of the frenum, or puffy eyelids, how can one be sure that the child has whooping cough? It is not unusual for a young mother to say after one or more visits, "My child does not cough like those I have heard. I do not believe he has whooping cough after all." During last summer, at least, according to subsequent confession, some mothers brought their children for injections "because they thought 'the needle' would prevent infantile paralysis." The Italians, particularly, feel that the "syringa" is wonderful treatment for anything that happens to ail one. It makes weak children strong.

The cases suitable for treatment, too, are cut down by the fact that the parent is apt to wait for the height of the paroxysmal stage before she brings the child for treatment. A vaccine that "cures" when begun at the end of the second or during the third week must be accepted with a grain of salt. One would expect spontaneous recession. Some observers report giving the vaccine every other day until they get a response — from six to ten or more injections. This would cover a period of two, three or more weeks and, if the injections were begun after the paroxysmal cough or whoop had declared itself, would carry them over into what would ordinarily be the declining stage of the disease.

Because of these difficulties (and others) we were obliged to throw out many of our records in collating our figures. Over 1,000 patients were seen by us from July 10 to Sept. 30, 1916. About 500 were rejected because they presented themselves after the second week of the disease, or because the records were too incomplete; 93, because of questionable whooping cough; 49, because the information was unreliable; 126, who had either moved or given a wrong address so that their subsequent history after the closing of the clinic could not be obtained; 6, because they were not at home on several visits of inquiry; 3, because of questionable exposure to whooping cough, and 1, because the original record card was lost.

The plan of our investigation differs from Dr. Luttinger's in using, as a control, inoculations, made for purposes of comparison, of alternate patients, with a vaccine made of an organism somewhat similar to *Bacillus pertussis* and one likewise found in throat secretions — the influenza bacillus. Only patients presenting themselves before the third week of the paroxysmal stage or the third week of the whoop were injected. Injections were intramuscular. Other patients were treated with terpin hydrate by mouth and also a few by intramuscular injections of a highly diluted milk solution. These were used as controls to show how the disease was running at that season. Three or four injections were given each patient who returned to the clinic, one every other day, and a fourth from five to seven days after the third. The last mentioned was given only when the paroxysmal stage was progressing unfavorably.

TABLE 2.—IMMUNITY

	Number of Children in Family											Families Total	Children in Families Total	Immunes	Cases Whooping Cough	Per Cent. Immune
	1	2	3	4	5	6	7	8	9	10	11					
Number families with 100 per cent. whooping cough	67	46	23	15	7	4	1	2	..	..	1	166	381	0	381	0
Number whooping cough families 1-6 immunes (nonvaccinated) first exposure in family	..	11	18	17	12	4	2	2	1	..	..	67	267	155	112	58
Number families with immunes, second exposure in family	..	..	1	3	3	..	..	1	1	..	..	9	47	18	27	
Number families with immunes, third exposure in family	..	..	..	..	1	..	..	..	..	..	..	1	5	1	4	
Number families with immunes who received influenza vaccine	..	5	3	..	2	1	..	..	1	..	..	12	44	19	18	
Number families with immunes, some receiving influenza vaccine and some pertussis vaccine	..	..	2	3	..	1	..	..	..	..	..	6	24			
Number families with immunes who received pertussis vaccine	..	6	7	3	2	2	..	..	..	..	..	20	67	30	37	

The intelligence of the guardian or parent who reported the symptoms was noted in a record, careful cross examinations were made to rule out false reports as far as possible, and note was taken of every child actually heard with a typical paroxysmal cough in the clinic. Home visits to complete the records were made in every case in which the patient failed to return to the clinic until discharged.

In recording the remarks on the charts, the investigators were not biased by a knowledge of the vaccines employed, as they did not know until the study was finished which was which. This secret was safeguarded by the maker of the vaccines.

TABLE 3.—EXPOSED CHILDREN WHO DID NOT CONTRACT WHOOPING COUGH (FAMILY EXPOSURE; SIXTY-SEVEN FAMILIES)

Number Children (67 Families)	Number Children in Family								Total
	2	3	4	5	6	7	8	9	
Number immunes (nonvaccinated); first exposure in family	11	26	38	44	18	8	8	1	154
Number immune children inoculated with influenza vaccine	5	5	3	2	3	..	..	1	19
Number immunes inoculated with pertussis vaccine	6	10	7	3	4	..	..	..	30
Number children in partially immune families who contracted whooping cough, first exposure in family	..	..	..	..	..	..	..	..	112
Number children in partially immune families who contracted whooping cough, second exposure in family	..	2	1	..	..	..	..	..	3

Dr. Luttinger's 204 cases, reported in May, 1915, showed that the patients treated with vaccine whooped, on an average, twenty-five days, while the patients treated with drugs whooped, on an average, forty days.

We wish to remind the reader that we feel that our numbers are much too small to be of full scientific value. We quote them chiefly for the interest of comparison.

Group 1: Grouping together, as did Dr. Luttinger and Dr. Hoag, all our patients treated with pertussis

vaccine (136), we find that the whoop averaged thirty-two days. In those treated with the influenza vaccine (94), the whoop averaged thirty-five days. In the controls treated with highly diluted milk injections or terpin hydrate medication (34), the whoop averaged twenty-six days.

Group 2: In a somewhat different grouping, division was made into those that were mild in intensity before the vaccine treatment and those that showed a moderate or severe onset before treatment.

TABLE 4.—EXPOSED CHILDREN WHO ESCAPED WHOOPING COUGH (SEVENTY-NINE FAMILIES) ACCORDING TO AGE

	Year																			
	Under 1	1st	2d	3d	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	Total
Nonvaccinated	7	2	6	7	6	11	9	9	14	8	10	7	11	4	7	6	8	3	3	2	4	144
1, 2 or 3 vaccinations of pertussis vaccine	3	2	3	2	3	3	4	2	1	2	4		1									30
1, 2 or 3 injections of influenza vaccine	1	4	1	3	3	3	1	1	1	1												19

In the mild cases treated with pertussis vaccine, whether injections were given before the whoop developed or during the first or second week of the whoop, it averaged twenty-five days. In similar cases treated with influenza vaccine, the whoop averaged thirty-nine days. In the controls (milk injections or terpin hydrate medication), the whoop averaged nineteen days.

In the cases with moderate or severe onset, treated with pertussis vaccine, the whoop averaged thirty-nine days. In similar cases treated with influenza vaccine, the whoop averaged thirty-one days. In the controls treated as above, the whoop averaged thirty-one days.

If we were to make our deductions of the values of the vaccines in these comparatively few cases, from the first arrangement of averages, we would have to infer that there was not much choice between pertussis and influenza vaccine, and that terpin hydrate by mouth or dilute milk injections were superior in curative effect to either.

From the second arrangement of averages, we would have to conclude that pertussis vaccine transcends influenza vaccine in the mild cases, and that influenza vaccine is more valuable in the moderate or severe cases.

It would seem fairer to draw our conclusions from a still different arrangement of our figures: a division into the degrees of intensity of the disease and, at the same time, a division into the stage of the disease in which the vaccine treatment was begun. If specific vaccines are valuable, they must prove their value when given early in the disease, and not during the height, just before the decline, or during the declining stage.

Group 3: After weeding out the questionable, unreliable and incomplete records, we divided the cases as mentioned above. We judged the intensity of the paroxysm by the degree of asphyxia exhibited by the color of the face and lips. Many cases can be vouched for as true cases since the patients were seen and heard to whoop in the clinic. The rest were judged by the mother's intelligence, by cross examinations, etc.

Of the mild cases, the average duration of the cough was from seven to eight weeks under both influenza and pertussis vaccine, except for those cases in which the injections were made during the second week of the whoop; in these the whoop under influenza vaccine runs about a week longer than under pertussis vaccine.

The whoop, in the cases in which pertussis vaccine was injected before the whoop appeared, averages about two weeks less than under influenza vaccine; when injected during the first week of the whoop, both pertussis and influenza vaccine seemed to act equally well; when injected during the second week, pertussis vaccine seemed to cut short the whoop by four weeks. In controls, however, untreated by vaccines, the whoop lasted only two or three weeks.

Vomiting is of about the same duration for both pertussis and influenza vaccine given before the whoop developed; less under pertussis vaccine than under influenza vaccine when given during the first week of the whoop; less under influenza vaccine given during the second week of the whoop and in the nonvaccinated control cases, the same as under pertussis vaccine given during the second week of the whoop.

In this series of cases, pertussis vaccine seems to have the advantage over influenza vaccine, and the nonvaccinated controls somewhat the advantage over both.

Of the moderate and severe cases, pertussis vaccine given before the whoop developed allows the average of the cough to run ten weeks, while influenza vaccine cuts it shorter by two or three weeks. Given during the first week of the whoop, the cough averages about the same length for both vaccines. Given during the second week of the whoop, the cough runs about a week longer under influenza vaccine. In the controls (nonvaccinated), the cough averages three weeks longer than the average of both vaccines.

The whoop averaged from five to six weeks with pertussis vaccine, whether given before the whoop developed or during the first or second week of the whoop, and in the first two instances runs about a week longer than under influenza vaccine. The controls run still a week longer.

TABLE 5.—CHILDREN WHO RECEIVED PROPHYLACTIC INJECTIONS

	Exposure in Family				Exposed to Neighbors			
	Pertussis Vaccine		Influenza Vaccine		Pertussis Vaccine		Influenza Vaccine	
	No. Cases	Aver. Duration, Wks.	No. Cases	Aver. Duration, Wks.	No. Cases	Aver. Duration, Wks.	No. Cases	Aver. Duration, Wks.
Three injections								
Simple cough	12	5–6	6	6–7	2	2	1	<1
No cough	8	0	6	0	1	0		
Total	20	....	12	....	3	....	1	
Two injections								
Simple cough	4	6–7						
No cough	1	0	1	0	1	0		
Total	5	....	1	....	1			
One injection								
Simple cough	2	5–6						
No cough	..	....	2	0				
Total	2	....	2					
Terpin hydrate medication								
Cough	1	10–12						
Total	1							
Grand total	28	....	15	....	4	....	1	=48

The vomiting lasts longer under pertussis vaccine given before the whoop develops, or during the first week, and about the same under influenza vaccine treatment given during the second week of the whoop. The control cases run one or two weeks longer.

On the whole, in these cases, influenza vaccine seems to average more points than pertussis vaccine in relieving symptoms.

Before going further, we wish to repeat that we feel our numbers are too few to do more than demonstrate anew that deductions drawn from small numbers are faulty.

TABLE 6.—PROGRESS OF THE DISEASE AFTER THREE INJECTIONS OR VISITS, ACCORDING TO MOTHER'S OR GUARDIAN'S COMMENTS

Treated with	Total No. Cases	Improved		Slight Improvement		No Change		Worse	
		No.	%	No.	%	No.	%	No.	%
Pertussis vaccine	146	39	26.7	35	23.9	32	21.9	40	27.4
Influenza vaccine	113	31	27.4	37	32.7	15	13.2	30	26.5
Terpin hydrate medication or dilute milk injections.....	15	5	33.3	2	13.2	4	26.6	4	26.6

Of the 274 cases tabulated, according to the mother's or guardian's opinions of the course of the disease, immediately after the third injection or third visit, the percentage of children reported distinctly improved is almost the same for both pertussis and influenza vaccine, with 0.7 per cent. in favor of influenza vaccine. (It must be acknowledged that one cannot rule out a favorable reaction from the protein of the influenza bacillus.)

Among those reported slightly better after the third injection, influenza vaccine was 8.8 per cent. more potent.

Of those reported stationary, influenza vaccine shows 8.7 per cent. fewer unchanged than pertussis vaccine.

Of those reported worse, there is 0.9 per cent. difference again in favor of influenza vaccine.

Needless to say, the mothers did not know that there were two vaccines used. Likewise, it must be mentioned that the influenza vaccine was more apt to give both a local and febrile reaction than the pertussis vaccine.

Of the nonspecifically treated controls (terpin hydrate medication or dilute milk injections), 5.9 per cent. more were said to be improved after the third visit than with influenza vaccine; 10.6 per cent. fewer were slightly improved than with the pertussis vaccine, and 4.9 per cent. more remained stationary. Practically the same number as under pertussis or influenza vaccine, about one fourth of the cases, progressed unfavorably.

Contrary to our impressions, the mothers' reports do not make out a case for pertussis vaccine. In the mild cases, in which water made slightly turbid with milk, and thought at the time to be a vaccine by both doctor and parent of the child, was injected before the whoop or paroxysmal cough developed or during the first week of the whoop, the trouble terminated in less time than in cases treated with either pertussis or influenza vaccine.

Of the twenty-seven patients receiving only two injections of vaccine, if either vaccine had any effect at all, influenza vaccine in some groups did as well as the pertussis vaccine, and often better.

Of the twenty-seven patients receiving only one injection the same may be said.

PROPHYLACTIC VALUE OF THE VACCINES; FAMILY IMMUNITY

Of the children exposed to whooping cough in their immediate family, nineteen received injections of influenza vaccine and thirty injections of pertussis vaccine. Some of these children had a mild bronchial cough at the time of inoculation. These coughs ran a variable time, but no case developed into a characteristic pertussis. These children were observed and visited in their homes for several months; none came down with pertussis. One child who had received one injection of pertussis vaccine contracted whooping cough two months afterward. Hoag reports seventeen cases in which persons injected prophylactically did not contract the disease. Luttinger gives a similar report. Hess reports that of 244 exposed patients (in an institution) inoculated prophylactically, twenty developed whooping cough.

TABLE 7.—DEATHS

Treatment	No. Cases	No. Injections	When Begun	Last Injection	Date of Death	Cause of Death	Remarks
Pertussis vaccine	1	4	1st day whoop	13th day whoop	13th day whoop?	Gastro-enteritis	Died in Metropolitan Hospital; full data not obtained
	1	3	14th day whoop	20th day whoop	1 month after cough stopped	Convulsion	Whoop lasted forty-three days and cough sixty-four days
	1	1	14th day whoop	.....	3d after injection	Convulsion	
	1	1	7th day whoop	.....	5 days after injection	Penumonia	
	1	3	14th day whoop	19th day whoop	5 weeks after injection	Pneumonia	
Total	5						
Influenza vaccine	1	3	.....	.....	?	Unknown	Information from neighbors
	1	2	3d day paroxysmal cough	5th day paroxysmal cough	2 weeks after injection	Meningitic symptoms	Died on 18th day of paroxysmal cough; 15 days after 2d injection
	1	3	14th day whoop	19th day whoop	12 days after injection	Tuberculous meningitis or infantile paralysis (?)	Said to have had pneumonia day after last injection; convulsions and death 10 and 12 days later; died at Bellevue Hospital
	1	4	10th day whoop	20th day whoop	1 month after whoop stopped	Nephritis	
Total	4						
Terpin hydrate medication	1	.....	.....	.....	.....	Pneumonia and empyema	Died 85th day of cough

From this it might be concluded that both pertussis and influenza vaccine protect against whooping cough; but we can also show by our figures that of 267 children exposed to whooping cough in the families which showed partial immunity and not vaccinated against it, 155 (58 per cent.) did not contract it. Altogether, of 700 exposed children in 243 of our families, 174, or 24.8 per cent., escaped the disease. We have a record of three children who came down with pertussis on the second exposure in their family.

In nine families, totaling forty-seven children, eighteen children escaped a second exposure in the family; and in one family of five children, one child escaped a third exposure in the family.

In 166 families of 381 children, all of the children either had had whooping cough or were suffering from it at the time of their attendance at the clinic.

Of 243 families, the children of which were exposed to whooping cough, seventy-seven families (31.6 per cent.) exhibited an immunity in some of the children.

In Dr. Luttinger's series of ninety-two families, twenty-seven (29.3 per cent.) showed partial immunity.

In the light of these natural immunes, can we be sure that pertussis vaccine conferred immunity, especially since, according to our statistics, influenza vaccine apparently can do the same?

There were ten deaths in our series; five of the patients had received pertussis vaccine, four had received influenza vaccine, and one had been treated with drugs. Three of those receiving pertussis vaccine had received three or four injections. All the injections were given before the end of the second week.

SUMMARY

Since whooping cough vaccine statistics under present conditions must be based chiefly on parents' reports, one must use careful judgment in accepting what they say.

Statistics, to be of any value, must be drawn from several thousand cases, as shown by the variable results obtained with the different groupings of our figures.

One must beware of "impressions."

Our figures show that the nonspecific influenza vaccine in Group 1 differs very little from pertussis vaccine in influencing the duration of the paroxysmal stages of the disease. In Group 2 it shortens the average length of this stage by eight days. In Group 3 it acts less well, on the whole, than the specific vaccine in the mild cases, and better than the specific vaccine in the moderate and severe cases.

Of all the cases, the shortest course was run in our nonvaccinated controls and those receiving inert, milk-colored water.

None of our patients inoculated for prophylaxis with either influenza or pertussis vaccine contracted the disease.

A partial immunity was exhibited by 31.6 per cent. of our families.

Fifty-eight per cent. of the children in these partially immune families escaped after exposure in the family.

Of 700 children exposed in their families, 24.8 per cent. escaped whooping cough.

CONCLUSIONS

More observations and more critical observations with controls for comparison must be made before the case can be considered made out for the curative and prophylactic value of a specific pertussis vaccine.

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THE TREATMENT OF CARRIERS OF ENDAMOEBA HISTOLYTICA WITH OIL OF CHENOPODIUM*

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In a previous publication, one of us (Walker[1]), called attention to the prevalence of carriers of *Endamoeba histolytica* among the people of endemic countries, and later (with Sellards[2]) demonstrated the important rôle which they play in the dissemination of endamebic dysentery. These carriers are always liable to develop dysentery or liver abscess and, because they continue for an indefinite time to pass large numbers of encysted endamebas in their stools, are a constant menace to the community. Consequently the control of this important tropical disease depends primarily on an efficient treatment to eradicate these carriers. Experience has shown that while subcutaneous injections of the soluble salts of emetin are very effective in the treatment of acute dysenteries and liver abscesses of endamebic origin, they fail in many cases to eliminate the encysted endamebas from the intestine. The other drugs which have been employed in endamebiasis, with the possible exception of thymol and male fern (Ujihara[3]), the claims for which are based on the results of one case treated with each drug, are either more or less ineffective on carriers or require long and disagreeable courses of treatment. A satisfactory treatment for carriers of *Endamoeba histolytica* not only must be capable of clearing the intestine of the parasites, but also it should not occupy too much of the patient's time, and its administration should be accompanied by as few disagreeable features as possible, in order that healthy carriers may be induced to undergo it.

Our experiments with the chenopodium treatment of endameba carriers were conducted at the Candelaria Hospital of the Madeira-Marmoré Railroad Company, Porto Velho, Amazonas, Brazil. They were not undertaken until shortly before the departure of one of us from South America, and consequently little more than the development of the method of treatment was accomplished. The oil of chenopodium used by us had been kept exposed to tropical light and temperature for over a year, and had undoubtedly lost some of its potency. The treatment found most effective by us consists of (1) magnesium sulphate, from ½ to 1 ounce, at 6 a. m.; (2) oil of chenopodium 16 minims in gelatin capsules at 8 a. m., 10 a. m. and 12 m., and (3) castor oil 1 ounce containing chloroform, 50 minims, at 2 p. m. This dosage is for adults; for children it should be reduced according to age. The administration of oil of chenopodium in gelatin capsules obviates all the disagreeable odor and taste of the oil.

* From the George Williams Hooper Foundation for Medical Research, University of California.

1. Walker, E. L.: A Comparative Study of the Amoebae in the Manila Water Supply, in the Intestinal Tract of Healthy Persons, and in Amoebic Dysentery, Philippine Jour. Sc., B., Med. Sc., 1911, **6**, 259-280.

2. Walker, E. L., and Sellards, A. W.: Experimental Entamoebic Dysentery, Philippine Jour. Sc., B, Trop. Med., 1913, **7**, 253-331.

3. Ujihara: Studien über die Amöbendysenterie, Ztschr. f. Hyg. u. Infektionskrankh., 1914, **77**, 329-355.

There are, however, several essential factors in the treatment which need careful consideration. One of these is the preliminary purgation with magnesium sulphate, which is a very important part of the treatment. The purpose of this is twofold, first to remove the excess of fecal matter from the intestine which envelops and protects the endamebas and dilutes the chenopodium, and, second and most important, to bring the endamebas out of their protective cysts and subject them in the vegetative condition to the action of the chenopodium. Our experiments have shown that this preliminary purging, which should not merely consist of the routine administration of the salts but should also secure free fluid bowel movements before the chenopodium is given, to be a most essential factor for successful treatment. Indeed, the success or failure of any method of treating endameba carriers with encysted endamebas in their intestines may depend on this preliminary purgation to get the endamebas in the unprotective vegetative stage. Secondly, the chenopodium must be administered while the stools are fluid, that is, at a short interval (two hours) after the purgative, in order that it may reach the endamebas while they are still in the vegetative stage. Finally, the stools of the patient must be examined repeatedly after the treatment by one capable of identifying *Endamoeba histolytica* in the resting and encysted as well as the motile stages.

The question regarding the number of stool examinations which is necessary to determine a cure is an important one. One of us (Walker) and Sellards,[2] in the course of 930 stool examinations of persons known to be infected with *Endamoeba histolytica* found the parasites 664 times, or two out of every three examinations. Therefore we have endeavored to make at least three stool examinations on different days after the treatment of our patients. It would be preferable, when possible, that stool examinations be made at intervals for some weeks or months after treatment in order to insure a cure.

The action of oil of chenopodium on unencysted *Endamoeba histolytica* was tested by giving this drug to patients with acute endamebic dysentery and examining the stools of these patients at frequent intervals during and following the ingestion of the chenopodium. It was found that oil of chenopodium is an active endamebicide for the vegetative stage of this organism. The motile endamebas, which were very numerous in the stools at the beginning of the treatment, were replaced by increasing numbers of dead and disintegrating endamebas until, after the third portion of the divided dose had passed through the intestine, living organisms were no longer present. Owing to the fact that any endamebas surviving treatment rapidly multiply, and to the nature of treatment, which precludes the repeated administration at short intervals, the aim of the chenopodium treatment is a *"therapia sterilisans magna."*

Of the fourteen carriers of *Endamoeba histolytica* treated by us with oil of chenopodium, all of whom were men, ten were apparently cured and four remained uncured. However, there is no reason to doubt that the latter might have been cured if they had received satisfactory treatment, with especial reference to the preliminary purgation, or if they had received further treatment. We are certain that some of the relapses were due to unsatisfactory preliminary purgation as, for example, the earlier unsuccessful treatments of Cases 3 and 4. These two patients were peculiarly nonreactive to magnesium sulphate, and successive treatments were absolutely without effect, until free fluid bowel movements were finally obtained in Case 3 only after a second dose of magnesium sulphate, before the chenopodium was administered. In the relapses of the other patients, unsatisfactory preliminary purgation may have been responsible since the administration of the treatment was not always personally supervised. The further treatment of the uncured patients was prevented by the departure of the senior author from Brazil.

CASES TREATED

Patient		Stool Examination Before Treatment		Treatment		Stool Examination After Treatment		Remarks
No.	Nationality	Date	Endamoeba histolytica	No.	Dates	Dates	Result	
1	Bolivian	May 29	+	1	June 1	Aug. 22, 23, 24	Negative	
2	Brazilian	Aug. 5	+++	1	Aug. 6	Aug. 11, 19	Negative	Patient left hospital Aug. 19
3	Brazilian	Aug. 12	+	3	Aug. 14, 25, 29	Aug. 31, Sept. 1, 2, 3	Negative	Relapsed after first 2 treatments
4	Brazilian	Aug. 12	++	3	Aug. 14, 24, 30	Aug. 31, Sept. 1, 2	Negative	Relapsed after first 2 treatments
5	German	Aug. 18	++	1	Aug. 19	Aug. 21, 22, 23	Negative	
6	Brazilian	Aug. 20	+	3	Aug. 22, 27, 29	Aug. 29, 30, 31, Sept. 1, 2	Negative	Relapsed after 1st but not after 2d treatment; 3d treatment for cumulative effect
7	Bolivian	Aug. 22	+++	3	Aug. 24, 29, Sept. 21	Sept. 22, 24	Relapsed	
8	Brazilian	Aug. 23	+++	3	Aug. 27, Sept. 16, 24	Sept. 26, 27	Negative	Relapsed after first 2 treatments; patient left hospital Sept. 27
9	Brazilian	Sept. 3	+++	3	Sept. 4, 12, 18	Sept. 19, 20, 21	Relapsed	
10	Brazilian	Sept. 3	+++	1	Sept. 5	Sept. 8, 10, 12, 15	Negative	
11	Brazilian	Sept. 4	+	1	Sept. 7	Sept. 8, 9, 11	Negative	
12	Brazilian	Sept. 17	+++	2	Sept. 18, 22	Sept. 23, 24	Relapsed	
13	Brazilian	Sept. 18	+++	2	Sept. 19, 21	Sept. 22, 23, 24	Relapsed	
14	Brazilian	Sept. 18	++	1	Sept. 21	Sept. 23, 24, 25, 26	Negative	

In the ten apparently cured cases, six resulted from a single treatment, one after a double treatment with one day's interval between, and three after three treatments following two relapses. The dosage of chenopodium in the ten successful treatments was 16 and 16 minims in two cases and 16, 16 and 16 minims in eight cases. Although we believe that the success of the treatment depends more on the preliminary purgation than on the dosage of chenopodium, and cures have been obtained with 32 minims of chenopodium, yet we believe that 48 minims is surer in its results. We have never observed any harmful results from the full dosage.

These preliminary experiments indicate that for the treatment of carriers of *Endamoeba histolytica* oil of chenopodium is worthy of further investigation. They should be confirmed by further experiments in which fresh oil of chenopodium is used and with careful attention to the technic, with especial reference to the preliminary purgation, and to more extended stool examinations after treatment to insure permanence of the cures.

A NEW AND SUPERIOR MERCURIAL GERMICIDE

PRELIMINARY REPORT *

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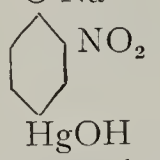
During the past two years the writers have been engaged in chemotherapeutic investigations, chiefly in connection with mercurial and arsenical compounds. We have elaborated a number of new compounds of mercury which we have tested out in experimental trypanosomiasis. We have also determined the germicidal activity of many of these substances against bacteria both in vitro and in vivo. By following certain favorable "leads" we have gradually arrived at the production of two organic mercurial compounds which exhibit remarkable germicidal properties in laboratory tests. One of these compounds, No. 99, possesses physical properties which render it specially available as a local antiseptic and germicide.

By reason of difficult solubility, No. 105 is not so adaptable for this purpose. No. 99, sodium oxymercury-orthonitro phenolate. For convenience the name mercurophen will be used temporarily. It

TABLE 1.—RESULTS OF ANTISEPTIC TESTS ON STAPHYLOCOCCUS AUREUS

No.	Name of Compound	Germicidal Dose, Gm.	Germicidal Dilution
99	Mercurophen.....	0.000001	1:10 000,000
105	New mercury compound...	0.000001	1:10 000,000
	Mercuric chlorid.....	0.00005	1:200,000

contains about 53 per cent. of mercury, having substantially the structural formula:[1]



As yet we are not positive as to the structure position of the mercury. It occurs in the form of an odorless, brick red powder which is freely soluble in water; dilute solutions are amber-yellow. It may be readily molded in tablets, and in this form dissolves with great rapidity.

In view of the fact that our country is now at war with a foreign power, we have hastened this publication. We have recently placed our compound in the hands of a number of Philadelphia surgeons, with the purpose of having a determination of its clinical uses and value made as quickly as possible. If the clinical results in any manner approximate the laboratory findings, we shall immediately place the product at the disposal of the medical services of the army and navy. Indeed, an investigation of certain properties of this compound is now being conducted by the U. S. Hygienic Laboratory.

RESULTS OF DISINFECTION TESTS

The germicidal activities of the new mercurial compounds were compared with mercuric chlorid in a large series of experiments in which various methods were employed, with the purpose of determining their comparative values from the standpoint of practical disinfection under different conditions.

(*a*) *Results With the Antiseptic Test.*—In what we have called an "antiseptic test," small numbers of the test micro-organism were exposed to high dilu-

TABLE 2.—BACTERICIDAL ACTIVITY OF PHENOL AND MERCURIAL COMPOUNDS ON STAPHYLOCOCCUS AUREUS IN A MENSTRUUM OF ASCITES FLUID (PIPET METHOD)

Chemical Compound	Bactericidal		Mercuric chlorid Coefficient (5 Min.)
	5 Min.	30 Min.	
New mercury compound No. 99 (mercurophen)	More than 1:1,600,000	More than 1:1,160,000	200
New mercury compound No. 105.....	1:400,000	1:1,160,000	50
Mercuric chlorid.....	1:8,000	1:32,000	
Phenol (carbolic acid).....	Less than 1:40	Less than 1:40	

tions of the disinfectant over a long period of time. This technic has yielded us constant and decisive results, and has been found to be well adapted for comparative tests of the germicidal activity of new compounds in vitro in a menstruum of broth.[1]

The results of numerous antiseptic tests with the new mercurial compounds and mercuric chlorid broth cultures of *Staphylococcus aureus* being employed, are summarized in Table 1. As shown in this table, the new compounds exhibit an extremely high disinfectant value in a menstruum of broth, and are at least fifty times more active than mercuric chlorid under these conditions.

(*b*) *Results of Disinfection Tests in a Menstruum of Ascites Fluid.*—As the disinfectant power of a substance is likely to be less pronounced in a menstruum rich in protein, as serum or ascites fluid, as

TABLE 3.—PHENOL COEFFICIENTS OF MERCURIAL COMPOUNDS FOR B. TYPHOSUS BY THE RIDEAL-WALKER METHOD

Name	Dilution	Exposure in Minutes						Phenol Coefficients (15 Min.)
		2½	5	7½	10	12½	15	
Phenol	1:20	+	+	—	—	—	—	
	1:30	+	—	+	—	—	—	
	1:40	+	+	+	+	+	—	
	1:60	+	+	+	+	+	+	
	1:80	+	+	+	+	+	+	
No. 99 (mercurophen)	1:50,000	—	—	—	—	—	—	10,000
	1:100,000	—	—	—	—	—	—	
	1:200,000	—	—	—	—	—	—	
	1:400,000	+	+	+	+	+	—	
	1:800,000	+	+	+	+	+	+	
No. 105	1:50,000	—	—	—	—	—	—	10,000
	1:100,000	—	—	—	—	—	—	
	1:200,000	—	—	—	—	—	—	
	1:400,000	+	—	—	—	—	—	
	1:800,000	+	+	+	+	+	+	
Mercuric chlorid	1:2,000	—	—	—	—	—	—	300
	1:4,000	—	—	—	—	—	—	
	1:6,000	—	—	—	—	—	—	
	1:8,000	+	—	—	—	—	—	
	1:12,000	+	+	+	+	+	—	
	1:16,000	+	+	+	+	+	+	

compared with a menstruum of salt solution or broth, we have determined the disinfectant activity of the new mercurial compounds and mercuric chlorid in a menstruum of ascites fluid with the pipet method,[2] modified after that of Wright.[3] The results of these

* From the Dermatological Research Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

1. Schamberg, J. F., and Kolmer, J. A.: The Germicidal Activity of Calomel, THE JOURNAL A. M. A., June 20, 1914, p. 1950. Kolmer, J. A.; Cohen, S. S., and Heist, G. D.: Jour. Infect. Dis., 1917, **20**, 293.

2. Kolmer, Cohen and Heist (FFootnote 1). Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Am. Jour. Syph., 1917, **1**, 1.

3. Wright, A. E.: Technique of the Test and Capillary Glass Tube, London, Constable & Co., 1912.

comparative tests are summarized in Table 2, and show that our new mercury compound No. 99 (mercurophen) is 200 times more active than mercuric chlorid, and the new compound No. 105 is fifty times more active than mercuric chlorid in a menstruum of serum proteins. It is apparent, therefore, that the new compounds possess less affinity for the serum proteins than is shown by mercuric chlorid, and this has been demonstrated in precipitation tests (Table 8).

(*c*) *Results with the Rideal-Walker Method.*—In this method, which is similar to the Hygienic Laboratory method, the test micro-organism (*B. typhosus*) is exposed for short periods of time to large amounts of disinfectant in water at 20 C., and the results expressed in comparison with the disinfectant power of standard solutions of phenol (phenol coefficient). The results of a set of experiments in which mercurophen, new mercurial compound No. 105, and mercuric chlorid were employed, are shown in Table 3. As shown in this table, both mercurophen and the new mercurial compound No. 105 are 10,000 times more active in this test than phenol, and more than thirty times more active than mercuric chlorid.

(*d*) *Results of Hand Disinfection Tests.*—For the purpose of determining the approximate disinfectant activity of the new mercurial compounds on the skin under ordinary conditions, a series of experiments

TABLE 4.—RESULTS OF HAND DISINFECTION TESTS *

No. of Compound	Name of Compound	Dilutions	Exposure in Minutes†		
			1	5	15
99	Mercurophen.....	1:5,000	—‡	—	—
99	Mercurophen.....	1:10,000	—	—	—
105	New mercury compound...	1:5,000	—	—	—
105	New mercury compound...	1:10,000	—	—	—
	Mercuric chlorid.....	1:5,000	+	+	—
	Mercuric chlorid.....	1:10,000	+	+	+

* All cultures of hands before immersion in these disinfectants showed heavy growths. In this table, — denotes sterile, and + growth.
† Solutions of disinfectant, from 38 to 42 C.
‡ Cultures made in glucose broth with sterile swabs; results after forty-eight hours' incubation.

were conducted on the hands of a number of persons (laboratory assistants).

In one series the hands were first cultivated by rubbing the skin in a vigorous manner with a sterile swab moistened with sterile broth and inoculating tubes of sterile glucose broth; this was followed by immersion of the hands in vessels containing a solution of the disinfectant in distilled water at a temperature of from 38 to 42 C. At intervals of one, five and fifteen minutes the hands were quickly flushed with sterile distilled water from a pipet to remove the disinfectant and cultivated in the same manner. The results of a number of these experiments are expressed in Table 4, in which it was found that 1 : 5,000 and 1 : 10,000 solutions of mercurophen (No. 99) and new mercurial compound No. 105 sterilized the skin under these conditions in an exposure of one minute, whereas mercuric chlorid in a 1 : 5,000 dilution required an exposure of over five minutes, while a 1 : 10,000 dilution failed to sterilize in an exposure of fifteen minutes.

Further experiments have shown that mercurophen (No. 99) is capable of sterilizing the skin of the hands in an exposure of one minute in a dilution as high as 1 : 40,000 and the new mercurial compound (No. 105) in dilution up to 1 : 80,000, whereas mercuric chlorid fails to accomplish these results in a dilution of 1 : 5,000 under identical conditions (Table 5).

(*e*) *Results of Disinfection Tests With Rubber Tubing.*—In order to determine the disinfectant value of the new mercurial compounds for rubber, particularly catheters, pieces of ordinary rubber tubing 100 mm. in length (5 mm. bore and 3 mm. wall) were immersed in varying dilutions of the new mercurial compounds and mercuric chlorid in distilled water at

TABLE 5.—RESULTS OF HAND DISINFECTION TESTS *

Dilutions	Exposure of One Minute†		
	No. 99	No. 105	Mercuric chlorid
1:5,000	—‡	—	+
1:10,000	—	—	+
1:20,000	—	—	+
1:40,000	—	—	+
1:80,000	+	—	+

* All cultures made of hands before immersion showed heavy growths; — denotes sterility, and +, growth.
† Solution of disinfectant, 42 C.
‡ Cultures made in glucose broth with sterile swabs; results after twenty-four hours' incubation.

room temperature for a period of thirty minutes, followed by thorough washing with sterile distilled water and cultivating in large tubes of glucose broth for seventy-two hours. Controls were included in each experiment, consisting of tubing placed in sterile distilled water alone, and always showed heavy growths of various cocci and bacilli. The results of numerous experiments were similar to those shown in Table 6, indicating that solutions of mercurophen (No. 99) and new mercurial compound No. 105 sterilized the rubber tubing under these conditions in dilutions as high as 1 : 100,000.

In a second series of experiments the pieces of rubber tubing were purposely infected beforehand by immersion for seventy-two hours in mixed broth cultures of *Staphylococcus aureus* and *B. subtilis* (a spore-forming micro-organism). The results of these experiments are also shown by the results expressed in Table 6, and indicate that while 1 : 500 dilution of mercurophen (No. 99) and No. 105 were required to bring about sterilization in a thirty-minute exposure, mercuric chlorid failed in dilution as low as 1 : 50.

(*f*) *Results of Disinfection Tests With Feces.*—In order to determine the disinfectant value of the new

TABLE 6.—SUMMARY OF RESULTS OF GERMICIDAL TESTS WITH RUBBER TUBING AND NEW MERCURIAL COMPOUNDS

No. of Compound	Name of Compound	Results after Exposure of 30 Minutes	
		With Ordinary Rubber Tubing	With Heavily Infected* Rubber Tubing
99	Mercurophen.....	1:100,000	1:500
105	New mercurial compound.....	1:128,000	1:500
	Mercuric chlorid.....	1: 16,000	Not in 1:50

* Infected by immersing the tubing in broth cultures of Staphylococcus aureus and B. sublitis for seventy-two hours prior to the germicidal tests.

mercurial compounds in the presence of considerable protein material, as an indication of their practical value in the disinfection of feces (such as the bowel discharges of persons with typhoid fever), a series of experiments were conducted as follows:

One gm. of fresh human feces was added to 100 c.c. of a 1 : 2,000, 1 : 5,000, 1 : 10,000 and 1 : 20,000 solution of mercurophen (No. 99), new mercury compound No. 105 and mercuric chlorid, respectively, at room temperature, and

thoroughly emulsified; at intervals of five, fifteen, thirty, forty-five and sixty minutes, 0.1 c.c. of each of the foregoing emulsions was placed in sterile Petri dishes and mixed with 10 c.c. of agar at 42 C. After forty-eight hours' incubation, the plates were counted. Controls were prepared by emulsifying 1 gm. of feces in 100 c.c. of sterile distilled water and plated at the same intervals. All of the control plates were uncountable, owing to the presence of large numbers of colonies.

The results of a series of experiments similar to those shown in Table 7 indicated that thin and thoroughly mixed dilutions of feces and mercurophen (No. 99) 1:5,000, and new mercurial compound No. 105 (1:5,000) in water, will result in the sterilization of the feces at room temperature in periods of thirty minutes or less, whereas a dilution of 1:2,000 mercuric chlorid was required to bring about similar results.

TABLE 7.—RESULTS OF DISINFECTION OF FECES

No. of Compound	Name of Compound	Final Dilution	Exposure in Minutes				
			5	15	30	45	60
99	Mercurophen....	1:5,000	Unc.*	6,000†	Sterile	Sterile	Sterile
105	New mercury compound.....	1:5,000	Sterile	Sterile	Sterile	Sterile	Sterile
105	New mercury compound.....	1:10,000	Unc.	16,000	10,800	200	10
105	New mercury compound.....	1:20,000	Unc.	Unc.	Unc.	Unc.	6200
	Mercuric chlorid	1:5,000	Unc.	Unc.	Unc.	7500	480
	Mercuric chlorid	1:2,000	8,000	3,000	Sterile	Sterile	Sterile

* Uncounted. † Colonies in the plate.

THE PRECIPITATING ACTIVITY OF MERCURIALS ON HUMAN SERUM PROTEINS

As previously stated, the disinfectant activity of mercurophen and the new mercurial compound (No. 105) are maintained to a remarkable degree in a menstruum rich in serum proteins. This property is one of great value, particularly in the treatment of infectious material in which large amounts of protein are present.

In order to determine further the precipitating activity of these new mercurial compounds, a series of experiments was conducted as follows: A series of dilutions of mercurophen (No. 99), new mercurial compound No. 105 and mercuric chlorid in distilled water, in amounts of 0.5 c.c., were placed in small test tubes; to each tube and to the controls (of distilled water alone) was added 0.5 c.c. of fresh clear human blood serum followed by gentle mixing. An immediate clouding and precipitate followed in the majority of the tubes containing mercuric chlorid; the results are shown in Table 8 after the tubes had been standing at room temperature for twenty-four hours.

As shown in this table, mercuric chlorid produced visible precipitation in dilution as high as 1:1,000, whereas mercurophen (No. 99) failed to produce any visible precipitation in dilutions as low as 1:300 and the new mercurial compound (No. 105) produced no precipitation in dilutions as low as 1:400 (lower dilution could not be used as clear solutions of this compound in distilled water could not be obtained lower than 1:200).

THE NONCORROSIVE EFFECT OF THE NEW MERCURIAL COMPOUNDS

As is well known, the ordinary mercurial compounds, particularly mercuric chlorid, have a marked tendency to corrode metals by producing amalgam compounds; therefore these substances cannot be used to sterilize surgical instruments. Experiments to determine the corrosive action of mercurophen (No. 99) and new mercurial compound No. 105 have shown both of these substances to be free of corrosive action in dilutions as low as 1:500 and with exposures as long as twenty-four hours. New nickel plated and highly polished surgical instruments immersed in 1:5,000 solutions of mercurophen (No. 99) and new mercurial compound No. 105 for twenty-four hours showed absolutely no evidences of tarnishing. With old instruments in which the plating had been partly removed and the underlying metal exposed, varying amounts of rust were produced during the twenty-four hours as a result of the action of the water used in the preparation of the solutions.

CONCLUSIONS

1. Mercurial compound No. 99 sodium oxymercury-orthonitro phenolate (mercurophen) exhibits against the *Staphylococcus aureus,* in the "antiseptic test," fifty times greater activity than mercuric chlorid; it destroys these bacteria on prolonged exposure in boullion in a dilution of 1:10,000,000.

2. In a menstruum of ascites fluid, mercurophen is 200 times more germicidal against the *Staphylococcus aureus* than mercuric chlorid.

3. By the Rideal-Walker method, mercurophen exhibits 10,000 times greater germicidal power against the *Bacillus typhosus* than phenol, and over thirty times greater activity than mercuric chlorid.

4. Mercurophen disinfects the hands in dilutions of from 1:10,000 to 1:40,000 in one minute, whereas mercuric chlorid in a dilution of 1:5,000 requires over five minutes, and in a dilution of 1:10,000 requires over fifteen minutes.

5. Mercurophen sterilizes ordinary rubber tubing in thirty minutes in a dilution of 1:100,000. Mercuric chlorid accomplishes this result in a dilution of 1:16,000. With tubing heavily infected with cocci and spores, mercurophen requires a 1:500 solution and mercuric chlorid fails in a 1:50 solution.

TABLE 8.—PRECIPITATING ACTIVITY OF MERCURIALS ON HUMAN SERUM PROTEINS*

Final Dilution	Compounds		
	No. 99	No. 105	Mercuric Chlorid
1:200	+	0	++
1:300	—	0	++
1:400	—	—	++
1:600	—	—	++
1:800	—	—	++
1:1,000	—	—	+
1:1,200	—	—	—
1:2,000	—	—	—

* In this table, ++ denotes heavy precipitate; +, slight precipitate, and —, no precipitate. Controls showed no precipitate.

6. Mercurophen in a 1:5,000 solution sterilizes feces in thirty minutes; mercuric chlorid accomplishes this result in a 1:2,000 solution.

7. The precipitating effect of mercuric chlorid on human serum proteins is four to five times greater than that exhibited by mercurophen. This is an obvious advantage possessed by the latter substance.

8. Solutions of 1:5,000 of mercurophen exhibit no evidence of tarnishing on nickel plated instruments after twenty-four hours' exposure.

9. In experiments not detailed here, mercurophen administered intravenously in rabbits has a lower toxicity than mercuric chlorid.

PERTUSSIS VACCINE

ITS VALUE AS A CURATIVE AND PROPHYLACTIC AGENT IN WHOOPING COUGH *

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The discontinuance of the whooping cough clinic, which had been maintained by the department for over two years, brought to an end the experimental administration of pertussis vaccine by the Bureau of Laboratories. At the request of Dr. William H. Park, under whose supervision the work had been carried out, a report covering the major part was prepared, and a digest of it will form the first part of this article.

Owing to the fact that, since the publication of the department's first report, some investigators had not obtained decisively good results, it seemed desirable that an attempt be made to summarize the experiences of all those to whom we had supplied our pertussis vaccine. A circular letter was mailed, therefore, to 250 physicians enclosing a questionnaire on the action of pertussis vaccine as compared to drug treatment in whooping cough. Over 180 replies reached us up to January 10. These reports form the second part of the article.

I. Results Obtained at the Whooping Cough Clinic

The clinical material was about the same as that of any dispensary on the East Side, with a sprinkling of patients from other parts of the city and even suburban towns. From an experimental point of view this material leaves much to be desired, and the conclusions to be drawn must, perforce, be limited. Thus, less than half of the 5,000 odd patients who applied for treatment were available for study. The rest had to be discarded on account of incomplete attendance, lack of reliability of guardian, erroneous diagnosis, or for other reasons.

Besides the element of uncertainty which enters into all clinical observations, even the best controlled, one must reckon, in this case, with a heterogeneous class and large number of observers on whom we had to rely for the history, course of disease, severity of paroxysms, etc. The conception of different parents and guardians of the severity and symptoms of a disease is naturally apt to be more than divergent and often inaccurate.

Fortunately, I have had the rare opportunity of being in actual attendance at the clinic for the last two years, and this uninterrupted service has enabled me to learn to discriminate between certain groups of patients. Nevertheless, I should be loath to ascribe to my interpretations anything but a relative value.

The numerous tables as well as the record cards on which this digest is based are on file at the Bureau of Laboratories, and it was thought best to leave most of them out of this study. They are elaborate and lengthy, and would necessarily tax the energy of the compositor and the reader. The same considerations have actuated me in giving round figures only. Whenever the decimals exceeded 0.5, a unit was added to the figure, while lesser decimals were discarded.

A. Curative Cases

The number of curative cases tabulated amount to 1,101, of which 952 were treated with pertussis vaccine (three or more injections) and the rest (149) with drugs. We had planned at the outset to have an equal number of cases of each class; but we found it difficult to carry out this plan in practice. In the early days of the clinic we had an overwhelming number of drug cases because parents did not trust the "needle" treatment. Later on, with the increasing popularity of the vaccine treatment, it became difficult to secure an adequate number of control cases. Guardians could not be persuaded to go home without an injection, and refusal to give it to their charges would invariably result in lack of attendance.

TABLE 1.—AVERAGE DURATION OF CASES TREATED WITH VACCINE, AS COMPARED TO THOSE TREATED WITH DRUGS

Treatment	No. of Cases	Time Treatment Began During Paroxysmal Stage						
		½ week	1½ weeks	2½ weeks	3½ weeks	1½ months	3d month*	6th month or over*
Vaccine	952	210	303	196	151	54	36	22
Average duration of paroxysmal stage (in days)	37	22	16	26	45	64	89	322
Drugs	149	39	25	24	50	5	3	3
Average duration of paroxysmal stage (in days)	50	40	52	39	40	82	102	361

* The figures in these two columns are given only for the sake of completeness, the duration being too variable for any definite conclusion.

Duration. — The total average duration of the paroxysmal stage of the 952 vaccine cases, irrespective of the time when treatment was begun, was nearly thirty-seven days, while the 149 drug cases had an average duration of over 50 days.

The paroxysmal stage of pertussis is given by various authorities as from 4 to 6 weeks; and since many of the patients who applied for treatment were whooping for a longer period (some even as long as ten or twelve months, according to the guardian), it would be manifestly inaccurate to pass on the duration of the paroxysmal stage without taking into consideration the length of time elapsed before treatment was begun.

This becomes evident by a glance at Table 1, which shows the total average duration of cases treated with vaccine, as compared to those treated with drugs.

This table seems to indicate that the second week of the paroxysmal stage happened to be most favorable for vaccine treatment, the duration being a little over sixteen days for cases whose treatment began about the tenth day. In averaging up all the cases in which vaccine treatment was instituted before the expiration of the third week of paroxysms, we obtain a decidedly low figure as compared to similar cases under drug treatment. The 709 cases in which pertussis vaccine

* From the Bureau of Laboratories, Department of Health, City of New York.

*Summary of the results obtained by the Bureau of Laboratories of the New York Department of Health and of over 180 private physicians and health officers.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of tabulated physicians' reports on pertussis vaccines. The complete article appears in the reprints, a copy of which will be sent by the author on request.

was given before the end of the third week had an average duration of a little over twenty days, while the eighty-eight patients treated with drugs whooped for nearly thirty-two days.

Before these figures were tabulated, our impression had been that the *earlier* vaccine treatment is started, the better; but this table shows that there may be such a thing as starting *too early*. If this is a fact, I have no explanation except perhaps the old one of the "negative phase." It is quite possible that, in the first week of the paroxysmal stage, the organism is at its lowest as far as its active immunity-producing power is concerned, and if this is so the administration of vaccine may cause more reaction than is necessary. This assumption might explain some very protracted and complicated cases in which vaccine is begun during the first week of the whoop; but it would not explain the protracted cases treated with drugs.

The fourth week of the whoop seems to be slightly more favorable for the drug than the vaccine treatment. I am at a loss to explain this seeming paradox, otherwise than by ascribing it to mere accident. This exception, however, should not invalidate the claims made for the superiority of the vaccine over drug treatment. One must bear in mind that in every class of the cases, whether treated by vaccine or by drugs, in the first week or after a history of twelve months of whooping and vomiting, we had patients who would stop whooping within a week of treatment. This only illustrates the value of a large number of cases for the correct interpretation of the action of a new therapeutic agent.

Severity of Paroxysms.—More significant, perhaps, than the shortening of the paroxysmal stage, is the influence of vaccine on the severity and frequency of paroxysms. The striking amelioration in the general well-being of the patient, the return of sleep, appetite and the prompt cessation of vomiting has been commented on by nearly all those who have had occasion to administer pertussis vaccine. This is more constant than the shortening of the disease, as may be seen from the reports of the physicians given in Table 4.

In a large majority of cases the mother or guardian would begin her first report by saying: "The child slept much better after the injection." The only exceptions to this rule were the few cases which showed marked reactions. In cases treated with drugs, the severity is not abated but the frequency of the paroxysms is lessened as long as the treatment is continued. The withdrawal of antipyrin, however, invariably marks a recrudescence in the frequency of the paroxysms.

Complications and Sequelae.—These were few in both the vaccine and the drug cases. We have records of only nineteen deaths among 5,000 patients treated with vaccines (twelve from bronchopneumonia, six from convulsions, one unknown) and twenty-two deaths among the 300 odd cases treated with drugs (14 from bronchopneumonia, eight from convulsions). Most of these deaths occurred in the first week of the treatment before either the vaccine or antipyrin could have had any action.

The postparoxysmal cough, however, is distinctly shortened under vaccine treatment.

The question of complications and sequelae has not been thoroughly studied, and would bear further investigation.

HOSPITAL CASES

We have on file sixty cases of whooping cough, in practically all of which the patients whooped over three weeks, treated with pertussis vaccine at the Willard Parker Hospital without apparent improvement. Dr. Goldstein, who has studied these cases, does not think that the vaccine has any influence in chronic cases. The figures in Table 1 would seem to show that these chronic cases do better than under drug treatment. Our Dr. Abramson, however, who has taken special interest in these chronic whoopers, is of the opinion that they are distinctly benefited by pertussis vaccine.

It is quite possible that certain factors in routine hospital handling would tend to impair the resistance of the patient and thereby lower the power to produce immune bodies. I have previously drawn attention to the factor of ventilation. One may also add the liability of hospital cases to have severer and complicated attacks, and also the possibility of a weakened physique due to inadequate nursing and poor economic surroundings previous to admission.

INCOMPLETE CASES

In addition to the complete cases (that is, those in which the patients received at least three vaccine injections and whose subsequent history was followed up) there are a large number in which the patients either (*a*) had only one or two injections, or (*b*) were treated first with drugs and later with vaccines or vice versa.

TABLE 2.—AVERAGE DURATION OF CASES TREATED IN 1915, ACCORDING TO MONTH WHEN TREATMENT BEGAN

Month	Duration of Paroxysmal Stage (Days)	
	Vaccine	Drugs
January	28	68
February	25	46
March	27	45
April	23	54
May	28	53
June	26	40
July	32	48
August	46	52
September	29	49
October	32	53
November	35	55
December	30	65

(*a*) With the exception of some of the chronic cases referred to, one or two injections had no effect on the duration of the disease. The severity of the paroxysms, however, seems to be modified even by one injection. The duration of the whoop, as well as that of the first paroxysmal stage, seems to be the same as that of drug cases or in many cases (40 per cent.) actually higher. Lack of proper care might explain this.

(*b*) The thirty-nine mixed cases have to be looked on as failures of the vaccine as well as the antipyrin treatment. Their total average duration was fifty-nine days of paroxysmal cough. The patients who had to be switched over from one treatment to another were such as seemed to "go to pieces." Ten of them died subsequently (six from bronchopneumonia, one from measles, two from convulsions, one from poliomyelitis).

Effect of Season on Treatment.—Owing to the fact that most fatalities occur in August, it seemed desirable to tabulate the results of both vaccine and drug treatment according to the month in which treatment began. Table 2 shows the average duration of the cases treated during each month for the year 1915.

While it would be rash to draw any definite conclusions from this table, which contains complete figures for the year 1915 only, it is nevertheless interesting to

note that the duration of the vaccine cases tends to follow the usual curve of the yearly late spring and summer recrudescence of the disease. Thus the highest average duration of vaccine cases occurs in those treated during the month of August. The cases treated with drugs, on the other hand, attain the longest duration in January, with high points in December and November; the months of October, April, May and August show also a very long duration, that is, higher than the general average of fifty days, while only the month of August shows a higher figure than the general average of thirty-seven days for vaccine cases.

As to the duration of the paroxysmal stage under vaccine treatment, depending as it does on the time treatment is instituted, the information gained from this table would be incomplete unless the duration of the disease before admission should be tabulated for each month. This would necessitate an enormous amount of labor, which for various reasons had to be relegated to the future.

Types of Vaccine.—It is equally regrettable that no minute comparative study of the various vaccines supplied to the clinic by Dr. Anna W. Williams could be made. The floating clientele of the dispensary, and the lack of sufficient time and help to do the necessary follow-up work seemed to combine against a thorough investigation. Besides, it is not always possible to continue the injection of a vaccine which appears to aggravate the condition of the patient, especially when this patient is a child, helpless and poor. A good deal of switching, therefore, from one vaccine to another occurred.

A solution of sterile milk, however, which was sent to the clinic having the same appearance as the regular pertussis suspension was promptly recognized, owing to the negative results and to some quite marked reactions.

With this exception, all other vaccine seemed to be equally potent, except old strains or old suspensions of new strains of pertussis bacilli. This is merely an impression, as I have no reliable figures on the subject. The results of an influenza vaccine collated by one of our workers are said to be equally good. While it is not out of the range of possibility that any protein may help to increase the general resistance of the body, our figures are too few to support Vaughan's theory. On the other hand, some of those cases which seem absolutely refractory to pertussis vaccine may really be influenza infections, and in such cases an influenza vaccine could be of value.

Dosage.—It seems that at least three injections are necessary to make a lasting impression on the disease. Cases in which recovery took place too quickly, that is, after the first injection, were classified as doubtful, and are not included in this study.

During 1916 we found that some patients would have a relapse from two months to five days after the cessation of paroxysms. The following successful procedure was, therefore, adopted to ward off any recurrence:

To a child over a year old, an initial injection of 500 million bacteria is given; at the end of forty-eight hours another dose containing 1 billion is administered, and after the lapse of another forty-eight hours 2 c.c. (2 billion) are injected subcutaneously.

After an interval of five days the child is examined again, and if the paroxysms and the vomiting have ceased, is treated with cod liver oil or other tonics. If the paroxysms are much milder but still persist, a dose of 4 billion vaccine is given, followed by 8 billion in three days, and 10 billion after another lapse of three days.

Should the paroxysms become more violent after the first three injections, a week would be allowed to elapse before the second series of three injections are given, and instead of 4 billion this series is started with only 2 billion.

B. PROPHYLAXIS

Over 600 children were given prophylactic injections of pertussis vaccine; not all, however, gave a clear history of exposure. In Table 3 only those who were actually exposed to members of their own family or playmates living next door for two weeks or less have been considered. These 368 cases, as will be seen from the table, were divided in two classes: (*a*) those already showing symptoms of the disease, such as cough and even slight vomiting, to whom the vaccine was given with the intention of aborting the disease, and (*b*) those who, although exposed constantly to the disease for two weeks or less, had not developed any symptoms, and to whom the administration of pertussis vaccine was intended to act as a true prophylactic.

Thus nearly 37 per cent. of the patients treated with vaccine contracted pertussis, while over 63 per cent. did not. Out of those showing symptoms, nearly 47 per cent. contracted it, while in over 53 per cent. the disease was apparently aborted. The patients showing no symptoms whatever were nearly all protected (94 per cent.). This would tend to show that once the disease has invaded the organism it is much harder to prevent the development of the paroxysms than in cases free from symptoms. All those treated with drugs, eleven cases in all, seven showing symptoms and four not showing any, contracted the disease except one patient, who showed no symptoms. The duration of the ten drug cases averaged fifty days of paroxysmal cough.

TABLE 3.—PROPHYLACTIC CASES

	Number Contracting Pertussis	Duration, Days	Number not Contracting Pertussis
Number of cases showing symptoms. 277	130	17	147
No symptoms 91	5	17	86

These figures should be read in the light of our epidemiologic studies, which have taught us that there are quite a number of children who seem to be naturally immune to the disease.

That the vaccine acted as a real prophylactic in many cases may be assumed from the following fact: nine of the patients who did not contract pertussis developed more or less severe subconjunctival hemorrhages but no other symptoms. The textbooks ascribe these hemorrhages wholly to the violence of the cough, which ruptures the tiny blood vessels of the conjunctiva. These nine cases, together with a few others which were observed in very mild attacks of whooping cough, would warrant the revision of this theory. It would be more likely to assume that the Bordet-Gengou bacillus produces some toxin which acts on the walls of special blood vessels, causing a extravasation of the blood.

Another significant fact brought out by Table 3 is the duration of the paroxysmal stage among those who contracted the disease. It is almost the same in both classes, a little over seventeen days in those who showed no symptoms and slightly less than seventeen days in those who already had some symptoms. In

both classes the attacks were very mild, while in the few cases treated with drugs not only was the average duration a little longer than that of the curative cases but also the severity remained unaffected.

It is interesting to note that the duration was still a trifle higher in the prophylactic cases (those treated in the preparoxysmal stage) than in those treated in the second week of the paroxysmal stage.

II. Results Obtained by Private Physicians and Health Officers

A. CURATIVE

Table 4 shows in detail the results obtained by private physicians and health officers in the use of the stock vaccines from our laboratory. I need only add that they corroborate the findings at the whooping cough clinic.

Thus out of the 2,364 cases reported, the results were found to be satisfactory or excellent in 2,047 (87 per cent.) and negative or doubtful in a little over 13 per cent. (317 cases). Owing to temperamental differences in the interpretation of results, we have classified all returns marked "good," "fair," "satisfactory," "excellent," etc., under the heading "good results," which means superior to those obtained with drugs.

The results obtained at some other dispensaries are claimed to have been much better than at the whooping cough clinic. Notably Dr. Hoag,[1] at the Wilkes Dispensary, by using larger doses and by securing a more perfect attendance, has been able to reduce the duration to from sixteen to twenty days. Dr. H. L. F. Locke will shortly publish his results with our vaccine at the Hartford Isolation Hospital, Hartford, Conn.

Of the 1,314 institutional cases reported, nearly all the patients have been considered as benefited by the vaccine, as compared to the drug treatment which had been administered for years. The results in 499 of these cases (39 per cent.) were excellent, and the rest satisfactory, with the exception of sixty-seven doubtful and negative cases, mostly in hospitals.

In tabulating these results I have used the reporter's final estimation of his results, even when they apparently contradicted previous reports. Thus, Dr. S. Ginsburg's fifty cases were classified in the "doubtful" column, although previous written and verbal reports included several excellent results.

B. PROPHYLACTIC

Of the 239 cases listed in the prophylactic column, 216 (90 per cent.) were apparently protected, the results in twenty-one were negative (no history given), and in two, doubtful.

Besides these actual cases, some physicians, in answer to the question whether or not the vaccine was used prophylactically, merely answered "Yes" without giving the number of cases treated. The results obtained were given as: fair, satisfactory, apparently prevented, completely satisfactory, best as prophylactic, good, better than curative, twenty reports (number of cases unknown); doubtful, three reports; negative, two reports; total reports, twenty-five.

Complications and Sequelae. — Hardly any were noticed under vaccine treatment.

Reactions.—A few slight local and occasional rises of temperature in rare cases.

Conclusions

The results obtained at the whooping cough clinic and by over 180 private physicians and health officers would warrant the routine administration of pertussis vaccine for both curative and prophylactic purposes.

The best time to institute the vaccine treatment, except as a prophylactic, is the first and second week of the paroxysmal stage.

When the proper vaccine is given and the method of the department is employed, the disease is materially reduced in duration and severity.

The presence of subconjunctival hemorrhages in prophylactic cases which were protected by the vaccine seems to point to its specific immunizing action against the paroxysms and to the fallacy of the hitherto accepted theory that these hemorrhages are due to the violence of the cough.

1265 Boston Road.

1. Hoag, W. B.: Am. Med., New Series, 1916, **11**, 255-265.

DIAGNOSTIC GROUPS OF CHRONIC GASTRIC DISEASE*

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In textbooks, diseases of the stomach are classified with apparent ease; but in practice one soon learns that cases are not fitted so readily into the place in which they belong. In fact, the decision as to what an individual case of "stomach trouble" really means from the standpoint of pathology is often one of the most difficult problems in medicine. Dyspepsia, indigestion and stomach trouble are all common complaints; but the physician's task is to decide what they signify and what organic change underlies and produces them.

In general the questions to be answered are these: 1. Are the symptoms really due to disease of the stomach itself, or only to disturbed function produced by disease elsewhere? 2. If the disease is actually in the stomach, what is its character? According to the answer to these questions, cases fall into more or less well defined diagnostic groups; but to recognize what place shall be assigned in the grouping is rarely easy and not always final, for subsequent developments may entirely change the conception and cause us to shift the diagnosis from one group to another.

The difficulties stand out more and more prominently, as experience grows; and the larger the number of patients seen, the more firm the conviction that error in interpretation is possible, even with the utmost care and attention to detail. These thoughts have prompted me to review the cases of chronic gastric disease observed during the past five years, from Jan. 1, 1912, to Jan. 1, 1917; to show what conclusions have been reached in patients presenting themselves for diagnosis; what diagnostic groups have been found practical, and by what characteristics these groups have been segregated. In all, 2,116 records have been collected in private practice during these five years, all of diseases of internal organs; and of these, 297 have been classified as gastric. This does not include the patients with gastric symptoms that proved ultimately to be due to disease of appendix or gallbladder or some other organ, but only those in whom, after careful sifting of all data, the stomach itself was considered to be the organ diseased.

* Read before the Sacramento Society for Medical Improvement, Sacramento, Calif., March 17, 1917.

GROUP 1: GASTRIC CANCER

This group makes the best point of beginning, because it is the most definite and affords least opportunity for error. The symptoms progress so rapidly and are so marked that they cannot be overlooked, while the outcome usually settles beyond question any lingering doubts. There have been twenty-eight cases recorded in this group during the past five years, all verified by operation or by necropsy; and it is significant that out of hundreds who sought advice for stomach trouble, few proved to have this most serious type of organic disease. The data on which diagnosis depends are not always the same, and this should not be expected. A cancer originating at the cardiac end of the stomach will very early give rise to dysphagia, with regurgitation of food soon after it is eaten, but may show free hydrochloric acid present, if stomach contents can be obtained; and no tumor may ever be palpable at any time. A cancer originating on the lesser curvature usually causes loss of appetite, bloating, heaviness and pain after eating, with loss of weight, strength and color; but may become very large before a tumor mass is palpable below the costal margin, or before free hydrochloric acid disappears from the stomach contents. A cancer originating at the pyloric end soon gives rise to obstruction, and in addition to other evidences of its presence causes nausea, frequent vomiting and ultimately dilation of stomach and food retention.

Several other points of importance in diagnosis stand out in a review of this group:

1. Two of the patients were under 40 years of age, one 37 and one 35. The third decade is no bar to the diagnosis of cancer, and other observers have reported it as occurring even in the second decade.

2. In twenty-three of the cases the duration of symptoms was set down as one year or less, in some only a few months, for short duration of symptoms with rapid progress is characteristic of gastric cancer. In one case, however, stomach trouble had existed persistently for twenty years, though the symptoms had grown much worse for only the previous six months. A second patient had a history of sour stomach, heartburn, belching and waterbrash at intervals for four years before the trouble became continuous and more severe, with loss of weight. A third had a similar history for fifteen years, and then one year of different and more severe trouble. A fourth had a history of recurring attacks of sour stomach for "years past," and could not tell that his recent symptoms were any different from those in former attacks. A fifth had a characteristic ulcer history for many years, and was finally operated on in 1912 for ulcer, and this was excised; on pathologic examination, however, the excised tissue showed beginning malignant degeneration in the ulcer edge. This patient remained well for two years, and then began to have symptoms and signs of cancer of the stomach from which he died six months later. All of these cases call to mind the possibility that cancer may develop on an ulcer base; and so the ordinary story of recent onset and rapid development of symptoms may be replaced by one of long-standing gastric disease.

3. In seventeen of the cases, stomach analysis showed complete absence of free hydrochloric acid, as expected. In five cases, no stomach contents could be obtained, because the tumor was at the cardiac end and the entrance to the stomach was blocked so that no tube could be passed. But in six cases the stomach contents showed free hydrochloric acid present in considerable amounts, varying from ten to twenty-eight degrees. The fact is certain that the presence of free hydrochloric acid is no bar to the diagnosis of cancer; and it is also equally certain, as will be shown later on, that the absence of free hydrochloric acid does not always mean cancer.

4. Tumor was found by palpation of the abdomen in twenty of the cases, but was not palpable in eight; yet in every one of the cases in which no tumor could be felt, its presence and location were distinctly shown on the roentgenographic plate. In dealing with chronic gastric disease, therefore, the only safe plan is to remember cancer first, and to make sure it is eliminated before considering any other diagnosis; and in any case at all suspicious, after history, physical examination and stomach analysis have gone as far as they can, roentgenographic plates must furnish their testimony before a verdict is finally rendered.

GROUP 2: GASTRIC AND DUODENAL ULCER

The propriety of including duodenal ulcer in this group can now scarcely be questioned. It has been proved that, in etiology and pathology, gastric and duodenal ulcers are identical. Their clinical history is so much alike that by this alone no man can tell them apart; and it is fortunate that the same treatment works well with each. It really matters little, therefore, whether the lesion is on one side or the other of the pyloric ring; and the safest plan in diagnosis is to include all chronic gastric and duodenal ulcers in one group, regardless of the exact situation.

During the past five years, ninety-two cases have been assigned to this group, of which fifty-five were considered to be gastric and thirty-seven duodenal. Twenty-three of these cases have come to operation, of which nine have proved to be gastric and fourteen duodenal. It is admitted without hesitation that several diagnosed gastric ulcers were found at operation to be duodenal; and one diagnosed duodenal proved to be really gastric. But it is a matter for congratulation that during these five years only one patient referred to the surgeon for chronic gastric ulcer was found to have no ulcer but a chronic appendicitis. It is significant that in this case, occurring early in the series, the patient was sent for operation without any roentgenographic plates having been made; and it taught a lesson that has never since been forgotten. One other case classified originally as chronic gastric ulcer in 1912 had to be transferred later to the group of gastric crises due to tabes, because by 1916 developments had occurred that made the later diagnosis certain. There may be other cases now reported in this ulcer group that are not correctly included; but all have been carefully sifted and every effort has been made to prevent error.

As to the methods employed in deciding what cases of chronic gastric disease belong in this group, they have been the usual and well recognized ones: clinical history, physical examination, gastric analysis, roentgenographic plates and fluoroscopic reports. The clinical history of these cases, if time enough is taken to elicit details, is characteristic and typical. The story that repeats itself over and over again in these records is of chronicity for years, in some cases for twenty, commonly for five or ten, rarely less than two or three; so that at once, by its long-standing symptoms, the case becomes suspicious. The history of periodicity is likewise noted in practically every case; of attacks

for weeks or months during which the symptoms persist, followed by days, weeks or months of remission or complete intermission. The most constant complaint is of pain; and so essential is this that without it the diagnosis of ulcer is always a dubious one. The site of pain, however, and its time of occurrence are not always the same. One patient locates the pain in the epigastrium, another in the right or left hypochondrium, another altogether or mainly in the back, or running through from front to back. Similarly one patient says pain comes on three or four hours after eating, another says two hours, another only one. Almost universally the story is that pain is relieved by taking food and does not recur for an hour or more afterward. Other symptoms described sometimes as accompanying the pain, such as belching, waterbrash, heartburn and nausea, are not constant and in no way diagnostic; and when they are much dwelt on in the history and pain is not the chief complaint, the condition probably belongs to some other group than ulcer.

There seems to be an impression that gross hemorrhage is a frequent occurrence in ulcer, as manifested by vomited blood or by tarry stools or both. In these records, however, it was an unusual event. In only eleven cases out of the ninety-two could any history of hematemesis or melena be elicited. In ten of these, blood was vomited; in three there had been tarry stools as well as bloody vomitus; and only two had a history of black, tarry stools, without blood vomited. One of these patients died following a series of large hemorrhages throughout three days. The necropsy revealed at the lesser curvature a large ulcer, with deep excavation down to the pancreas and an open vessel of large size in the base. Another patient, after a week of repeated hemorrhages, in spite of medical treatment to prevent, had a drop in hemoglobin to 25 per cent. After that no further hemorrhage occurred, so that two weeks later he could be operated on, when a hard indurated ulcer on the lesser curvature was resected, and a gastro-enterostomy done. This patient recovered and has remained well since. Three other patients in this group with lesser amounts of hemorrhage have been subjected to surgery. One of these had a saddle ulcer on the lesser curvature; but in the other two the ulcer was distinctly beyond the pyloric ring, on the duodenal side, though all had a history of vomiting of blood on several occasions.

Examination of the abdomen does not afford much direct evidence in chronic gastric or duodenal ulcer. Tenderness and rigidity are noted frequently over the gastric area, sometimes localized to one sensitive spot; but this occurs with other gastric disease besides ulcer and, on the other hand, is not always found even when ulcer exists. The presence of a palpable mass due to cicatricial tissue is very rare, and when such a mass is found it is wiser to look on it as due to something else. The discovery of a tumor is rather against the diagnosis of ulcer, and the characteristic finding is the absence of all objective signs over the stomach; but valuable indirect evidence is found by palpation of gallbladder and appendix areas and the possible elimination of disease there as a cause of gastric symptoms.

As regards gastric analysis, the condition expected in ulcer is hyperacidity; but it is a mistake to assign too much importance to this element in the diagnosis. Gastric ulcer may be present even with a normal or subnormal acidity; for, as Lockwood[1] states, hyperchlorhydria depends not merely on the presence of an ulcer but also on the location of the ulcer. In general, the nearer the ulcer to the pylorus, the higher the acidity; and with an ulcer on the lesser curvature, toward the cardia, the acidity may be normal or subnormal. The diagnosis must therefore never be rejected simply because no hyperchlorhydria is found; for no one factor is conclusive when taken by itself.

In the cases reviewed, the total acidity was over 100 in three; between 90 and 100 in eight; between 80 and 90 in sixteen; between 70 and 80 in nineteen, and between 60 and 70 in twenty-eight. If the range of normal total acidity is assumed to be from 40 to 60, as is the usual rule, there were thus seventy-four of these cases which showed a hyperacidity. But there were seven between 50 and 60 and six between 40 and 50, so that thirteen cases would be said to be of normal total acidity, while one was between 30 and 40, or subnormal. In the other four cases of the ninety-two, no gastric analysis was made; but the diagnosis in these was otherwise proved, by roentgenographic plates, by operation or by necropsy.

Occult blood in stomach contents is too common a finding after extraction of test meals to be of any value whatever as a sign of disease; and unless occult blood in feces is found after most careful preparation of the patient by days of meat-free diet, unless all other possible sources of bleeding from the gums to the anus have been eliminated, and unless it is persistently found, this sign has but little value in the diagnosis of gastric or duodenal ulcer.

In the evidence furnished by fluoroscopic examination and roentgenographic plates we have undoubtedly the greatest advance made in the diagnosis of gastric and duodenal ulcer during the past decade. Facts as to the size, position and shape of the stomach, its peristaltic activity, its emptying time, its contour and its possible defects are all of immense value in proving the significance of symptoms and secretory findings; while the contour and outlines of the duodenum, as shown by roentgenographic plates, many times demonstrate conclusively a condition that would otherwise remain obscure. So firm has become the conviction as to the value of the evidence obtained in this way, that without positive demonstration of the presence of defects in stomach or duodenum now known to be characteristic of ulcer, this diagnosis cannot be made with absolute certainty. The absence of all this evidence after investigation by an experienced observer should make one hesitate, no matter how suggestive the clinical history, the physical examination and the laboratory findings may be. But, on the other hand, a positive report of roentgenographic findings ought to have the support of symptoms and signs before it is interpreted to mean ulcer beyond the possibility of doubt; and one of the greatest pitfalls in the way of accurate diagnosis today is the readiness to accept the Roentgen report as final, and to slur the old and well tried methods of investigation, so long employed and so often leading to correct results before Roentgen rays were discovered.

GROUP 3: CHRONIC GASTRITIS

Patients rarely die from this disease, so the diagnosis cannot be confirmed by necropsy. Surgeons never operate intentionally for chronic gastritis, so it is not so frequently demonstrated as some other pathologic conditions of the living. Even roentgenographic plates give no sign of its presence. Yet these cases

1. Lockwood, G. R.: Diseases of the Stomach, Philadelphia, Lea & Febiger, 1913.

present certain fairly well defined characteristics which identify them and permit them to be segregated from other forms of chronic gastric disease. In the past five years this diagnosis has been made seventy-eight times; and while in the main the cases so classified have been sufficiently well marked to cause no hesitation, the group as a whole has shadowy borders and is not so distinctly outlined as those of gastric cancer and gastric ulcer. With the distinction between primary and secondary gastric disease still in mind, no case has been called chronic gastritis that occurred only as an incident in the course of chronic heart or kidney disease, pulmonary tuberculosis, cirrhosis of the liver or pernicious anemia; but those alone have been included where the gastric disease was the only one to be found.

The symptoms of this affection are so varied that from them alone no conclusion can be drawn. Reviewing the histories of the cases in which this diagnosis has been made, the complaint most often found is of a sense of discomfort or distress coming on soon after taking food variously described as fullness, distention, bloating, or a sense of weight or pressure; sometimes this is spoken of as a dull ache, but never as severe pain. These feelings are caused by food soon after it is taken, not after an hour or two of comfort. Next in frequency complaint is made of belching and of frequent eructations of gas for a long time after meals; as this goes on repeatedly, relief is gradually obtained.

Compared with these two symptoms, of distress and gas after eating, all others are much less constant. Some patients complain of nausea. Some vomit more or less regularly after meals, bringing up the food just eaten, together with thick, slimy mucus. Some feel nauseated only when they rise in the morning, and retch and strain until they take food. Some regularly induce vomiting for relief. But vomiting has been found a much less frequent manifestation of chronic gastritis than most textbooks lead one to expect. In the seventy-eight cases in this group, it formed a part of the history in only fourteen. Appetite is not always poor; often it is reported as good, but patients fear to eat because food causes so much distress. Complete loss of appetite was a part of the complaint in only eighteen cases. Loss of weight is not the rule, and good nutrition may be maintained however much digestion seems to be impaired. In this series only twenty-five patients gave loss of weight as a symptom. Heartburn in a few cases is a great element in the discomfort, at times with sour food eructations, at times with only a hot, irritating fluid, when gas is belched. But, on the whole, "sour stomach" is an unusual feature of this form of gastric disease.

Reflex symptoms form a large part of the history, and may form so large a part as to distract attention from the stomach itself. Chief of these is headache, occurring either in the morning when the patient rises, after meals, with the other symptoms of indigestion, or only at intervals of days or weeks, with vomiting, lasting for one day and again disappearing. The pain may be only a sense of unusual fulness and heaviness, or it may be extremely severe and prostrating, as in the "sick headache" attacks with vomiting. Headache is often the presenting symptom in these cases, and of the gastric complaints little is said; but inquiry and investigation prove the existence of chronic gastritis as a basis, and treatment directed to this puts a stop to the headaches themselves. This has been the observation in twenty-one of the cases in this group. Other reflex symptoms occasionally noted are dizziness, depression of spirits, drowsiness habitually after meals, lack of energy, and general indisposition for exertion.

To explain what these symptoms mean, physical examination tells but little as regards the stomach; only tenderness is found with any frequency, and not always that. Roentgenographic plates and fluoroscopic examination are likewise negative. But the diagnosis rests on examination of stomach contents obtained after a test meal, which in chronic gastritis gives results that are positive, definite and diagnostic. The findings are so characteristic as to warrant their consideration in detail.

1. *Gross Appearance.*—The amount of material is small, only a few cubic centimeters, as a rule, though in other gastric conditions the amount obtained after the ordinary Ewald meal averages 100 c.c. In chronic gastritis the stomach contents come through the tube with difficulty, and often have to be stripped from it by force. The reason for the small amount and the difficulty in obtaining even this is the fact that the material is very thick and viscid and often semisolid. The bread eaten is poorly triturated, often in chunks, rarely in the pulpy, pultaceous state in which chyme should be. Not infrequently fragments of food particles are found that have been retained from some previous meal, such as bits of coagulated egg albumin, and shreds of meat fiber or fruit pulp. In seven cases of this series the contents were blood stained or contained blood in dark brown shreds, attributed to chronic congestion of the mucous membrane.

2. *Mucus.*—The diagnostic sign of chronic gastritis is the presence of mucus in stomach contents. It occurs in such abundance that its presence cannot be doubted, either free, in gelatinous masses, or intimately mixed with the bread in the test meal after removal, surrounding it and uniting it in a sticky, semisolid mass. The presence of this mucus is essential to diagnosis, and it was found in every case included in the group. Patients who vomit always mention this "slime" that comes up with their food. Those who vomit on rising, in the early morning, bring up this and nothing else but gas; and if the contents of the fasting stomach are extracted for examination, this is what is found in all chronic gastritis cases.

3. *Secretion.*—The most characteristic finding as regards gastric secretion is either complete anacidity or decided subacidity; and yet cases occur with normal acid values and a few apparently with hyperacidity.

(*a*) Anacidity: Among the cases in this group, thirty-eight were found to have complete absence of free hydrochloric acid by every test; of these, twenty-five gave a total acidity below 10, and thirteen a total acidity between 10 and 20, but with no evidence of free or combined hydrochloric acid in any.

(*b*) Subacidity: There were twenty-nine cases with a total acidity under 40 and free hydrochloric acid correspondingly decreased.

(*c*) Hyperacidity: Three cases presented a total acidity above 60, though in every other respect, in history, physical findings and gastric analysis corresponding to chronic gastritis.

(*d*) No analysis: It is a rule that in every gastric case there must be analysis of the stomach contents after a test meal; and any infraction of this rule calls for explanation. There were eight cases in this group in which no analysis was made; five of the patients were minors and their parents objected to the use of the stomach tube, while three other patients were vomiting so persistently that no test meal could be

retained. Nevertheless, by vomited mucus, by absence of free hydrochloric acid in vomitus, by history, by negative physical examination and by roentgenographic findings, as well as by recovery on routine therapy, these cases were recognized without hesitation and assigned to the chronic gastritis group.

Certain diagnostic problems presented by these patients are not always easy of solution. In the first place, any person with a history of several months' persistent indigestion and more or less loss of weight, with entire absence of free hydrochloric acid in stomach contents, should always create a suspicion of gastric cancer, even though no tumor is palpable in the gastric area. But by the absence of pain from the history, by negative roentgenographic plates and fluoroscopic report, and by prompt improvement under therapy, we are usually able to decide without much delay that a neoplasm does not exist. A good rule in a dubious case is to give the patient one month for therapeutic test, which usually suffices for careful study and observation and often takes the patient out of the class of patients who require exploratory operation for diagnosis. But in these cases one should always think of cancer first, and until this has been eliminated never diagnose chronic gastritis.

In the second place, at least twenty-five of these cases, with a total acidity under 10 and no free or combined hydrochloric acid, might have been assigned to a separate group called "achylia gastrica." But there seemed no particular object in giving these cases a special name. They all corresponded in clinical history, gastric analysis, presence of abundant mucus and negative roentgenographic plates to chronic gastritis; and there appeared to be no reason for assigning them a place by themselves. Not all achylia gastrica cases may originate from chronic gastritis; but as yet we have no proof for any other pathology.

In the third place, cases with normal acidity and particularly those with hyperacidity create suspicion of ulcer. But the absence of pain, the prompt appearance of distress soon after food is taken, and the presence of abundant mucus even though acid values are high, with negative roentgenographic plates and fluoroscopic findings usually suffice to settle the question. However, cases of chronic gastritis with hyperacidity may be recent, of only a few months' duration; and it has been proved that fresh ulcer, not yet cicatrized or deeply penetrating, may give no evidence on roentgenographic plates. Hence it is not wise to decide too promptly that ulcer does not exist in these cases, and best always to suspect its existence in every persistent hyperchlorhydria, until repeated observations and subsequent developments eliminate the possibility.

Finally there remains the large group of dyspepsias with subacidity or anacidity, that are secondary to other abdominal disease, such as chronic cholelithiasis, chronic appendicitis or chronic intestinal stasis. This group, as well as the neurasthenic stomachs in which no organic disease whatever can be found, are a source of great confusion in diagnosis, and are at times set down wrongly as chronic gastritis until later developments cause them to be shifted to their proper place. Some of this sort there may be among the seventy-eight recorded, but not because no effort has been made to recognize and exclude them.

GROUP 4: GASTROPTOSIS

Prolapse of the stomach is a common occurrence; but there is no gastric history that identifies it, so it frequently goes unsuspected. Patients with this abnormality complain of stomach trouble; but when asked for details, their story may resemble that of cancer or ulcer or chronic gastritis or one of the gastric neuroses. It is only when special examination is made that gastric prolapse is found; but as this feature is peculiar and belongs to none of the other groups, it seems clear that cases with decided displacement of the stomach downward should be segregated, no matter what sort of stomach symptoms they present. During the past five years the histories and clinical data have been recorded in forty-seven cases of this sort. Many of these presented certain characteristics that repeated themselves over and over, so that gastroptosis really became one of the best defined and most easily recognized groups in the whole field of chronic gastric disease, even though the digestive symptoms gave no clue. The diagnostic data are as follows:

1. This is an ailment much more common in women than in men. Among the forty-seven patients, there were thirty-nine female and only eight male.

2. It is an ailment of small persons, fragile in build and light in weight. Of the forty-seven patients, ten weighed between 90 and 100 pounds at the time of examination; thirteen between 100 and 110, and five between 110 and 120. None weighed over 140. Of the male patients, some were of this light weight type, while others were tall, lean, slender and gaunt, and always had been so.

3. All complained of lack of vitality as well as of indigestion; all their lives they had been delicate in health, unable to do much without tiring, easily exhausted by effort, incapable of withstanding strain.

4. Many of them presented other complaints besides their chronic stomach disturbances and their lack of strength, particularly chronic constipation, pain in the back and right side, and inability to put on weight.

5. The trouble with digestion is usually of long standing but most variable character. Some present a picture of pain after taking food, and poor appetite, with loss of weight, of strength and of color that may cause suspicion of cancer. Some give a history of sour stomach, waterbrash, nausea, and pain appearing late after meals, with constant relief by soda or by more food, that closely mimics gastric ulcer. Some describe the characteristic sense of heaviness and weight coming soon after food, with belching, flatulence, headache and general lassitude during digestion that speak for chronic gastritis. Many cases, finally, present a mixture of symptoms that correspond to no type or group.

6. Physical examination reveals conclusively the low position of the stomach in the abdomen. In these small, poorly nourished persons its outline can often be plainly seen through the abdominal wall, lying with the greater curvature well below the navel. But to make certain that the stomach is prolapsed, inflation is the simplest method, by the well known procedure of giving the patient tartaric acid and sodium bicarbonate separately in solution and thus developing carbon dioxid. This distends and defines the stomach and makes its position plain; and consequently the greater curvature is found in these cases from 3 to 10 cm. below the navel, whereas normally the greater curvature lies about 3 cm. above. Physical examination also reveals in these patients a prolapsed right kidney, sometimes merely palpable, sometimes so far down that it can be caught and retained. All of the cases in this group showed this coincident nephroptosis, and in a

few the left kidney was palpable as well as the right. In many it is possible, when the bowels have not been made to move regularly, to outline the ascending, transverse and descending colon by retained fecal masses in them, and to determine that the transverse colon sags low in the abdomen often to the level of the pelvic brim. It thus becomes evident that gastroptosis is only one part of a general enteroptosis or visceroptosis which prevails to a greater or less degree in all this group of cases of chronic gastric disease.

7. Gastric analysis after a test meal gives a variable picture. Most cases show acid values that are normal or above normal. Of the forty-seven in this group, twenty-four gave a total acidity between 40 and 60; ten between 60 and 70, and three between 70 and 80, making thirty-seven in all of normal acidity or hyperacidity. The others all showed subacidity on gastric analysis, and two had no reaction at all for free hydrochloric acid with a total acidity of 4.

8. The most conclusive proof of the true condition present is furnished by roentgenographic plates, which demonstrate not only the existence but also the degree of ptosis more accurately than any other method. These plates also bring out the obstruction offered by gastroptosis to the exit of stomach contents through the pylorus, and show how often retention is a factor in causing the patient's distress.

Putting all these data together, it becomes easy to recognize this group of gastroptosis cases. They deserve a place by themselves, for they possess features not found in association in any other chronic gastric disease. Furthermore, as the object of all diagnosis is therapeusis, this group demands recognition; for without correction of the mechanical displacement of stomach, no other treatment offers any hope of relief for the gastric symptoms. Finally, in spite of any kind of treatment, these patients remain substandard and can never be kept even comfortable unless they learn to recognize their limitations and always to live within them; we can aid them but we cannot make their bodies over.

GROUP 5: GASTRIC NEUROSES

It is well understood at the outset what gastric neuroses are *not*. In the first place, chronic gastric disease that presents the characteristics of any of the foregoing groups should be classified in one of them and not among the neuroses. Improved methods of diagnosis have greatly increased our ability in recent years to detect these organic diseases of the stomach, and so to restrict the group of neuroses. In the second place, chronic gastric disease that does not present characteristics identifying it with one of the foregoing groups is often really due to chronic appendicitis or chronic cholecystitis, and must not be classed as a neurosis until these have been carefully eliminated. Cases placed at one time among the gastric neuroses may later, because of new developments calling attention to the appendix or gallbladder, have to be shifted to a different diagnostic group of real organic disease. In the third place, chronic gastric disease that can be traced to any definite pathologic change in any other organ, as the heart, arteries or kidneys, has no rightful place among the gastric neuroses.

Gastric neuroses can best be classed as stomach manifestations of neurasthenia. They are distinctly disturbances of function, without discoverable organic change in the stomach or any other organ to account for them. Formerly this group was considered a large one, but little by little it has been contracted until now there are even those who assert that it does not exist. There is no justification for this extreme view; but the more experience one has the fewer cases he assigns to the group of gastric neuroses, and the less satisfied he feels to leave them there. Reviewing the work of the past five years, fifty-two cases are still found classified as gastric neuroses; but this by no means represents the number originally placed there, for many were from time to time shifted from this to some other more definite diagnosis, as new developments or manifestations gave a clearer conception of the real condition.

Much confusion has arisen in the past from the effort to recognize and to name too many varieties in this group. Practically the two functions of most importance to the work of the stomach are motility and secretion; and most cases of disturbed function come under one or the other of these two heads. The only other disorder deserving consideration is that of abnormal sensibility, which at times seems to be the true explanation for the patient's complaints.

1. Disturbance of motility is commonly known as *atony* or myasthenia. Of this neurosis only fourteen cases have been diagnosed during the past five years. Its characteristic features are early satiety at table, ability to eat but little before feeling too full; persistent flatulence and belching, and reflex headaches when food too coarse or heavy is eaten. The diagnostic sign on physical examination is the succussion splash hours after food has been taken. After the test meal, amounts are obtained by the stomach tube far above the average, as high as 200 c.c. at times or even above; while the normal amount does not exceed 100 c.c. These contents usually present on analysis an acidity normal or above normal, but no excess of mucus or other evidence of organic disease. Though these stomachs are lazy and slow to empty, they do not retain, and the fasting stomach in the early morning is found without refuse. The greatest difficulty in diagnosis lies in separating these cases from gastroptosis; for neurasthenic symptoms are common to both conditions; and in the so-called atony cases, the weak walls permit the greater curvature to sag below normal limits after inflation by carbon dioxid or after the barium meal for roentgenographic examination. There really seems good reason, therefore, to suspect that the cases we class as atony are in fact minor grades of gastric prolapse, and that the neurasthenia is a consequence and not a cause.

2. *Hyperchlorhydria,* without any organic disease found to explain it, has been diagnosed twenty-five times; but whether these cases were really neurasthenic manifestations or were due to undiscovered organic disease is a matter for doubt. The group certainly grows smaller and smaller as one comes to realize how many conditions may reflexly give rise to hyperacidity and "sour stomach." Some of these that have been recognized from time to time, besides the well known organic diseases of stomach, appendix and gallbladder, are: intestinal parasites, particularly tapeworm; atypical cases of exophthalmic goiter; eye strain from errors in refraction; chronic pelvic disease in women and prostatic disease in men; hemorrhoids, and minute hernias through the linea alba. Of the twenty-five cases diagnosed hyperchlorhydria and grouped with the gastric neuroses, eighteen were so recorded during 1912 and 1913, but only four in 1914, only three in 1915, and none at all in 1916. I have become con-

vinced, in other words, that this form of "nervous dyspepsia" seldom occurs, and that a diagnosis of hyperchlorhydria as a neurasthenic manifestation has little justification.

3. There remains a group that seems more truly neurasthenic than either of the foregoing, to which thirteen cases were assigned: a group characterized by all sorts of complaints about digestion, but with no evidence of disturbed motility or secretion or of organic disease of any kind. These patients do not tell the same story twice because their symptoms are so variable. They are a source of great exasperation to the physician because their complaints are so innumerable, so unusual and so little in conformity with any type of chronic gastric disease; and no sooner are they relieved of one set than another set appears.

In general, it can be stated that the group of gastric neuroses is the most uncertain one of all. We are still forced to resort to it at times in diagnosis, but it should be accepted only after every resource has been exhausted, in the effort to find a better explanation for the case so labeled. The attempt to reach the truth in the investigation of all gastric cases is fraught with difficulties, and at times we all make mistakes. But in this matter I have frequently found consolation in a passage from one of Osler's essays:

> Start out with the conviction that absolute truth is hard to reach in matters relating to our fellow creatures, that slips in observation are inevitable even with the best trained faculties, that errors in judgment must occur in the practice of an art which consists largely in balancing probabilities; start, I say, with this attitude of mind, and mistakes will be acknowledged and regretted; but instead of a slow process of self-deception, with ever-increasing inability to recognize truth, you will draw from your errors the very lessons which may enable you to avoid their repetition.

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THE TEACHING OF PROTOZOOLOGY TO MEDICAL STUDENTS

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The importance of the protozoa as the causative factors in many grave diseases is thoroughly recognized today by every alert practitioner, particularly those whose labors carry them into tropical or semitropical zones. There is likewise a gradual awakening to the fact that many parasitic protozoa do not restrict their activities to those localities, but, on the contrary, are exceedingly ubiquitous. With the opening up of new trade routes and the broadening and development of commerce to the Far East, South America and Africa, and as a result of conditions which are developing with the progress of the European war, they are gradually establishing themselves in cooler climes. The malarial parasite has long been known too well in North America, and there is a growing realization that endamebic dysentery is not by any means a rare malady in the same territory. The medical schools of the United States will have to cope with this situation before long, and they can meet it only by extending their curriculums so as to meet the protozoological needs, not only of the men who will have to deal with conditions at home, but also of the rapidly increasing number of medical men who are answering the call to the tropics.

There has been no dearth of work on these organisms, and a vast accumulation of literature stands as a monument to the efforts of those who have reported their work and told of their methods of research into the protozoa. Singularly enough, however, little has been said or written on the exceedingly important matter of the teaching of protozoology to medical students. In the past it has been thought quite sufficient to give such instruction in the form, generally, of a brief course of descriptive lectures illustrated by charts or stained preparations. When specialists have given these courses they have often been so hampered by lack of time that it has been impossible to give an adequate presentation of the subject. When courses have been administered by some member of the faculty of a school, an instructor may have been selected whose own line of work was not sufficiently related to protozoology to enable him to do himself or his students justice. The tendency in many cases has been to lay most stress on the symptomatology, treatment and pathology of the diseases of protozoan origin, and while these things are of great importance, the result has been that the students have been given considerable instruction in medicine and little in protozoology. In a large proportion of cases they are more or less helpless as regards knowledge of the animals themselves, and hold a vague idea of the real appearance and mode of life of these important organisms. It is quite true that these students gain considerable useful information regarding the diagnosis and routine treatment of protozoal diseases, but this they should get anyway in the course of their work in clinical medicine, in which such instruction properly belongs.

It is not my purpose to criticize or belittle the work of the physicians who have done so much to advance our knowledge of protozoal diseases, or who have given so generously of their time and efforts to teach the subject from their standpoint. It is merely my aim to elucidate the fact that protozoology is one of the zoological branches, and should be taught by a zoologist who is a specialist in that group, and whose general familiarity with the field fits him to meet the problems of parasitology on a broad biologic basis where they belong.

I seek, also, to emphasize the fact that the relation of the protozoa to the medical sciences is not limited to the parasitic forms. Splendid material for experimentation in physiology, pharmacology and therapeutics, and pathology is afforded by species of protozoa which are easily obtained and readily handled. The problems of fertilization, growth and development present themselves in attractive form to the protozoologist, and their intimate relation to the medical sciences is self-evident.

The tendency on the part of medical men to place the parasitic protozoa entirely apart and separate from the other members of that great phylum has undoubtedly retarded progress in our knowledge of the life activities of the parasitic forms, and incidentally in the handling of problems in disease, to a serious extent. After all, the parasitic species are governed by the same general physiologic laws which regulate the activities of the free-living forms. It is true, there are many modifications and adaptations seen in the parasites which conform to the degenerative phenomena exhibited by parasitic animals in general; but, on the other hand, many parasitic protozoa show a

complexity of structure and mode of living which places them on a plane with many of the more highly organized free-living species. Species of the genera *Balantidium, Nyctotherus* and *Ophryoscolex,* for example, are parasites whose morphology and habits closely resemble those of free-living forms—in fact, it might be said that they are protozoa which have simply chosen a life in the fluid contents of the digestive tract instead of a roadside ditch. One would hardly regard the trypanosome with its elaborate motile apparatus as an organism showing marked signs of degeneration as a result of a parasitic mode of life. In principle it differs little from many free-living forms of the group of flagellates. Again, the intestinal amebas differ very little from many species of free-living amebas barely enough to justify generic distinctions.

The protozoa may live in surroundings of great variety. Some may inhabit roadside ditches. Others are found in stagnant waters and those containing decaying organic matter, others live in moist earth or on mosses, a vast group are found in the sea, while still others have found favorable conditions for obtaining food from the body fluids and tissues of other animals or of plants. Some of those which live free nourish themselves after the manner of animals, while some exist as saprophytes. Precisely the same conditions obtain in the parasitic forms. The methods of reproduction in the parasitic species do not differ except in certain details from the methods seen in the living forms. In other words, the most striking point of difference between the parasitic protozoa and those which lead a free life is that they have adopted, as an environment in which to live, the body cavities or tissues of animals or plants, instead of the sea, a pond or a tuft of moss. The fact that these forms give rise in some cases to certain diseases is, to a large extent, only a side issue which plays a minor rôle in the study of the organisms themselves. That the parasites live in this manner no more stamps them apart from the other protozoa than obtains in the case of other species which live on mosses or in moist earth.

All of this leads us inevitably to the conclusion that in order to meet the problems, the investigator into the parasitic protozoa must have not only a broad knowledge of the entire group, but more than that, a sound biologic training which will guide him far afield from the bedside, in search of the solution of many medical and sanitary problems. To do effective work he must be familiar with the comparative morphology, physiology and cytology of the protozoa, and if he lacks that equipment he will be terribly handicapped from the very beginning of his work.

The protozoologist who has elected to specialize in work with the parasitic protozoa is none the less a zoologist. He is far more interested in the fortunes and fates of the parasites than he is in those who are infested with them. The patient interests him mainly from the standpoint of the influence his reactions exert on the parasite. Pathologic changes occurring in tissues interest him no more than the extent to which they influence the parasite. His work brings him to the borderline of medicine, hygiene and pathology, and if he is to teach the subject he must aim to reach the frontiers of these related branches; but he should cross no farther than is necessary to establish a firm footing for his students. To the work in the other departments the students must then apply the knowledge of the organisms he has given them. In doing this the protozoologist does no more violence to medical tradition and precedent than does the teacher of chemistry, physiology or bacteriology.

The zoologist has been one of the last to gain entrance to the medical school, but his admission has been the direct result of the progressiveness of the physician of today and not the fruit of any campaign conducted by the zoologists. The zoologist has found several problems awaiting him, and not all of these have to do with the actual teaching. A year's work at teaching protozoology to the average graduate medical student is apt to lead the teacher to the conclusion that, of all the professions, medicine is by far the most "practical." From the time he starts his work in a given school until the happy day when he succeeds in making it clear to his medical pupils that the sum total of importance in connection with the protozoa to the physician is not limited to staining reactions, the inoculation of animals, mixing of culture mediums and the efficacy of ipecac and emetin in endamebiasis, he will hear the never ending demand from many of his students for "practical courses."

Now, in my opinion, it is quite possible to make an exceedingly workable combination of the "practical" and the scientific in this work. That is to say, it is quite feasible to give to medical students instruction in protozoology which will fit them to deal with medical problems without going too deeply into the more abstract biologic problems. Much of the trouble in the past has been due, I believe, to the fact that while we have had many men who have achieved deserved success in the prosecution of researches into the pathogenic protozoa, we have had few who were willing to forego the fame which comes to the successful investigator and devote their energies and capabilities to training men for the work. It does not necessarily follow that a man who has become noted as a result of his publications is particularly fitted to teach the subject. In many instances the contrary is the case. Where research is the dominant idea in a man's mind, he cannot put his best into teaching when, if he does so, his problem must be neglected.

The protozoologist only makes a concession to common sense when he develops his required courses in the undergraduate school along lines which shall enable the student to recognize the important species, know something of their life cycles and general activities, and handle them at the bedside and in the clinical laboratory. He should discuss parasitology to the end that this class of students should understand the biologic basis of sanitary measures. But he should teach his students, above all things, the morphology, physiology and life cycles of the animals; and this he cannot do with stained preparations alone.

Many medical men I have met have frankly confessed never to have seen a living ameba or a trypanosome. Most of them have seen stained specimens at one time or another, but have found them of little aid in the identification of the living organism. In view of the wealth of comparative material which may be secured even in the neighborhood of the great cities in the United States, this is, to say the least, regrettable. Parasitic material, it is true, is not always available at the right time, but comparative material generally is. Let me illustrate this point with a few examples:

I am in the habit of leading my students up to the parasitic amebas by a fairly comprehensive preliminary study of the small fresh water amebas of the genus *Vahlkampfia.* In size and general appearance of the

nucleus and cytoplasm, it resembles many of the parasitic species. The structural differences between *Vahlkampfia* and *Endameba* are not sufficiently great to lead the student too far astray if the teacher is careful. The material is abundant, and there is not lost, in searching through a smear of feces for a single lethargic individual, valuable time which might be spent more profitably in the study of active trophozoites, and dividing and encysting forms. It is relatively easy to secure amebas which may be studied on the slide and which will show not only division stages and encystation, but the development of flagellated stages as well. It is only in rare instances that these things are seen in clinical specimens. Many free-living flaggellates which may be cultivated in abundance illustrate the morphology of that group in a beautiful way, and among the infusoria may be found many of the *Heterotrichida* which will furnish the basis of study of the *Balantidium*. Exercises in physiology and microscopic technic may be beautifully worked out with these, after which the student may profitably turn his attention to an intensive investigation of the purely parasitic forms which he must study under more difficult conditions, but which he is enabled to attack with more definite knowledge of what he is to see. If living material from human beings is not available, it is almost always possible to secure comparative material representing the principal genera, and it should be employed not only to illustrate the form and activities of the living animals, but also to illustrate relationships between species parasitic in man, and those found in the lower animals and plants. Too little attention has been paid to these relationships in the past.

I have found that it is quite possible to give my undergraduate students entirely adequate instruction along these lines in a course of sixty-eight hours; but the syllabus is considerably amplified and extended in the graduate school.

In the graduate school the principal course should bear particularly on the parasitic species, but it should be sufficiently broad in scope to give the students a good survey of the entire field and ground them thoroughly in the fundaments of the entire science. There should, however, be other courses covering special cytologic training, and still others which should present other phases of protozoology which have a bearing on the practice of medicine.

In the required course the classroom work should be divided so that about one third of the time is devoted to didactic lectures bearing on morphology, physiology, taxonomy, cytology and parasitology. The remainder of the classroom work should be administered as seminars in which the students report on assigned literature. Each student should be required to defend his presentation of a topic against the criticisms of his fellow students, the instructor guiding the discussion and elucidating points which may not be clear. The laboratory work should run concurrently, the points brought out in the lectures and seminars being illustrated with fresh and stained material. Adequate time should be spent in training the students in the standard technical methods and study of the living as well as the fixed and stained organisms. The course as a whole should be a systematic review of the protozoa as a group. It should be taken up on the comparative basis and deal, therefore, with free-living species, and species parasitic in the lower animals and in plants as well as those infesting man. There should be a discussion of the evolution of disease from the standpoint of the development of the parasitic species. Such a course may be given in 102 hours.

An elective course may be offered consisting of lectures and demonstrations reviewing the field from the standpoint of general biology. This course should include a discussion of topics having a broad general relation to the medical sciences, such as the problems of senescence, fertilization, growth, regeneration and heredity as seen from the standpoint of the protozoologist. There should be an exposition of the application of experimental methods with the protozoa to physiology, pharmacology and pathology. Thirty-four hours may be so expended.

Another elective course should be offered for the benefit of those students who are about to engage in research on the protozoa. It should consist of a thorough treatment of the technical methods with the protozoa and the principles underlying these methods. It should not merely be a drill in staining and dissection, but should also include a study of the methods themselves with the idea of imparting to the student the basis on which the methods rest. Such a course presupposes previous work with the protozoa and should outline methods of attack on every type of problem from the study of the living organisms, through their fixation, staining and sectioning, methods with arthropods, breeding of pure and pedigreed lines for experimental work, administration of drugs and chemicals to the animals, up to a brief treatment of the statistical methods employed in the interpretation of results.

Finally, courses carrying graduate credit should be offered for students who desire to work up a problem in protozoology as a basis for a thesis or dissertation.

The field of dentistry has also opened to the protozoologist, and in Manila we have already taken advantage of it by giving a course in protozoology to students in the school of dentistry. The course devotes twenty-four hours to a brief general review of the protozoa as a group and an intensive study of spirochetes and protozoa found in the mouth. Training is given in methods of collecting and studying material, and the course promises to form a valuable accessory to the dental curriculum.

Much more might be said on the general topic of the teaching of protozoology to medical students, but this should serve as a fair outline of what may be accomplished. The main problem from the standpoint of the teacher, aside from the reluctance of a large group of graduate physicians to enter into work which has not a direct clinical bearing, is the poor preparation of a large proportion of the students. In the undergraduate school this is not a serious factor because the work there is very elementary and the students are fresh from their college work in zoology; but in the graduate school it presents a formidable and time-consuming problem. There, many students whose work in the purely clinical branches is unquestionably of a high order are wofully deficient in the most elementary knowledge of biology or even zoology. This condition entails the giving of considerable elementary instruction which should be unnecessary. But it is a problem which is exceedingly difficult to meet, for it would be unfair to bar from a postgraduate school students of ability in the clinical branches who were deficient in biology. It is a problem which for the present will have to be met by the zoologist the best way he can. Another difficult problem is presented by the student who, lacking previous training in protozoology, desires to undertake a research problem.

The disposal of individual cases may well be left with the instructor, but the proposition as a whole should be discouraged. Occasionally a case may arise in which a special line of work may be undertaken without previous study of the protozoa; but in most instances the student quickly discovers his weakness and applies to the instructor for aid. Such aid, of necessity, involves a course of special instruction which it is not practicable to give outside of the regular courses. With the protozoa it is scarcely possible for a student to obtain the best results from a study of one particular species or order without a knowledge of the group of protozoa as a whole.

In the foregoing I have tried to outline a scheme for instruction in protozoology to medical students. To one who is not particularly conversant with the subject, the program may sound exceedingly formidable and unnecessarily detailed; but from my experience in teaching not only Americans, but Filipinos as well, I have found it not too hard for any of them. Indeed, the scope of the work I have outlined is really no broader than the usual course in bacteriology, and it seems to me to be fully as important. After all, the protozoologist must be largely self-developed, and must build up on such a foundation as I have outlined. But a small proportion of students so trained take up protozoology as a specialty. That, in fact, is not the end sought. The endeavor rather is either to fit the men for more advanced medical and sanitary work, or to give such of them as fancy it the foundation on which they may, by their own efforts, become specialists in that group which to me is formed of the most fascinating members of the animal kingdom — the protozoa.

A CASE OF VOLKMANN'S ISCHEMIC CONTRACTURE

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This case serves to emphasize the danger of improper or indifferent application of plaster-of-Paris bandages, and the value of early treatment of the deformity following prolonged ischemia.

REPORT OF CASE

W. H., boy, aged 8 years, fell, Aug. 14, 1915, and injured his left forearm. A physician found a fracture of the forearm, and applied a plaster-of-Paris dressing extending from the elbow to the fingers and completely including them. According to the mother's story, the only protection to the limb under the plaster was a single layer of ordinary gauze. No cotton or other similar material was placed between the fingers, which were entirely hidden from observation. The plaster was left on three weeks. During this time the boy did not complain of any pain, but he could not move his fingers, which were evidently cramped together. At the end of three weeks the physician for some unexplained reason found it necessary to give the patient an anesthetic to remove the plaster, which was apparently extremely thick.

On removal of the plaster it was found that the boy had no power in his hand. The skin about the wrist was discolored and bruised, and the hand was swollen. Nothing was thought of this condition until the lapse of one week when, the swelling having diminished, it was observed that the hand and fingers were contracted and the boy had very little power. Becoming alarmed, the mother brought the boy to my clinic at the Lebanon Hospital Dispensary.

The hand was still moderately swollen, and the skin of the hand and fingers glossy. The wrist and fingers were flexed. When the wrist was passively extended the fingers became markedly flexed, and attempts to extend them were painful and unsuccessful. When the wrist was flexed, the fingers could be straightened out. We were dealing, therefore, with what was evidently the typical deformity of Volkmann's ischemic contracture. At the middle of the forearm there was a circumferential thickening due to the callus formed at the site of fracture.

The treatment for Volkmann's contracture advised by Mr. Robert Jones was promptly instituted. Individual splints were applied to the palmar surfaces of the fingers, and by means of adhesive tapes the fingers were gradually stretched into complete extension. The splints were kept on continuously, except for a brief period each day when they were removed for massage of the fingers, hand and forearm. At the end of one week the fingers could readily be fully extended without pain when the wrist was only moderately flexed. The finger splints were then removed and an aluminum splint was applied to the flexor surface of the forearm, extending from near the elbow to slightly beyond the finger tips. The splint differed from that recommended by Mr. Jones, who uses a single sheet of aluminum from elbow to fingers in addition to the individual finger splints. The distal part of the splint I used was divided by longitudinal indentations, thus providing a separate extension for each finger. I believe this is an advantage, as we have one instead of several splints to deal with, and in addition the extensions for the fingers are part of one and the same splint. At first the splint was bent down at the wrist to such an angle as to allow easy and complete extension of the fingers. Two straps of webbing held the brace to the forearm, and strips of adhesive plaster were used to keep the fingers extended. About every other day the splint was straightened a little and finally bent backward into hyperextension, watch being kept that the fingers were always extended. Twice daily the brace was removed and the hand and forearm massaged and manipulated.

Within one month the patient's hand had been extended to 150 degrees, and active flexion and extension of the hand and fingers were rapidly returning. Two months later, in February, 1916, the boy had such excellent use of his hand, the swelling and glossiness having entirely disappeared, that the apparatus was discarded. The hand was examined again, April 14, 1916, when it was found that there was a complete anatomic and functional cure.

COMMENT

This case demonstrates the importance and necessity of adequate protection under any plaster dressing. When plaster is applied to a limb which is deformed or diseased but not likely to swell, we may apply with safety a plaster dressing over only a slight amount of protection, as a flannel bandage. In the case of an injury, as a fracture, however, in which the trauma to blood vessels causes extravasation of blood and consequent swelling, it is essential to surround the affected limb with some such material as sheet cotton, which is compressible and will allow for swelling without danger of undue compression. It is further advisable to leave the fingers exposed or at least accessible to observation. We must instruct the patient that the color of the fingers must at all times be normal, and the patient should at all times be able to move them. The ability to move the fingers freely is, of course, positive proof that the plaster is not applied too tightly. Swelling, extreme pallor or cyanosis of the fingers or inability to move them are danger signals which demand immediate attention. Should such an untoward condition arise, we must promptly remove the splint and apply another more cautiously.

It should be remembered that for purposes of fixation a thin plaster is just as effective as a thick one.

The very favorable result in this case must, of course, be attributed to the institution of the Jones method of treatment soon after the deformity appeared. During the past year, at Dr. Royal Whitman's clinic at the New York Hospital for Ruptured and Crippled, I have seen several similarly favorable results. These were all in patients who applied for treatment early. The key to the successful management of ischemic contractions lies in early and persistent stretching and active and passive motions. When the deformity is of long standing, there are trophic changes in the skin, hardening of the musculature of the forearm from fibrous tissue replacement of the muscle tissue, and atrophy of the nerves, all of which militate against success by any known method of treatment. In these old cases we can expect only improvement.

CONCLUSIONS

1. In applying a plaster bandage to an injured limb, the limb must be sufficiently protected by sheet cotton, flannel or similar material.

2. The fingers should be exposed to observation, and the patient must at all times be able to move them.

3. Unusually severe pain, extreme pallor, cyanosis or swelling of the fingers call for prompt removal of the plaster.

4. Should a contracture develop, it must immediately be treated.

5. The method advised by Mr. Robert Jones is the most effective one.

1 West Eighty-Fifth Street.

A CASE CONFIRMATORY OF THE SPINAL FLUID COMPRESSION SYNDROME

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Ayer and Viets[1] recently reported the rarity of recognition of spinal fluid changes characteristic of cord compression. Their search of the literature, however, brought to light a number of articles, especially in French and German, dealing with the subject and recognizing certain changes as the "spinal fluid compression syndrome."

The abnormal findings were chiefly three: A yellow color or xanthochromia, spontaneous coagulation, and an increase in the cell count. They tabulate twelve cases which have been under their observation, showing findings, treatment and result, and they review the literature quite extensively. Their conclusions are:

1. We believe that changes in the spinal fluid frequently occur as a result of compression of the spinal cord.

2. The principal characteristic of such compression fluid is marked increase of proteins without corresponding cellular increase, obtained under normal pressure.

3. Xanthochromia with massive coagulation, added to the above, makes a more intense reaction of the same significance, only more conclusive.

4. Factors which tend to give the syndrome most readily, or to give it in its most intense form, are processes which act readily, are intramedullary or cause pressure on the cord from all sides, and which affect the lower cord.

5. We do not believe that such findings are necessary in cord compression, but that their presence is confirmatory evidence of value in some cases.

The following case, which also presented interesting diagnostic problems, is another case confirmatory of these changes in the spinal fluid often characteristic of cord compression, and therefore it seems worthy of special report:

Nov. 20, 1916, J. G., a Pole, aged 23, a drill-press operator, walked into Harper Hospital without noticeable abnormality or impairment of gait, and was admitted as a ward patient. He complained of pain in the abdomen and back, of ten days' duration, which largely disappeared after catheterization had relieved the enormously distended bladder. The family and personal history were negative, save that he asserted that he had suffered twice before from retention of urine, some years before.

The day following admission, there was complete motor paralysis of the left leg, and twenty-four hours later, complete paralysis (flaccid) of the right lower extremity.

The man was well developed; the breath was foul, the tongue coated, the throat injected. He reported that he had lost 20 pounds the last two months. Rigidity of the neck was well marked. There were no abnormalities of extremities or trunk, thorax or abdomen. The patient presented a well marked horizontal nystagmus, most noticeable when he attempted to look down or to the left. His wife, to whom he had been married one year, said that she had long noted this nystagmus. It seemed difficult to correlate it with his present ailment.

November 21, the right knee jerk was exaggerated, and the left still present but of diminished activity. The abdominal reflexes were present, but response was slight, and the cremasterics present. There were no apparent sensory changes, some cervical rigidity, and no Kernig sign.

November 22, the deep reflexes were abolished and there was a complete (flaccid) paralysis of both lower extremities. Sensation was much diminished in both lower extremities, though the cremasterics were still faintly present. These changes went progressively on to the total abolition of all reflexes and an ascending sensory impairment, analgesia being for several days stationary, up to the level of the twelfth dorsal vertebra.

November 21, the spinal fluid was clear, but clotted rapidly.

November 23, the spinal fluid flowed very slowly and clotted instantly, while, November 27, there was spontaneous coagulation, well marked xanthochromia, and no pleocytosis. These changes led to the diagnosis of a compression myelitis and the advice of surgical interference.

December 2, laminectomy was done with free escape of (extradural) pus at the level of the seventh dorsal vertebra, revealing an osteomyelitis of the seventh dorsal vertebra as the source of trouble. The patient died, December 10, and necropsy was refused. The case, however, well illustrates the presence of the Nonne-Froin syndrome in cases of compression myelitis.

1501 David Whitney Building.

1. Ayer, J. B., and Viets, H. R.: Spinal Fluid Findings Characteristic of Cord Compression, THE JOURNAL A. M. A., Dec. 9, 1916, p. 1707.

English Utilization of Waste Materials.—Consul A. E. Ingram at Bradford (*Commerce Reports,* April 13, 1917) describes the saving and utilization of waste material in England as recommended by the Local Government Board. The value of bones and fat waste for the production of glycerin for munition purposes is emphasized. It is said the Quartermaster General's Department has in operation a plan for utilizing camp refuse, and some figures are given on the saving on glycerin effected by using wastes. While English-made glycerin was $282 per ton, American glycerin cost $1,182. During the first month, a weekly return to the army of $8,760 for camp refuse was made. In January, 1917, the weekly return had increased to $46,232, representing approximately $2,433,250 annually for waste rations. The production of glycerin from these waste products amounted to more than 1,000 tons, effecting a saving of $875,970.

Clinical Notes, Suggestions, and New Instruments

PERNICIOUS MALARIA: A REPORT OF A CASE

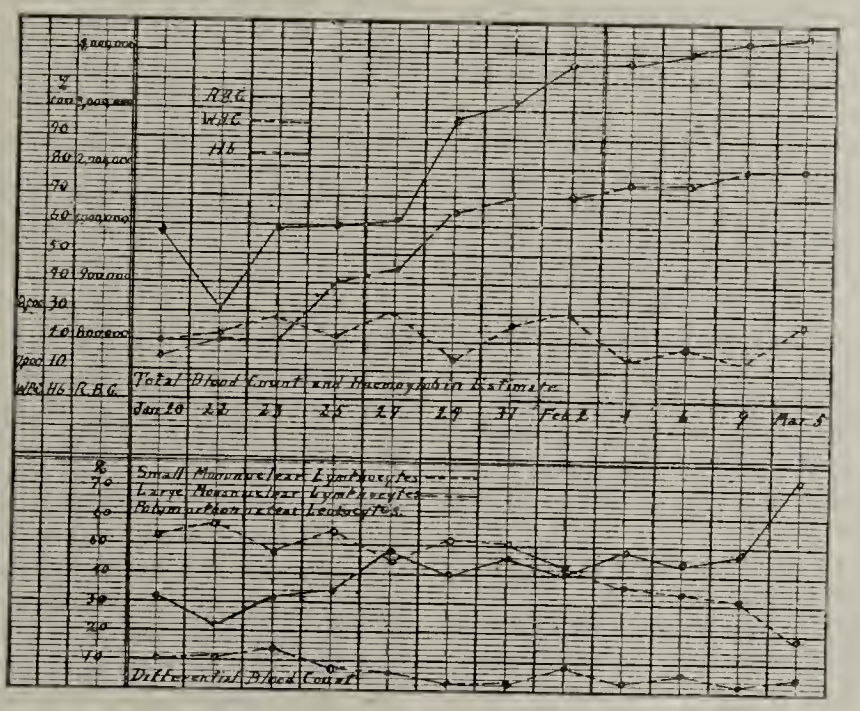
T. Z. CASON, M.D., AND E. G. BIRGE, M.D., JACKSONVILLE, FLA.

This case of pernicious malaria presented several interesting features, particularly the blood picture and the reaction to treatment. Occasionally one obtains a picture of pernicious anemia in these cases, and the absence of parasites in the peripheral circulation throws the diagnosis in doubt unless a complete and careful study of the blood is made during the disease.

Treatment with quinin, properly given, promptly relieves the condition, and the improvement which takes place in the blood picture is surprising.

History.—G. W., man, aged 33, white, farmer, was admitted to St. Luke's Hospital, Jacksonville, Fla., Jan. 16, 1917, in a comatose condition. The abdomen was distended and tympanitic. Physical examination at this time was negative. The family and personal history were unimportant. The patient had been taken ill in October, and had had occasional headaches since. There was edema around the eyes and affecting the hands and feet with no pain; it was first noticed, November 18. There was no history of chills. The patient admitted taking much quinin during the past few years. There were marked pyorrhea and marked pallor of the mucous membranes. The lower margin of the spleen was at the costal border; there was slight tenderness to pressure over this area.

Laboratory Examinations.—The first slide from this patient was received at the laboratory, January 17, the day after his admission to the hospital. At that time his temperature was subnormal, and there was nothing particularly pathologic in the picture of the blood, and the parasites on examination were absent. We did not receive another slide, January 18, at which time his temperature went up above normal. January 19, we received a slide which gave a picture of pernicious anemia with a high small mononuclear lymphocyte count and a low polymorphonuclear leukocyte count. There were five nucleated red cells of the normoblastic type and one of the megaloblastic type. Poikilocytosis, polycromatophilia and basic stippling were also present.



Total blood counts, hemoglobin estimation and differential blood counts.

January 20, another differential count was made with the same results except that the nucleated red cells were absent and no parasites were found. The red blood cells were 992,000 per cubic millimeter, the white cells 7,500 per cubic millimeter and hemoglobin 15 per cent. January 21, a differential count was made and no parasites found, and it was believed at that time that we were dealing with a case of pernicious anemia rather than pernicious malaria, although the white cell count was too high for a case of primary anemia.

January 22, after a slight rise in his temperature, we found numerous ring bodies and a few megaloblasts. The differential count remained practically the same. On this day the red cells were 865,000 per cubic millimeter, with hemoglobin estimate of 20 per cent. and white cell count of 7,600 per cubic millimeter.

With the diagnosis of malaria established, the man was put on quinin, and from then on his blood picture rapidly became more normal. The accompanying chart shows the improvement in the counts as they were taken every other day. The twenty-second day of the disease, the blood count was: red cells, 3,944,000; white cells, 7,400, and hemoglobin estimate, 15 per cent.

The patient has been kept under observation since with no recurrence. The blood counts, both total and differential, are normal.

A CASE OF PARAPHARYNGEAL ABSCESS

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In view of the scarcity of literature on the subject of parapharyngeal abscess, this case seems worth reporting:

Aug. 2, 1916, Dr. T. H. Russell of New Haven invited me to see H. S., a girl, aged 4 years, who had been treated over a period of several weeks by a number of physicians successively. An attack of measles had terminated three weeks previously. As far as we were able to ascertain, a remittent type of fever had begun immediately afterward and had continued since; the patient looked decidedly septic. Both ears had been freely discharging for nine days; the discharge was more profuse from the right ear. One week previously her mother had noticed that she "talked through her nose," as she described it. She had had an irritative unproductive cough for four days. At the time of our visit, 8:30 p. m., her temperature (oral) was 101 F.; the respirations were slow, and the pulse very rapid. Both ears were freely discharging thick offensive pus. There was marked torticollis to the right, the head being moved only with difficulty. There was a large swelling under the right mandible, just below the angle and anterior to the sternocleidomastoid muscle. Both faucial tonsils were rather large, but not reddened, and the right tonsil was displaced markedly inward toward the median line, the posterior pillar being pushed forward. At the right side of the pharynx, immediately behind the posterior pillar of the right tonsil, was a conspicuous swelling—somewhat soft, but not fluctuating. There was no noticeable swelling, edema or redness of the remainder of the pharynx or of the palate, uvula or faucial pillars. The entire posterior portion of the pharynx presented a fairly normal appearance. The heart and lungs were negative.

On the following day, the patient experienced difficulty in swallowing.

August 4, the temperature was 101.2 F. The difficulty in swallowing still persisted, and the left ear had stopped discharging. Mouth breathing was noticeable. The bulging mass in the pharynx just behind the posterior pillar was soft and fluctuating, and had attained the size of a hickory nut. Dr. Russell opened it by inserting a small artery clamp and spreading the points, obtaining a large amount of greenish-yellow pus. Coincident with the internal removal of pus the external swelling decreased markedly in size and the patient seemed considerably relieved.

August 6, the temperature was 99.4 F., the pulse 135, and the patient was very pale and seemed quite weak. There was some cough, although the lungs were negative. The sinus at the right of the pharynx was freely discharging pus; there was still some discharge from the right ear, and the swelling in the neck had almost entirely disappeared.

On the following day, the temperature was 99.2 F. and the patient seemed much improved. The appetite was much better, there was less pallor, the swelling in the neck was negligible, and the discharge from the left ear was thinner and less malodorous.

August 8, the temperature was 101 F., a swelling had appeared in the neck on the left side, and the left ear had again started to discharge. The patient seemed stronger and had a good appetite. The condition of wryneck was now nearly gone and the head was moved freely.

On the following day, the temperature was 98.6 F. The original swelling on the right side of the neck had slightly increased in size and the new swelling on the left had diminished.

August 10, the temperature was 100.4 F.

August 12, the temperature was 98 F., the swelling in the neck had entirely disappeared, the sinus in the pharynx had ceased discharging, and from then on the patient continued to improve steadily.

136 Whalley Avenue.

PECULIAR SKIN CONDITION OCCURRING IN DIABETES MELLITUS COMPLICATED BY PULMONARY TUBERCULOSIS

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I recently observed a peculiar skin condition in a case of diabetes mellitus which presents many points of interest. The patient, a man, aged 54, was told twenty years ago that sugar was present in his urine. He has had none of the classical symptoms of this disease. At present he has a tolerance for 90 gm. of starch. About two months previous to the time he came under my observation, he noticed an eruption on his hands and feet.

The extremities of the fingers and the feet are much swollen, bulbous, hyperemic and bright red. The feet and the fingers tingle and burn. The palms of the hands and soles of the feet are hyperemic. About two months before the eruption broke out, there were neuritic pains in the feet and the hands. The Wassermann and luetin tests are both negative.

A careful search of the literature as regards this vasomotor skin condition with bulbous fingers shows it to be rare. Williamson[1] has found a similar condition in three cases of diabetes. One of these patients suffered from advanced phthisis, another from early phthisis, and in the third, signs of phthisis appeared soon after the bulbous condition of the fingers was noted.

The patient whom I have studied also has an advanced pulmonary tuberculosis of the left apex of the lung. It would seem that this peculiar condition is found only in cases of diabetes mellitus complicated with pulmonary tuberculosis.

5737 Forbes Street.

A CORNEAL ULCER PRODUCED BY VARICELLA

Jesse S. Wyler, M.D., Cincinnati

The end-result in this case was serious, for so common and mild a disease as varicella, and I have been able to find only one report of a similar condition.

March 10, 1916, I was called to see a girl, aged 5 years, who had been confined to the house for four days with a rather mild case of varicella. The child was well nourished, and the hygienic surroundings were all that could be desired. The mother related that on the second day of the eruption the child became unable to open the right eye, and tears from this eye constantly flowed over the cheek.

The child had a few scattered crusts over the face and chest, no abnormal temperature, and felt well excepting for the eye, which was kept closed. The upper lid was slightly swollen and the tarsal and bulbar conjunctivae faintly reddened with a ciliary congestion at the limbus. In the center of the cornea was a punched out area perfectly round, which measured about 2 mm. in diameter. The edges were sharply marked and the base of the ulcer was deep and grayish. Staining with methylene blue and fluorescein gave a beautiful demonstration of a blue center with a greenish border. The iris was faintly greenish but reacted slowly. The rest of the cornea was clear. Atropin, 1 per cent., powdered dionin and yellow mercuric oxid, 5 per cent., were used and a bandage applied daily. The ulcer showed no tendency to spread, slowly healed, and in about two weeks was completely covered with epithelium, with a remaining facet which gradually filled out to the level of the cornea. Applications of fibrolysin, and strong ointment of yellow mercuric oxid up to 20 per cent. were used to clear up the opacity and, September 7, the vision of the right eye which, before the attack, had been normal, was 6/36. The macula is thinning slightly. I believe that this ulcer was the eruption of a pock on the cornea, for: 1. It appeared simultaneously with the skin lesions. 2. It was too large for an ordinary phlyctena and there were no other signs of eczematous conditions generally or locally. 3. The healing was much slower than in ordinary keratitis.

Only one other corneal involvement following chickenpox has been described. The case, reported by Terson,[1] is strikingly similar to mine. The patient was a girl aged 18, who had a benign attack of varicella. On the second day a corneal lesion appeared, which persisted. Several days later examination showed a grayish ulceration exactly in the center of the cornea without hypopyon or iritis. It was the size of a pea and quite round. Healing was rapid under xeroform ointment. The round form of the ulcer and absence of all other causes made Terson ascribe the condition to a ruptured vesicle due to varicella. He also makes mention of a second case of chickenpox with optic neuritis as a complication, and quotes the patient of Fuchs who had cyclitis.

Jan. 10, 1917, the vision of the affected eye of my patient was 6/24.

Seventh and Race Streets.

EDEMA OF MOUTH, PHARYNX, TONGUE AND EPIGLOTTIS DUE TO EATING BRAZIL NUT

Virginius Dabney, M.D., Washington, D.C.

A. N. D., aged 29, married, mother of three healthy children, had in infancy a definite history of what we now know to be an anaphylaxis for eggs and milk. She had been a bottle-fed baby, and had digestive trouble continuously from childhood up to the twenty-fifth year of age. She had noticed frequently that even a trace of the flavoring of Brazil nut made her mouth sore and her tongue feel swollen. On this occasion a chocolate-coated nut was swallowed before she had had time to recognize the taste which experience had taught her to fear. Inside of five minutes she felt a burning, intense pain in her stomach; beads of sweat appeared on her forehead, and she was in a state of great prostration. A few minutes later her tongue had become scarlet and so much enlarged that she could not close her teeth together by an inch. The edema of the whole oropharynx was marked, and the uvula was so elongated as to reach almost to the base of the tongue. Both the lingual and laryngeal surfaces of the epiglottis were similarly infiltrated, and swallowing anything caused excruciating pain and was practically impossible. Heat was applied to the epigastrium and one-fourth grain of morphin given hypodermically, with immediate relief of the pain. In twelve hours all symptoms had disappeared. She said that a mere trace of mustard as a salad ingredient had several times before done the same thing to her tongue, though never had the gastric pain been so severe. There was no evidence of any neurosis, as she was not aware of the presence of mustard when these attacks had occurred. It is interesting to note that her eldest child had acidosis once, but now has outgrown this tendency, though he still has a mild anaphylaxis for eggs, and his digestion is not proof against any indiscretion in diet.

1633 Connecticut Avenue.

1. Williamson: Diabetes Mellitus and Its Treatment, 1898, p. 227.

1. Terson: Clin. opht., June 1, 1914.

Heated Houses and Colds.—During the winter time the air in heated houses, schools and offices is apt to be of desert dryness. The common head cold and the prevalence of catarrhal conditions of the nose and throat are due to this indoor dryness to a greater degree than to the outdoor cold and storms.—Asst. Surg.-Gen. J. W. Trask, *Public Health Reports.*

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1406*)

MOVABLE KIDNEY

A loosened kidney, generally without manifesting symptoms, may be found in about 20 per cent. of all women over 20. It is of infrequent occurrence in colored women, according to Griffith.[117] The right kidney is the one more frequently prolapsed. Griffith believes this kidney is found movable three times as frequently as the left. Occasionally both kidneys are prolapsed. Tumors of the kidney, or in the tissues above or around it, are perhaps accidental factors in causing a kidney to prolapse. Constipation is probably never a cause. Sudden loss of weight, that is, loss of abdominal fat, is perhaps a frequent factor, but it is usually associated with a predisposition to kidney displacement.

Griffith believes that a contracted lower part of the chest in women is an important predisposing cause, as such an anatomic condition makes the fossa that holds the kidney and suprarenal capsules shallow, and predisposes toward prolapse of the kidney. In men these fossae are generally deeper.

The kidneys are normally slightly movable, and the right kidney is lower than the left. When the fat, which is such an important factor in supporting the kidneys, is lost and one or both kidneys become abnormally movable, the slightest added strain will seriously displace one or both kidneys. When the corset is loose below and tight above, or when it is entirely removed and excessive dancing indulged in, as is now in vogue, loosened kidneys probably occur more frequently.

Werelius[118] quotes Glénard's classification of the degrees of prolapse of the kidney. In the first degree the upper end of a kidney is found at the costal margin; in the second degree the whole kidney is below the costal cartilages, and in the third degree the kidney is found anywhere in the abdomen at a distance from the costal cartilages.

The prolapsed kidney may be of any size, but it is often enlarged, and may become hydronephrotic. Various anatomic and histologic disturbances may be found in these kidneys, which are subjected to great variability in their blood supply, in their nutrition, and in the pressure of the urine in the kidney pelvis.

Secondary abdominal conditions caused by pressure from a floating kidney may occur, or there may be no symptoms, even though the kidney is very movable. Constipation is often a symptom, perhaps because of pressure on the colon or cecum.

Not infrequently chronic appendicitis is an accompaniment of a floating right kidney, and even ovarian pain and bladder irritability may follow. Gallbladder disturbances are sometimes associated with displaced right kidney. Whether these conditions are caused by direct pressure, by reflex disturbances, or by interference with the normal circulation of these parts is a question to be decided in each individual case. Both gastric and intestinal indigestion often occur in patients who have a displaced kidney, and there is frequently distress at night, and inability to lie on the side or on the back, without aches and pains. In many instances the displaced kidney is associated with ptosis of the stomach and intestine. Various neurasthenic and hysterical symptoms may occur in these patients, and if the loose kidney is not diagnosed, the patient may be treated at home or in sanatoriums for nervous dyspepsia, nervous indigestion, or similar complaints, with no permanent benefit.

It must be emphasized, however, that frequently floating and loose kidneys cause no symptoms whatever. When, during a physical examination, a displaced kidney is discovered, information of such a condition should, as a rule, be withheld from the patient.

Real pain, and many kinds of referred abdominal pain — even the intense pain termed Dietl's crisis — may be caused by a loose kidney. Dietl's crisis is really a kidney colic due to twisting of the ureter and distention of the pelvis of the kidney. Whether or not the obstruction is severe enough to cause one of these typical crises, the variations in the amount of urine retained in the pelvis of the kidney frequently cause the kidney to become enlarged. Hence many times scientific examinations alone can determine whether a kidney tumor has caused a movable, enlarged kidney or whether the kidney contains a stone with subsequent enlargement.

Other movable tumors may also be found in an abdomen, but the kidney shape is typical, and a loosened kidney is more movable than other abdominal tumors. Stone in the kidney and kidney tumors are apt to cause hematuria; hydronephrosis caused by the mobility of a kidney is generally intermittent; at one time a large tumor is found, at another time the kidney may even be difficult to locate.

It should be emphasized that while a single positive finding of a loosened kidney is diagnostic, repeated abdominal examinations may not reveal a loosened kidney, though a later examination may show that one is even floating. The elusiveness of such a kidney is probably caused by varying gas pressure in the intestine.

A movable kidney that is causing symptoms may be kept in place by a properly made and properly fitting corset, or by a so-called kidney belt. Rest and an increase in such a diet as will cause the patient to gain weight may cause such a kidney, if not actually floating, to become more or less permanently fixed. Such simple treatment as an abdominal belt sometimes causes entire abeyance of all disagreeable abdominal symptoms, and the patient is symptomatically cured. At times it is difficult to determine how many of the abdominal disturbances and functional disturbances are due to the displaced kidney, but strapping of the abdomen will generally show what value an abdominal belt or corset will produce. Hence, before an expensive apparatus is ordered, strapping should be tried, as the abdominal condition may not be caused by the loose kidney, which may be the source of no symptoms whatever.

The general trend of surgical opinion is that the importance of a loosened kidney in causing symptoms has been overestimated, that many patients are not improved by an operation to fasten the kidney to its normal position, and that many such plastic operations are unsuccessful, as the kidney again becomes loose. On the other hand, while a loose kidney does not necessarily need medical or surgical attention, there are many instances in which a belt does not ameliorate

117. Griffith: Johns Hopkins Hosp. Bull., March, 1910, p. 75.
118. Werelius, Axel: Nephroptosis and Nephropexy, THE JOURNAL A. M. A., March 1, 1913, p. 643.

the symptoms, and in which an operation for fastening the kidney into its normal position will cause permanent disappearance of all associated abdominal disturbances. Therefore, the least that can be said is that occasionally such a plastic operation is necessary and is curative.

(To be continued)

Special Article

THE MEDICAL OFFICER OF THE ARMY

V

MILITARY PROPERTY—MILITARY LAW

The issue and care of military property and supplies is a subject that requires considerable attention from the new medical officer, though the accounting for this property is simple, and can be readily understood.

The supply table in the "Manual for the Medical Department" contains a complete list of all supplies that are considered necessary in the military service; but in time of peace any special instrument, apparatus or pharmaceutic preparation that is considered necessary is promptly supplied on requisition. That part of the supply table which refers to the field supplies is not so flexible. It must be understood that when an army is in campaign all supplies have to be standardized so that the supply depots can have on hand a sufficient reserve to meet all emergencies. If special articles not in this table are called for, the time required to fill such a requisition will naturally be much longer, and if dependence is placed on special orders of this kind, the sick and wounded are bound to suffer. Furthermore, these supplies are arranged in such a manner that space in packing is economized as far as possible. This is important, for the transportation facilities of an army are always kept down to the smallest amount.

REQUISITIONS

In the field, requisition for medical supplies is made whenever these supplies are needed. No specific date for forwarding these requisitions is given. All requisitions of this type are made on a special requisition blank, which is simply a sheet arranged for the convenience of the officer requiring the supplies. It of course includes a heading, and following that is the list of supplies needed, typewritten in alphabetical order as they appear on the field supply table. When new units are organized, the medical department equipment is also furnished on the same type of requisition. This requisition is forwarded to the division surgeon or the department surgeon, and on his approval the stores are issued.

In time of peace, annual requisitions are made for the supplies that will be needed during the coming year. The amount of these supplies is laid down in the supply table and depends on the strength of the garrison. Naturally, though, special articles are needed at times, and furthermore, on account of different contingencies, the annual allowance is found at times insufficient. To remedy this a special requisition can be made when necessary, though it is recommended always that these requisitions be put in not oftener than once a quarter.

THE CHECKING OF PROPERTY

When medical supplies are shipped to an organization, an invoice is sent to the officer who has made a requisition for them. On receipt of the supplies he checks them over carefully according to the invoice and signs the two copies of the receipt which accompany the invoice. One of these copies is sent to the issuing officer, and the other to the surgeon general at Washington, D. C. The checking of this property when received is facilitated by a packer's list which is sent with it and gives the numbers and contents of the separate packages.

A careful record of property received and expended is kept in the office of the organization. This is called a property return. The return is merely a simple method of bookkeeping with the debits and credits plainly shown, so that at any time it can be determined just exactly what quantity of any article is on hand.

Medical department property is divided into two classes — expendable and nonexpendable. In the supply table the nonexpendable articles are shown in italics, and these articles cannot be destroyed or otherwise expended without authority. The expendable articles can be used in the treatment of the sick and wounded, and can be dropped from the return by the accountable officer without further procedure.

When the officer in charge of any amount of medical department property has been relieved by another officer, his property return is closed; that is, the quantity on hand is balanced by article and the relieving officer receipts to him for what remains on hand by signing the receipt inclosed with the return. All officers are cautioned carefully to check up property shipped to them or turned over to them by their predecessors, as they will be responsible for any discrepancies not noted.

All officers who have property invoiced to them, and who keep a property return, are considered *accountable* for this property; that is, the returns required are always completed under their supervision. On the other hand, if property is issued to them as in charge of any part of a hospital or other sanitary unit for which they give a memorandum receipt, they are *responsible* for the property and are required to care for it adequately, but they do not make a "property return" for it.

If property has become unserviceable for any cause, or is lost in the service, a survey report is made of this property, giving the articles to be considered, accompanied by the necessary affidavits of enlisted men and the certificates of officers that every care has been taken to preserve the articles mentioned. This is then considered by an officer detailed by the commanding officer as a survey officer, who determines from his investigation whether due care was taken in the premises, and besides, whether or not the officer responsible should be cleared of responsibility or should be required to pay the cost of the property.

In addition to this method of disposing of unserviceable property, it can be placed before an inspector whenever he visits the command for inspection purposes. He would then inspect the property and decide what disposition should be made of it, and his decision is usually final. If the property is ordered destroyed by either of these methods, the report of the inspecting officer, with his decision in the separate instances, is forwarded as a voucher with the return,

when made, to show the disposition of the articles destroyed or otherwise disposed of.

MILITARY LAW

Military law is provided for the government of armies in peace and war. There are two divisions of military law: One is called international law and treats particularly of the action of armies and individuals of those armies in time of war, or at any time when they come in contact with foreign nations. That part of international law which is of interest to our armies in time of war is laid down in a small book published by the War Department called "The Rules of Land Warfare," and can be obtained by application to the adjutant general, Washington, D. C. These rules are of decided interest to the medical officer, for his actions when captured by the enemy, or in other contingencies, are laid down carefully and must be obeyed to the letter.

The other division of military law is for the internal government of the army and is covered by the "Articles of War," which form the common law for the army. Offenses are classified and punishments provided in the same way that the civil law is written.

COURTS MARTIAL

To punish violations of military law, courts martial are provided. These are of three classes: the summary court, the special court and the general court.

The summary court is the lowest military court and consists of one officer appointed by the commanding officer of the organization. This court has jurisdiction over minor offenses committed by enlisted men, though a noncommissioned officer and several classes of enlisted men, especially excepted by the president, cannot be tried by such a court without their consent. This court is also limited in its power of punishment and cannot sentence a man to a longer confinement than three months, or a forfeiture of more than three months' pay.

The special court consists of from three to five officers appointed by the commanding officer of the organization. This court can try any person subject to military law except officers or classes especially excepted by the president. This court has jurisdiction over offenses of considerable more gravity than those covered by the authority of the summary court, but it cannot sentence a man to dishonorable discharge, to confinement for a longer period than six months, or forfeiture of more than six months' pay.

The general court is the highest military court, and consists of from five to thirteen officers. If the latter number is available, it must be so constituted. The general court is convened by commanding officers of the larger units of the army, as the division, or separate brigade, or by commanding officers of territorial departments. This court has jurisdiction over offenses committed by any person subject to military law, and the limits of punishment are as shown in the "Articles of War" covering the offenses. The death punishment cannot be imposed except when specifically authorized by law.

To make the action of a court martial final, the proceedings must be approved by the officer who convenes the court, or, if he has been relieved, by his successor. Sentences for the dismissal of an officer tried within the limits of the United States must be approved by the president.

The general court martial sits in full uniform, with side arms, around a table provided for the purpose, the president of the court taking his seat at the head of the table; the other officers on either side according to rank. The judge advocate of the court, who is in reality the prosecuting attorney, takes his seat at the foot of the table. He swears all witnesses and conducts the proceedings of the court. Each person to be tried is allowed counsel, who may be an officer detailed for the purpose, or, if he so elects, a civilian lawyer. The trial is conducted according to the regular rules of evidence, and all points of evidence are carefully considered before a finding is made.

OTHER COURTS AND BOARDS

In addition to these courts as outlined in the foregoing, we have a court of inquiry provided for in law, which is convened at the request of any officer or soldier who considers that he has been wrongly treated. It consists of three or more officers, carefully considers the evidence in the case, and renders an opinion when ordered to do so.

Retiring boards are also formed to examine officers who desire retirement from the service, or who have been ordered to appear before them for examination in view of their retirement. These boards consist of five members, of whom two are medical officers. They see that the officer is carefully examined, and consider the evidence presented to them by the War Department or by the officer concerned, and decide from this examination and evidence as to whether, in their opinion, the officer should be placed on the retired list of the army. Their findings must receive the approval of the War Department before the action is considered final.

All officers serving on courts martial, boards of inquiry or retiring boards, are sworn before they enter into their specific duties, so that they are under oath to well and truly try the cases brought before them.

The punishment for infractions of the military law are laid down in the "Manual of Courts Martial," and in a great many cases convictions for special crimes or misdemeanors call for a certain punishment, which is mandatory.

The "Articles of War" in offenses such as a sentry sleeping on post, desertion, violation of safe conduct, etc., give two grades of punishment — one for peace time, which is outlined from time to time by proclamation of the president, and another for war time, which, for the offenses mentioned, is always death. In time of peace, certain military offenses are treated distinctly from the reformatory standpoint, and the man is given a chance to mend his ways and become a good soldier. This reformatory work is conducted at the military prison at Fort Leavenworth and its branches at Governors Island, New York, and Alcatraz Island, San Francisco. Each prisoner is carefully examined by an alienist when he is sent to these institutions, and his treatment is to a certain extent along lines suggested by this examination. If he is considered capable of reform, and his efforts in that line are satisfactory, he is placed in a disciplinary battalion for further training, and if he shows a proper degree of improvement he may be returned to the army to serve again as a soldier.

(To be continued)

Communicability of Cancer.—A study of life insurance statistics, recently completed by Arthur Hunter, president of the Actuarial Society of America, indicates that the cancer rate among those in attendance on sufferers from cancer is only normal, and that the same is true among those whose parents or grandparents died with cancer.

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DIET AND THE BACTERIAL FLORA OF THE INTESTINE

It is becoming an accepted dictum that the most important factor in determining the character of the bacterial flora of the intestine is diet. Ingestion of foreign bacteria, even in large numbers, does not of itself seem to displace the common intestinal types in normal individuals. This fact needs to be kept in mind in any attempt to implant a special strain of bacteria for therapeutic purposes in the digestive tract. Interest has been concentrated from time to time on several groups of micro-organisms which may appear in special relations to the alimentary processes. They include the so-called "putrefactive" bacteria, of which the *Bacillus coli* and *B. welchii* are familiar illustrations; the aciduric micro-organisms represented by *B. acidophilus, B. bifidus,* and also the widely heralded *B. bulgaricus;* and latterly the amylolytic or starch-decomposing bacteria, of which the *Glycobacter peptolyticus* of Metchnikoff is an example. Each group represents organisms which somewhat specifically exhibit a pronounced disintegrative effect on individual types of food compounds — proteins, sugars and starches, in the order referred to above.

Long ago Herter and Kendall[1] found that in animals an abrupt change in diet from a dominantly protein (meat and eggs) to a milk and sugar diet is followed by an alteration of physiologic conditions in three distinct directions: in the nature of the intestinal flora, in the putrefactive products of the feces and urine, and in the clinical conditions. The chief characteristic of the bacterial change is the gradual but rapid substitution of an acidophilic nonproteolyzing type of flora for a strongly proteolyzing type. The chief feature of the putrefactive conditions in the intestine is the reduction of the indol, skatol, phenol and bound hydrogen sulphid and a diminution in the indican and aromatic oxyacids of the urine. Clinically the most striking feature of the change in diet is (in monkeys) an improvement in spirits and activity which may safely be construed as showing a markedly improved sense of bodily and psychic well being. The diminished intestinal putrefaction may in part be ascribed to a reduced protein intake when meat and eggs are omitted from the dietary, but this alone was not believed to account for the pronounced physiologic changes, particularly the alteration in the flora. After noting the extensive bacterial degeneration which follows the change from one diet to another, Herter and Kendall ventured to assert that possibly in conditions of disease of the intestinal tract in which undesirable bacteria abound both on a protein diet and on a diet rich in carbohydrates, frequent alternations in the chemical nature of the diet are beneficial by interfering with the establishment of any one type of bacteria in the intestine.

Meanwhile the work of Rettger and his pupils,[2] among others, has afforded a substantiation of these views. They have shown that the *B. acidophilus* of Moro and the *B. bifidus* of Tissier, two well known members of the aciduric or lactic acid bacillus group of bacteria, are common inhabitants of the intestinal tract even of man. At times their numbers may be so small that they almost escape detection, whereas at other times they may become established to the exclusion of other forms. The typical flora of infants which subsist on mother's milk is cited as an illustration of the extent to which one intestinal organism (*B. bifidus*) may dominate and even supplant all other types.

Hull and Rettger of Yale University have shown that milk undoubtedly owes its beneficial action to the lactose which constitutes nearly half of its solid matter. When lactose is taken in liberal amounts by human adults, along with the daily food, the flora characteristic of healthy persons on a mixed diet begins to change until *B. acidophilus* appears in conspicuous or even dominant numbers. *B. bifidus* is always less prominent. Without the ingestion of lactose, no such changes are observed. Following the use of laxatives, these organisms are present in much larger numbers. This is ascribed by Hull and Rettger to the transfer of lactose along the alimentary canal so that before absorption a sufficient amount reaches the lower parts

1. An Observation on the Fate of B. Bulgaricus (in Bacillac) in the Digestive Tract of a Monkey, Jour. Biol. Chem., 1908, **5**, 293; The Influence of Dietary Alternations on the Types of Intestinal Flora, ibid., 1910, **7**, 203.

2. Rettger, L. F., and Horton, G. D.: A Comparative Study of the Intestinal Flora of White Rats Kept on Experimental and Ordinary Mixed Diet, Centralbl. f. Bakteriol., Part I, orig. **73**, 362. Hull, T. G., and Rettger, L. F.: The Influence of Milk and Carbohydrate Feeding on the Intestinal Flora of White Rats, ibid., **75**, 219. Rettger, L. F.: The Influence of Milk Feeding on Mortality and Growth and on the Character of the Intestinal Flora, Jour. Exper. Med., 1915, **21**, 365. Hull, T. G., and Rettger, L. F.: The Influence of Milk and Carbohydrate Feeding on the Character of the Intestinal Flora, Jour. Bacteriol., 1917, **2**, 47.

of the intestine, where the aciduric bacteria are known to multiply most abundantly under the right conditions of nutriment and environment. Obviously unless the sugar can be transported to the place where the most marked bacterial changes, putrefactive and otherwise, occur, little opportunity is afforded for the development of the aciduric type of micro-organism. It seems likely that lactose disappears somewhat slowly from the intestine. Bread, on the other hand, containing cooked starch is quickly digested so that available sugar does not remain long enough in the intestine to exert the favorable effect on the bacteria. Milk and lactose together are said to form the most practical and effective diet to bring about the predominance of the aciduric bacteria in man. Meat and other protein-rich foods increase the incidence of indol-producing forms.

These experiences are in accord with the reported effects of the use of lactose and milk in the dietary of typhoid fever.[3] Here, too, milk alone has not been found as efficient as a diet with additions of carbohydrate, particularly lactose, in reducing the putrefying types of bacteria and encouraging the acidophilic forms. Finally it should be noted that the Yale investigators, like numerous other observers, have been unable to establish *B. bulgaricus* in the intestine by the feeding of large numbers of these organisms. The ingestion of milk may bring about a change in the aciduric type of intestinal flora; the dominating organism, however, is not the bacillus of Massol but the *B. acidophilus* of Moro.

THE EFFECT OF SODIUM CARBONATE IN DIABETES

The mechanism for the oxidation of sugar in the body is extremely sensitive to the concentration of hydrogen ions. What would once have been regarded as seemingly insignificant alterations in the reaction of tissue fluids have been demonstrated to modify detectably the consumption of sugar by the isolated beating heart or the surviving intestine.[4] Such physiologic indicators are far more significant than a strip of litmus paper, because they respond promptly and vigorously to minute alterations in their physiologic environment. The greatest difficulty in drawing conclusions from observations on surviving organs in this way lies in the multitude of possible factors which may contribute to the deviations of performance made by a delicately responsive mechanism. That is, there are many physiologic and pathologic variables which may modify cellular functions.

The possible biologic significance of what seem like mere traces of acid or alkali — slight alterations in the reaction of the environment of the tissue cells — may perhaps be appreciated more easily in the light of a recent calculation by Lusk.[5] The least amount of energy which is necessary to maintain the life processes of 1 kg. of body substance is 1 calory an hour, which represents the quantity of energy contained in 215 mg. of glucose. In ordinary life, two thirds of the energy which supports our bodies is derived from glucose. It has been estimated that 1 kg. of body tissue contains cells having a total surface area of 150 square meters. Therefore, when each square meter of this cell surface is supplied with a sugar solution containing 1.5 mg. of glucose an hour, the life of the tissue can be maintained. One can thus imagine, says Lusk, how thin a film of glucose solution around the cell is necessary for the maintenance of its life. Here slight alterations of reaction may well be conceived to exert profound effects.

This concerns also the relations of acids and alkalies to diabetes, recently discussed in THE JOURNAL.[6] Murlin and Sweet[7] have suggested that the internal function of the pancreas may be closely akin to its external function in that, on the one hand (external), it provides for the complete neutralization of the acid contents of the stomach, thereby protecting the liver in its glycogenic function, and on the other (internal), it somehow preserves the proper concentration of hydrogen ions in the tissues for combustion of glucose. It is not impossible that the pancreatic hormone, through which the latter function is discharged, may prove to be a peculiarly adapted alkali produced by the islands of Langerhans. A differentiation of cells for the production of alkali in the pancreas is *a priori* no more improbable than such a differentiation for the production of acid in the stomach. The alkali which passes into the intestine neutralizes the hydrochloric acid of the stomach, but it may also be given off to the blood. Acidity of the tissues may be due to the accumulation of carbon dioxid. A peculiarly adapted alkali which should maintain the combining power of the blood (corpuscles as well as plasma) for carbon dioxid would serve to maintain the normal reaction in the tissues. Not only would the apparently remedial effect of gastrectomy on experimental pancreatic diabetes thus be explained, but also the possible benefit of alkali therapy in human diabetes appears in a new light. In this connection Underhill[8] has reported the apparently beneficial effect of large doses of alkali in severe glycosuria in man; and more recently Murlin and Craver[9] have begun a series of

3. Barker, L. F.: The Diet in Typhoid Fever, THE JOURNAL A. M. A., Sept. 12, 1914, p. 929. Torrey, J. C.: The Fecal Flora of Typhoid Fever and Its Reaction to Various Diets, Jour. Infect. Dis., 1915, **16**, 72.

4. Compare Rona, P., and Wilenko, G. G.: Biochem. Ztschr., 1914, **59**, 173. Rona, P., and Neukirch, P.: Arch. f. d. ges. Physiol., 1912, **148**, 271.

5. Lusk, Graham: Intermediary Metabolism in Diabetes, Am. Jour. Med. Sc., 1917, **153**, 40.

6. Acids and Alkalies in Relation to Diabetes, editorial, May 12, 1917, p. 1411.

7. Murlin, J. R., and Sweet, J. E.: Pancreatic Diabetes in the Dog, IV, The Influence of Pylorus Exclusion and of Gastrectomy upon the Effects of Pancreatectomy, Jour. Biol. Chem., 1916, **28**, 261.

8. Underhill, F. P.: Proc. Soc. Exper. Biol. and Med., 1916, **13**, 111.

9. Murlin, J. R., and Craver, L. F.: Preliminary Observations on the Influence of Sodium Carbonate, Administered by Duodenal Tube, upon Human Diabetes, Jour. Biol. Chem., 1916, **28**, 289.

observations on the influence of sodium carbonate, administered by duodenal tube, in human diabetes.

It must be pointed out at the outset that the hydrogen ion contents of the blood, and still more of the tissues, cannot be altered easily; but as slight changes seem to produce marked effects, on isolated organs at least, the more careful attempts to influence tissue reaction seem worth while. The reasons for the duodenal mode of administering alkali were twofold: It was expected thereby to find little danger of vomiting and no interference with digestion, and it was believed that in the duodenum the alkali would not stimulate the stomach to produce more acid. The outcome in the few cases already studied is highly suggestive. The observations of the favorable effects of alkali on depancreatized dogs were confirmed. The output of sugar was often materially reduced. There was distinct clinical improvement in several of the patients. Murlin and Craver are convinced that there may be a bona fide reduction in the percentage of blood sugar by the alkali independently of any factor of dilution. If this is true, they add, there is little reason to doubt that, in man as in the dog, the alkali may facilitate the actual oxidation of glucose. Only direct observations on the respiratory metabolism can settle this question.

SPIROCHETES AND RAT-BITE FEVER

Since our previous reviews of the cause of rat-bite fever,[1] new facts, experimental and clinical, have turned more light on the questions still at issue. Futaki, Takaki, Taniguchi and Osumi have fortified their contention of the protozoan etiology of the disease by a study of five more cases, in each of which they found a spirochete,[2] two patients exhibiting the spirochete in the circulating blood derived from a vein or the punctured skin. In the early stages of rat-bite fever the spirochetes are found in the local eruption of the skin and in the enlarged lymph nodes, whence they seem gradually to invade the blood. In relapsing fever the organisms are numerous during the febrile, but decrease greatly in number or disappear altogether during the afebrile period. When animals are inoculated with blood from a patient suffering from rat-bite fever during the afebrile period or when there is light fever, the spirochetes are present. It is always difficult to find them, however, as they are few in number.

The Japanese investigators believe that the spirochete identified by them belongs to the protozoa and not to the bacteria. Spirochetes, of course, occur in rats; but as those under consideration in the human disease appear to be without identification as known species, the new designation of *Spirochaeta morsus-muris* is now proposed for the etiologic organism, which is regarded as belonging to the *Spironemacea* (Gross) of the nature of *Treponema*.

This raises definitely the debated question as to whether or not rat-bite fever is caused by a streptothrix, as maintained by several, including American observers[3] of the disease, or by the newly described spirochete. Perhaps it ought rather to be said that rat-bite fever with the clinical symptoms of inflammation of the bitten part, paroxysms of fever of the relapsing type, swelling of the lymph glands, and eruption of the skin, all occurring after an incubation period usually of from ten to twenty-two days or longer, does not necessarily include all diseases related to the bites of rats. Indeed, the Japanese workers regard Blake's carefully studied case as one of streptothrix sepsis caused by the bite of a rat.

There are so few spirochetes in the swollen local lesions of the skin and the enlarged lymph glands that it is said to be unusually difficult to detect them in material taken from patients. For this reason inoculations, preferably into mice, are advised. The organism can then be found in the blood of the inoculated animal after a lapse of from five to fourteen days, or at the latest four weeks. In harmony with the spirochetal theory is the striking clinical effect of salvarsan on rat-bite fever.[4] The micro-organism is also decidedly arsenotropic in the experimental therapy of inoculated animals.

The spirochete described is not present in the blood of all rats, and there is no relation between the species of the rat and the ratio of infection. The organism has never been found in healthy mice or guinea-pigs; but the latter animals develop the disease after they are bitten by rats infected with the spirochete. It can be detected in about 3 per cent. of house rats in Japan. From the fact that patients suffering from rat-bite fever have invariably been bitten by rats and that the newly named spirochetes are found both in house rats and in human patients with rat-bite fever, the Japanese investigators logically infer that the spirochete is transmitted from the rat to the human body. As the organisms have never been detected in the saliva, but only in the blood of rats, the source of the infectious organism is believed to be in blood which, owing to hemorrhage from the gums, enters the saliva of the rat.

1. The Cause of Rat-Bite Fever, editorial, The Journal A. M. A., Oct. 9, 1915, p. 1285; Further Observations on the Cause of Rat-Bite Fever, March 18, 1916, p. 894.
2. The Cause of Rat-Bite Fever, Jour. Exper. Med., 1916, **23**, 249; Spirochaeta Morsus Muris, N. Sp., the Cause of Rat-Bite Fever, Second Paper, ibid., 1917, **25**, 33.
3. For example, F. G. Blake (Jour. Exper. Med., 1916, **23**, 39), Wilder Tileston (The Journal A. M. A., April 1, 1916, p. 995), and Ruth Tunnicliff (The Journal A. M. A., May 20, 1916, p. 1606).
4. Hata, S.: München. med. Wchnschr., 1912, **59**, 854.

The Price of Knowledge.—Thoughtless people often grumble at the two or three guineas paid for a few words of advice. They do not reflect how long it has taken the physician to acquire the knowledge that enables him to give profitable counsel, or that the advice, if faithfully followed, may mean prolongation of life and increased efficiency in work, to say nothing of greater happiness for the patient himself and his family. The public has still to be educated to a right appreciation of the intellectual value of things and to deliverance from the superstition of a crude commercialism as the ruling principle of life.—*Brit. Med. Jour.*, Jan. 27, 1917.

Current Comment

THE SELECTIVE DRAFT HAS PASSED. FIVE HUNDRED THOUSAND SOLDIERS WILL SOON BE IN TRAINING. FOR THESE MEN 3,500 PHYSICIANS ARE NECESSARY. WILL YOU BE ONE? IF YOU HAVE NOT ALREADY APPLIED FOR MEMBERSHIP IN THE MEDICAL RESERVE CORPS, DO IT NOW. WE WILL SEND YOU AN APPLICATION BLANK.

WAR AND PROHIBITION

The prohibition movement appears to be growing steadily stronger and stronger. At present about 85 per cent. of the territory of the United States is dry, and about 58 per cent. of the population. In view of the increasing strength of the sentiment in favor of prohibition, it is not at all surprising that a powerful effort should be made to secure some form of nation-wide prohibition at least during the war. Besides the usual reasons urged in favor of prohibition, special emphasis is now directed to the necessity of stopping the manufacture of alcoholic beverages in order to conserve the food supply and to turn additional labor into channels concerning the usefulness and necessity of which there can be no question. But of all reasons that may be urged against the use of alcoholic drinks, the two that must appeal to physicians with irresistible force are (1) the action of alcohol in lessening all forms of efficiency, physical, intellectual and moral, and (2) the intimate connection always found between drinking, prostitution and the spread of venereal diseases. The evidence against alcohol on these accounts is so overwhelming, so well established, and so generally known, that it does not seem necessary at this time to go into details, quote figures or cite examples. Only the other day an experiment was mentioned in THE JOURNAL (p. 1414) which showed that 50 gm. of brandy causes a depreciation in the marksmanship of expert shots of 30 per cent. in rapid firing and 50 per cent. in slow firing. What sense is there in training men to become efficient and then sit idly by and let the hard-won efficiency be taken away by alcohol? We know that wars heretofore have resulted in tremendous increase in venereal diseases, not only in the military but also in the civil population. Students of history tell us that such increase may be sufficient to place the stamp of physical deterioration on entire nations. To ask another question — what sense is there in laboriously selecting and training the flower of our young manhood to make soldiers, sailors, marines, and then do nothing decisive to save them from the far-reaching disasters to themselves and others of venereal disease? The fate of the movement to secure nation-wide war prohibition through legislative action and in other ways is uncertain. As the first duty of the medical profession is to prevent disease and loss of human efficiency, we must do all in our power to favor such movements. In the meanwhile no time should be lost in putting into effect the excellent recommendations of the General Medical Board to the Council of National Defense that every military command be surrounded by a protected zone in which prohibition and the sale of alcoholic drinks shall be prohibited, and that special efforts be directed toward furnishing the men with suitable opportunities for wholesome recreation.

MEDICAL OFFICERS' TRAINING

The medical officer in the army is not only a physician but also a soldier — at least he is a soldier in that he is an integral part of a machine, all parts of which must run smoothly and in unison. While he has certain specific duties, separate and distinct from those of the officer of the line or of the soldier in the ranks, yet the medical officer is a part of the army. Whether in the field, on the march or in camp, he has his position and must fit into it or there will be friction. Probably not one in fifty of those who have volunteered, or who will volunteer, know how to ride a horse, much less to manage it in maneuvers.[1] Then again, emergencies have arisen when it has been necessary for the medical officer to become an active combatant. In a word, there are some elementary, but most important, things for the army medical man to know, and to know thoroughly, or not only will he be in trouble but those under him may suffer. For instance, he must know the routine of getting supplies, the position of the sanitary personnel on the field in time of war, the disposition of the property of the wounded, and the method of reporting various activities. Undoubtedly, therefore, the first order that most commissioned medical reserve officers will receive will be to report to one of the training camps. Here they will spend from two to four months and then they may be transferred to the mobilization camps. Necessarily, there will be some exceptions in this matter of training, as in the case of those connected with base hospital units, and of others who have gone to France and England.

DRAFT OF PHYSICIANS IN ENGLAND

On another page is an account of the recent developments in Great Britain as a result of the shortage of physicians. This is nothing less than the application of the selective draft to the medical profession. The decision of the government to draft medical men of military age was hastened, according to the *Lancet*, by the attacks made by submarines on hospital ships. It had been realized for some time, however, that demands for more medical officers could be met only with difficulty under the voluntary system. "Under that system," says the *Lancet*, "the country has received, and is receiving, the devoted assistance of thousands of medical men who have neither given heed to their financial present or their professional future, nor to the personal dangers of the medical soldier, as revealed in the ever-growing lists of our dead and wounded colleagues." It is the conditions that are so forcibly emphasized by this recent action of the War Office of Great Britain in resorting to the draft that has prompted the earnest appeal to the United States for physicians, which is being responded to so nobly.

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1. All medical officers are mounted. Lieutenants and captains are supplied with horses by the government; majors furnish their own horses (THE JOURNAL A. M. A., May 12, 1917, p. 1416).

INTENSIVE METHODS IN INFANT WELFARE WORK

Believing that the prevention of tuberculosis among young children would yield a return for the effort and money expended, and that such preventive work would be most efficient if carried out by a responsible unit in a restricted area, the Tuberculosis League of Pittsburgh arranged for an experiment covering eight blocks in a poor section of the city. The blocks were thickly settled by a mixed foreign population. The work of city agencies and charitable organizations was closely correlated and concentrated especially on infant welfare. Prophylactic clinics were held and careful treatment given slight ailments, such as noses and ears affected with discharges, and other conditions commonly neglected in such districts. Great pains were taken to teach the mothers and older daughters how to feed infants properly. At the same time a house to house survey was made and the nationality, housing conditions, sanitation and family income compared with the physical condition of each family. The response on the part of the mothers, foreign as well as American, was quite satisfactory; they were eager to learn the better ways of caring for infants, and were quick to realize the benefit to the whole family resulting from sound health of the baby. The work was continued for one year, and during that time the death rate in the area was 43 per thousand lower than for the whole ward—a strong indication of the great effectiveness of intensive work in infant welfare. It is unfortunate that the experiment, which was intended to cover fifteen years, was soon abandoned, largely, it is said, because of opposition to the methods as too paternalistic. In view of the undoubted effectiveness in preventing death and disease of such methods, they should receive much wider application.

THE WASTEFUL NOSTRUM

In his younger days, H. G. Wells, the novelist, was a "chemist's assistant" — drug clerk. The first-hand knowledge he there obtained of the nostrum evil was turned to splendid account in his classic "Tono-Bungay," the life-history of a "patent medicine." In the closing chapter, where Mr. Wells moralizes on the lessons taught by the incidents related in the book, he questions the wisdom of the title he has given it. "I have called it *Tono-Bungay,* but I had far better have called it *Waste.*" And any one at all familiar with the nostrum evil must agree with him. Waste, futile and yet monstrous; waste of money, waste of efficiency, waste of health, yes, waste of life itself are the indictments that stand fairly and squarely against the great majority of "patent medicines." In times such as those through which we are now passing it seems preposterous that an intelligent people should tolerate so tremendous a drain on its resources. It has been conservatively estimated that each year the United States spends $150,000,000 for nostrums. This, however, is but a fraction of the total loss from this cause. The waste of time, due to ineffective treatment, the resultant charges for medical attendance that would otherwise have been unnecessary, to say nothing of the amount spent for medical advice by those who, having nothing the matter with them, have been frightened by lurid advertisements into believing they were sick — all go to swell the huge financial burden imposed by the nostrum. If every worthless or fraudulent "patent medicine" were eliminated from the American market today, the public would be the beneficiary to the extent of better health and millions of dollars. The only ones who would suffer would be nostrum exploiters — and physicians. For, contrary to the popular belief, a belief assiduously instilled into the public mind by the "patent medicine" fraternity, the nostrum is the physicians' greatest business-getter. As we have often said, out of every ten men who are led to believe, by the scare-heads of some "kidney cure" advertisement, that a passing soreness in the lumbar regions means kidney disease, seven or eight of them will go to their physicians for the two or three who go to the drug counter. Thousands of sick, who, if properly treated at the outset would have been speedily returned to the ranks of the healthy, are brought, by reliance on the nostrum, to the place where long and expensive medical treatment becomes imperative. Whether or not we have reached the place where meatless and breadless days may be an economic necessity, there is no better time than the present for the American people to usher in a nostrumless year. The gain that would follow in health, efficiency and finances would be one more of the great surprises that the present world conflict has produced.

THE RESPONSIBILITY OF THE COUNTY SOCIETY IN PREPAREDNESS

Every county medical society should appreciate its opportunity and realize its responsibility in the mobilization of the medical profession for war. Besides securing volunteers from its membership, there are two things which, if they are to be done, the county society must do. The first is to adopt measures by which, in their absence, the interests of those who volunteer shall be protected, so far as this is humanly possible. The sacrifice a physician makes in leaving his practice for a protracted period of time is unique. The bookkeeper, the clerk, the artisan, the clergyman, the merchant can be guaranteed his position on his return. The merchant, the banker, the farmer, the lawyer can arrange with another, or with his partner, to look after his business during his absence. But the physician's practice — his "business" — is different; there is a personal relationship between a physician and his patient that makes the transference of the patient from one practitioner to another almost, but not quite, impossible. In the great majority of instances, where there is an honest, earnest, fraternal effort on the part of the physicians of a community to do the right thing, they will succeed. This applies to keeping the enlisted physician's place in his community open for his return to civil practice. Already many societies have taken action in this connection.[1] We

1. Medical Mobilization and the War, The Journal A. M. A., April 14, 1917, p. 1131; April 21, 1917, p. 1190; April 28, 1917, p. 1270; May 5, 1917, p. 1331.

cannot emphasize too strongly the propriety of this, especially in communities in which this personal relationship of the family physician is recognized. The second is to consider the people's interests. In some communities which have but one physician it would be a public calamity to have that physician leave for the war. Yet the physician may consider his duty to his country greater than his duty to his community. This honorable ambition should not be discouraged, but the county society should consider how the needs of the people can be provided for, either by a locum tenens — who should be what the word actually means, a substitute for the time the doctor is absent — or by arranging with neighboring physicians to render the service. It is not probable that many county societies will have such problems on hand, but some undoubtedly will. In any event, THE JOURNAL urges every society which has not already done so to call a meeting to discuss the problems immediately before our profession. It should require but little effort at this time to get every member to such a meeting. The presidents and secretaries of county societies as well as the committees on medical preparedness have unusual responsibilities in this matter. Now is the time for action.

MEDICAL STUDENTS AND THE DRAFT

The report of the Conference Committee of the Senate and House, on the bill authorizing the president to increase the military staff of the United States by selective draft, makes certain exemptions. These do not include the medical student; they do include theological students. Why theological students should be exempt we do not know; possibly it is on the supposition that they are "conscientious objectors." We can hardly believe it possible that Congress will pass this law without recognizing the importance of sustaining the continued production of medical men. France and England have suffered from neglecting or overlooking this point. The great cry in France and in England is for more medical men, and the need probably is just as great with the Central Powers, if the facts were known. The first demand on us after we became one of the allies was for medical men. If Congress accepts the conference report as it stands, the first "regulation" made by the War Department should exempt medical students.

THE MEDICAL OFFICER A SOLDIER

Judging from a few letters which have been received, there are some who are considering making application for the Medical Reserve Corps, but who hesitate and ask for information because they do not know what their destination will be after they receive a commission, or whether they will have any choice in the matter. A few evidently fear that they may be sent to France, to the front; others, on the contrary, seem to fear that they may not be sent abroad, and may not get into real active service at the front. When a physician accepts a commission in the Medical Reserve Corps of the Army he, by that act, accepts a commission in the army itself and becomes a soldier. As a soldier, he obeys orders and goes where he is sent. If he likes it he smiles and goes; if he does not like it he smiles and obeys without grumbling—if he is a true soldier. This comment is simply a statement of fact which every member of our profession must bear in mind at the present time.

Medical Mobilization and the War



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MEDICAL MILITARY INFORMATION FOR PHYSICIANS

Any of the following mentioned pamphlets or circulars will be sent by The Journal on receipt of a stamped self-addressed envelope:

1. What the Civilian Doctor Called to Active Service with the Army Should Know, by Major W. J. Lyster; a reprint of three articles which appeared in The Journal, giving the duties of the physician in the zone of the interior, on the line of communication, and in the zone of the advance.

2. The Medical Corps of the Army as a Career, by Major R. E. Noble; reprinted from The Journal, March 31, 1917.

3. Rules for the Examination of Recruits; consisting of G. O. No. 66 and Circular No. 2, giving the regular technic of examination of recruits for the United States Army.

4. Examining Boards for Applicants for the Medical Reserve Corps; a list of boards officially constituted to pass on applicants for the Medical Reserve Corps.

5. Instructions to Officers of the Medical Reserve Corps; a list of sixteen points to receive the first attention of the reserve officers when called to active duty.

6. Information Regarding Application for Appointment in the Medical Reserve Corps.

7. Application Blanks for Appointment to the Medical Corps and to the Medical Reserve Corps.

Organization of Hospital Units

To supplement and assist established military hospitals, the American Red Cross has organized a number of "Hospital Units." Such units, or detachments from them, may also be assigned to duty on hospital trains, hospital ships, or on any other military sanitary organization that the exigencies of the service may require. Hospital units may possibly be used to perform hospital service in connection with training, mobilization and concentration camps. As a general rule the organization of a hospital unit is approved in connection with a civil hospital which does not have a staff large enough to permit of the organization of a base hospital.

An ARMY HOSPITAL UNIT is made up of one director, one adjutant, two chiefs of service, four staff surgeons, four staff physicians, one head nurse, twenty nurses, three clerks, who may be women, and such number of orderlies as may be necessary, not to exceed fifty without special authorization. All of the officers in an Army Hospital Unit will be commissioned in the Medical Reserve Corps of the Army. Orderlies will be enlisted in the medical department of the army. All nurses must be enrolled as Red Cross nurses.

A NAVAL HOSPITAL UNIT consists of one director and seven medical officers, without nurses, orderlies or equipment.

Whenever it is desired to form a Hospital Unit a letter should be addressed to the DIRECTOR-GENERAL OF MILITARY RELIEF, the American Red Cross, Washington, D. C., requesting authority to form such a unit and nominating a prospective director.

Hospital Units have already been organized as follows:

Philadelphia, Presbyterian Hospital, Dr. John H. Jopson, director.
West Chester, N. Y., Dr. C. E. Getty, director.
Spokane, Wash., Dr. S. E. Lambert, director.
Wheeling, W. Va., Ohio Valley General Hospital, Dr. Frank LeMoyne Hupp, director.
Richmond, Va., Memorial Hospital, Dr. Robert C. Bryan, director.
New York City, Harlem Hospital, Dr. Lewis K. Neff, director.
New York City, Fordham Hospital, Dr. Alexander Nicoll, director.
New York City, Flower Hospital, Dr. R. S. Copeland, director.
Portland, Me., Dr. W. L. Cousins, director.
Minneapolis, University of Minnesota Medical School, Dr. Frank Todd, director.
Council Bluffs, Ia., Dr. Donald McRae, director.
Pittsburgh, Allegheny General Hospital, Dr. B. W. Caldwell, director.
Fort Wayne, Ind., Hope Hospital, Dr. Miles F. Porter, director.
Charlotte, N. C., Dr. Addison G. Brenzier, Jr., director.
Memphis, Tenn., Memphis General Hospital, Dr. Battle Malone, director.
Grand Rapids, Mich., Dr. Richard H. Smith, director.
Fairfield, Ia., Dr. J. Fred Clark, director.
Nashville, Tenn., Vanderbilt University, Dr. Richard A. Barr, director.

Base Hospitals Ordered Abroad

As previously announced in these columns, base hospitals Nos. 2, 4, 5, 10, 12 and 21 are ordered to prepare for active service abroad. As is also known, No. 4 of Cleveland and No. 5 of Harvard University are in transit or, rather, probably have landed on the other side. Nos. 2, 10, 12 and 21 have been ordered to leave immediately. We give below the personnel of these four:

Base Hospital No. 2, Presbyterian Hospital, New York City. Commanding Officer, Major L. L. Hopwood, Medical Department, U. S. Army. Director, Dr. George E. Brewer, New York. Drs. William Darrach, Homer Swift, Fordyce B. St. John, John A. McCreery, Alwain M. Pappenheim, Sydney R. Burnap, W. A. Woolsey, Armitage Whitman, John P. Peters, Willard B. Soper, Louis Casamajor, A. R. Stevens, W. Barclay Parsons, Benjamin R. Allison, Malcolm McBurney, Roderick V. Grace, William F. Cunningham, Austin Hobbs, Gerhard Cocks, Henry S. Dunning and E. H. Raymond. The two last named are dentists.

Base Hospital No. 10, Pennsylvania Hospital, Philadelphia. Commanding Officer, Major Matthew A. Delany, Medical Department, U. S. Army. Director, Dr. Richard H. Harte, Philadelphia. Drs. George W. Norris, John H. Gibbon, Henry C. Earnshaw, Charles F. Mitchell, Edward B. Hodge, Arthur Newlin, Norris W. Vaux, William T. Shoemaker, John E. Sweet, William J. Taylor, Francis R. Packard, Edward Krumbhaar, Arthur H. Gerhard, Henry K. Dillard, William Drayton, J. Flick, William B. Caldwalder, John Joseph Cloud, John M. Cruice, Charles S. Jack and Edwin Shoemaker. The two last named are dentists.

Base Hospital No. 12, Northwestern University Medical School, Chicago. Commanding Officer, Major Christopher C. Collins, Medical Department, U. S. Army. Director, Dr. F. A. Besley, Chicago. Drs. Milton Mandl, Kellogg Speed, Payson L. Nusbaum, M. R. Chase, Walter Nadler, Philip M. Dale, Sumner L. Koch, Adam G. Sherman, J. J. Lebovitz, Walter L. Strandberg, John K. Bird, S. W. Clark, C. W. Freeman, Philip L. Glaspel, William E. Harwood, Gerard N. Krost, Eugene F. Talbot, C. W. Robertson, A. H. Barnett, John Ross Neal, Robert W. Baker, Robert W. Eaton, John Henkin and Erling O. Ravn.

Base Hospital No. 21, Washington University Medical School, St. Louis. Commanding Officer, Major James E. Fife, Medical Department, U. S. Army. Director, Dr. Fred T. Murphy, St. Louis. Drs. Malvern B. Clipton, Walter Fischel, Nathaniel Allison, Borden S. Veeder, Eugene L. Opie, Lawrence T. Post, Sidney I. Schwab, Meredith R. Johnston, Henry G. Greditzer, Hugh McCulloch, Warren R. Rainey, Charles H. Eyermann, Philip P. Green, Frederick B. Abbott, Arthur W. Proetz, Chesney, Roland F. Fisher, Allen A. Gilbert, Joseph W. Larimore, Howard H. Bell, Edwin C. Ernst, Levi Fuson, Fred J. Brockman and James A. Brown.

Compulsory Mobilization of the English Medical Profession

On April 21, Lord Derby, secretary of state for war, addressed a letter to members of the medical profession in Great Britain stating that it had become essential to establish a large number of hospitals overseas in the various theaters of war, and that in order to allow this to be done with great rapidity it was essential to secure the services of every member of the medical profession who could possibly be spared from England. The war cabinet decided as the first step in this process that every medical man of military age—under 41 years—should be called up at once. Then it is to be determined whether he can be spared from his locality, and if not, steps will be taken for securing substitutes for his work. Every medical man summoned is instructed to communicate immediately with the Central Medical War Committee or the Scottish War Emergency Committee any circumstances which make it impossible for him to go. The date for the call was May 6.

Following the publication of Lord Derby's letter to the medical profession a discussion was held at a special joint meeting of the Central Medical War Committee of the British Medical Association and the Committee of Reference of the Royal Colleges in whose hands, up to the present, has been the responsibility for protecting the medical needs of the civilian community while meeting the requirements of the army. It has been left to this committee to determine how many and what physicians could be spared at any given time from civilian work in any particular community. The joint committee adopted a resolution to the effect that it could not continue this work unless the War Office would undertake not to grant any commission to a doctor even though volunteering for service whom the committees considered indispensable for civilian work for the time being. The reason for this action was the great shortage of physicians existing in several places. For instance, one town with a population of over 20,000 in which the chief industry is the manufacturing of chemicals and munitions, had but four physicians, all of military age. Another town with a population of over 60,000, in which the chief industry is ship building had but ten physicians, seven of whom were of military age, and in a country town with a population of over 20,000 there were four physicians of whom three were of military age. There are thus today in England numerous districts in which there is only one physician to over 5,000 people. The committee pointed out to the War Office that it would certainly be inadvisable to take all the physicians away from the first town mentioned and leave a population of 20,000 in a munitions area entirely without physicians. These facts were presented to Lord Derby under date of April 25. He replied on the same date as follows:

> I am in receipt of your letter of April 25, and in answer to it I beg to state that I agree that the procedure prevailing up to last week with regard to the selection of doctors shall be continued, and I will further agree not to give a commission to any doctor except on the recommendation of your Committee.
>
> Your Committee is asked to provide the Army with x doctors by May 1, and y doctors per week after that date until the requisite number z has been found. In the event of the number so asked for not being forthcoming, I must reserve to myself the right at any time to reconsider the position.
>
> I trust that this arrangement will be agreeable to your Committee, and that they will continue doing the excellent work for the War Office that they have done in the past.

The Registration and the Draft

Registration and the selective draft represent two distinct steps in the process of securing an army by this method. Registration will consist simply of enrolling the names of all male residents of the United States between the ages of 21 and 30. Every male resident between the designated ages must be registered on the day set unless he is in the regular army, the navy, the national guard or naval militia, actually in the federal service. We presume that membership in the Medical Reserve Corps is equivalent to membership in the army. The enrolling is done in each voting precinct by a registrar appointed for the purpose. The duties of the registrar are mandatory, and performed under oath. He is liable to heavy penalty for making a false return or in any way being a party to favoritism or evasion. A similar penalty is imposed on the person who fails to register. Later comes the process of selection. This is made by lot from the names entered on the registration rolls. The exemptions and methods of selection are to be published later. To conduct the registration adequately, interpreters will be needed in the foreign sections of large cities to assist in answering questions on the registration cards. The War Department requests that volunteers for this work offer their services at once to the sheriffs of their respective counties, or in cities of 30,000 or over, to the mayor. In this work physicians practicing among those speaking a foreign language should be of special assistance.

Prostitution to Be Suppressed, and the Sale of Alcoholic Beverages Regulated, About Military Establishments

The report of the conference committee of the Senate and House of Representatives on the bill authorizing the President to increase the military establishment of the United States, proposes that the president be authorized to make regulations governing the prohibition of alcoholic liquors in or near military camps and to the officers and enlisted men of the army, and that the secretary of war be authorized, empowered and directed during the present war to prevent prostitution about military establishments. In order to prevent the abuse of alcoholic liquors, no person may sell, supply, or have in his possession any intoxicating or spirituous liquors at any military establishment that is being used at the time for military purposes, but the secretary of war may make regulations permitting the sale and use of such liquors for medicinal purposes. It is made unlawful to sell any intoxicating liquor, including beer, ale or wine, to any officer or member of the military forces while in uniform, except as such regulations may permit. The power which it is proposed to vest in the secretary of war for the suppression of prostitution will enable him to do everything he deems necessary to suppress and prevent the keeping or setting up of houses of ill fame within such distances of any military establishment as he deems proper.

Mobilizing the Medical Reserve Corps

During the past three weeks decided progress has been made in securing officers for the Medical Reserve Corps. For the week ending April 28, 341, for the following week, 284, and for the week ending May 12, 413 men were recommended for commission in the Medical Reserve Corps; that is to say, during these three weeks, 1,038 physicians were recommended for commissions. Our readers may be interested in knowing that up to May 10 between 800 and 900 applications had been sent in on the blanks appearing in THE JOURNAL, April 21.

Progress in Organization of Base Hospitals

In addition to the twenty-nine base hospitals listed in THE JOURNAL, March 31, 1917, page 989, the following Red Cross base hospital units have been organized:

No. 30, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO, Dr. Wallace I. Terry, director.

No. 31, YOUNGSTOWN CITY HOSPITAL, YOUNGSTOWN, OHIO, Dr. Colin R. Clark, director.

No. 32, INDIANAPOLIS CITY HOSPITAL, Dr. John H. Oliver, director.

No. 33, ALBANY HOSPITAL AND MEDICAL COLLEGE, ALBANY, N. Y., A. W. Elting, director.

No. 34, EPISCOPAL HOSPITAL, PHILADELPHIA, Dr. Charles H. Frazier, director.

No. 35, GOOD SAMARITAN HOSPITAL, LOS ANGELES, Dr. J. J. A. Van Kaathoven, director.

No. 36, COLLEGE OF MEDICINE FACULTY, Detroit, Dr. Bert R. Shurley, director.

No. 37, KINGS COUNTY HOSPITAL, NEW YORK, Dr. E. H. Fiske, director.

No. 38, JEFFERSON COLLEGE HOSPITAL, PHILADELPHIA, Dr. W. M. L. Coplin, director.

Curtailment of Sanitary Appropriations During the War

In view of a reported tendency in some states to reduce the appropriation for sanitary purposes, in order to increase their appropriations for military ends, the Conference of State and Provincial Health Officers at its meeting in Washington, D. C., April 30, appointed a committee to wait on the conference of the governors of the states (which happened to be in session in Washington at the time of the meeting) to urge on the state and territorial governments the importance of maintaining and even of improving civil sanitary administration, in view of the intimate relation between the health of the people generally and the health of the military and naval services.

Local Civil Service Lists to Be Used by Federal Government

The President has issued an order that the United States Civil Service Commission is authorized in its discretion, to adopt any eligible register of any state, county or municipal civil service commission to meet the needs of the federal government for appointment in the civil service. The United States commission must be satisfied that the examinations by the local commissions conform to the requirements of competition prescribed by the United States Civil Service Acts and Rules, and that the examinations are fairly conducted and equivalent to its own. The eligibles thus utilized may be certified and appointed in the order of their grades in the same manner as though they had passed the federal examination, and will be entitled to all the rights and privileges pertaining to persons examined under the United States Civil Service Act. This action is of interest to medical men who are connected with examining boards for the various medical positions. They may now avail themselves of local civil service lists for their clerical help instead of selecting employees from the eligible list of the United States Civil Service Commission.

Conservation of Medical Practices During the War.—The Medical Society of the District of Columbia, on May 9, by a unanimous vote adopted the principles for the conservation of the medical practices of physicians temporarily absent on military duty as printed in THE JOURNAL, April 14, 1917, page 1131. The executive committee was instructed to report to the society within two weeks a workable plan for carrying these principles into effect in the District of Columbia.

Practice of Physicians in Military Service.—A committee appointed by the William Pierson Medical Library Association, Orange, N. J., to consider protective action for medical men who join the military forces has made a report which was adopted by the association, April 20. It is proposed to organize the William Pierson Medical War Committee to care for the practice of medical men of Essex County, N. J., outside of Newark, who may join the military forces of the nation.

The First Detail from Illinois.—The Military Preparedness Committee of Illinois, in response to a telegram from the War Department, has forwarded the names of the following twelve officers, who are nominated to sail for France in June: Drs. John E. Kelley, Fred W. Moeller, Charles H. McKenna, John G. Frost, Hugh J. Duffy, James Redmon, Lester L. Long, Alexander H. Barnett, Leon Unger, Walter J. Sullivan and Cyril J. Larkin. The twelfth man is H. H. Pullinger of Algonquin.

Medical Reserve Division Organized.—At a meeting recently held at the First Regiment Armory, Newark, the New Jersey Division of the Medical Reserve Corps, U. S. Army, was organized and the following officers were elected: president, Lieut. David A. Kraker, Newark; vice president, Lieuts. Martin W. Reddan, Trenton; James L. Evans, Woodcliff, and Harrison S. Martland, Newark; secretary, Lieut. Joseph McDonald, Jr., East Orange, and treasurer, Lieut. Ambrose F. Dowd, Newark.

An Appeal Made for Siberian Ambulance Companies.—Mr. Kalpaschnikoff-Camac, commander of the Twenty-First Flying Column of the First Siberian Corps of the Russian Army, has come to the United States to enlist the sympathy and support of the American people for his Siberian Regiments which are greatly in need of ambulance service. He asks for subscriptions to provide ambulances for this work and asks donors to make checks payable to the Siberian Ambulances, and to mail them to the National City Bank of New York, 55 Wall Street, New York.

Ambulance Unit from Hopkins.—An ambulance unit is being equipped at the Johns Hopkins University for immediate service in France. This action is in response to the War Department's call for 1,400 men for ambulance work. The units will go to France as soon as the men are organized and equipped. Each unit will consist of thirty-six men, divided as follows: a sergeant, two corporals, three mechanics, two cooks, two clerks, two orderlies, twenty-four ambulance drivers. At the Johns Hopkins University at Homewood about thirty students have already applied for service in the unit.

State Committee for Porto Rico on Red Cross Medical Service.—The Bulletin of the Medical Association of Porto Rico states that the following doctors have been appointed by the National Committee at Washington to organize the State Committee on Red Cross Medical Service: W. F. Lippitt, B. K. Ashford, W. A. Glines and J. Aviles. The people of Porto Rico are delighted at the passage of the Jones bill conferring citizenship on the inhabitants and a more liberal form of government. The Medical Association of Porto Rico was one of the first to become affiliated with the American Medical Association, without waiting for citizenship. A committee has been appointed in the local associa-

tion to aid in the celebration in honor of these historical political events.

Illinois Accepts Responsibility.—At the annual meeting of the Illinois State Medical Society, in Bloomington, May 9, resolutions were adopted calling on every member to accept his full share of the war burden; recommending that all members that are between 22 and 35 years of age, report immediately for examination for war service, and that all between 35 and 55, enrol in the Medical Reserve Corps; that it be considered the patriotic duty of physicians who remain at home, to take over the private practice of those in the military service, pay a just share of fees to the families of the absent physician and after the war return the practice, inviolate. The society also recommends the total abolition of alcoholic drinks in military camps.

Baltimore Doctors Off for the Front.—Dr. J. A. Campbell Colston and Dr. William G. Jack, members of the surgical staff of the James Buchanan Brady Institute at the Johns Hopkins Hospital, have left for France. Nothing but the receipt of their commissions, their equipment and their orders regarding the time of departure and the details of their duties, stand in in the way of the departure of the rest of the "first 15," among whom are the following: Drs. David M. Davis, Baltimore, Brady Institute, Johns Hopkins Hospital; Earle G. Breeding, Washington, D. C., University of Maryland; Dr. Francis F. Callahan, Seaview Hospital, New York; William F. Jenkins, Seaview Hospital, New York; John E. Evans, University of Maryland; Dr. William H. Toulson, Baltimore, University of Maryland; Samuel O. Pruitt, Bayview Hospital; William F. Williams, Bayview Hospital; George L. Stickney, University Hospital, and Maurice C. Pincoffs, Baltimore.

Military Status of Base Hospitals.—A Kansas physician writes:

1. "Please inform me of the military status of the Red Cross base hospitals which have been organized in this country. 2. Do the members of the staff receive regular commissions in the Army Medical Corps? What is their remuneration?"

1. In time of war the service and equipment of the American National Red Cross is subject to orders by the War Department and becomes a part of the sanitary service of the land forces. This, of course, includes the base hospitals. When a base hospital is taken over by the War Department, the personnel thereby becomes subject to military laws and regulations.

2. Before a member of these units would be qualified for transference to the medical department, he necessarily would have to be commissioned in the Medical Reserve Corps, and would receive pay according to his rank.

Medical Schools Cooperate with the Navy.—The Jefferson Medical College, Philadelphia, and the Medical Department of Harvard University and the Boston City Hospital, Boston, have tendered to the surgeon-general of the navy the facilities at their disposal, for the special training of physicians who are about to enter the Medical Corps of the Navy. Their offers have been accepted, and plans are being made to conduct at the institutions named special courses of instruction for physicians who have passed their examinations for admission to the regular medical service of the navy. The courses thus laid out will permit the simultaneous training of a larger number of prospective naval surgeons than can be accommodated at one time at the Naval Medical School at Washington. Should the exigencies of the service permit, however, all officers will be given the advantages of a course at the Naval Medical School before being assigned to active duty.

Maryland Doctors Ready to Serve.—Already 175 Maryland doctors have received or are awaiting commission in the Medical Officers Reserve Corps, U. S. Army, including the fifteen who have been selected for immediate service in distributing hospitals in France. Of this number seventy-one have undergone mental and physical examinations for the army service. The examinations have been given at the Johns Hopkins Hospital by a board composed of Drs. John Staige Davis, Cary B. Gamble, Jr., Arthur M. Shipley and Lloyd B. Whitham. Ten more Maryland doctors will leave for the front about the first of June, and probably ten more will go in July, under the War Department's plan to send 200 physicians a month to France.——Letters are being sent out to all physicians in Baltimore and the state by Drs. Hugh H. Young and Gordon Wilson, chairman and secretary, respectively, of the Committee on Medical Preparedness, asking them to state whether they are ready to go to the front, and to those who have decided to remain, whether they will take over the practices of the physicians going to the front until their return.

Psychiatric Base Hospital for Maryland.—The Maryland Psychiatric Society held a meeting at the Medical Library, Baltimore, May 10, to organize a psychiatric base hospital unit, and to offer their services and facilities in the state to the government, for the purpose of affording care and treatment for soldiers and sailors who will suffer from nervous and mental disorders as a result of the war. A committee was appointed to confer with the governor relative to the expense of the unit. The most suitable location for the hospital is believed to be at the Spring Grove State Hospital, Catonsville, in the recently completed Psychopathic Reception Hospital Building, which is at present unoccupied, and can be used for treating between 200 and 300 patients. All that is needed to equip this building and place it at the disposal of the government within sixty to ninety days is an appropriation of about $40,000, which the special session of the legislature will be asked to provide. The members of the committee are: Drs. Arthur P. Herring, Baltimore, chairman; Joseph C. Clark, Sykesville; J. Percy Wade, Catonsville; Robert P. Winterode, Crownsville; William R. Dunton, Jr., Townson; Andrew C. Gillis, Baltimore, and Henry J. Berkley, Baltimore.

Michigan State Medical Society Meets in Special Session.—The Michigan State Medical Society convened in special session in the Masonic Temple, Battle Creek, on May 10. The purpose of the meeting was to consider the duty of the profession in the war. Addresses were made by Dr. Andrew P. Biddle, Detroit, president of the Michigan State Medical Society, and other recognized leaders of the profession of the state emphasizing the obligations which must be met by physicians and calling for volunteers. Arrangements were made so that the medical boards authorized to pass on applications for the Medical Reserve Corps met during the day, received applications and examined the applicants. Dr. Reuben Peterson, Ann Arbor, chairman of the state committee on medical preparedness, made a report which outlined the activities taken by the component societies of the state association in providing the quota of physicians for the government services which Michigan should furnish and called attention to the work still to be done.

A report from the council was received and adopted. This report authorized the council, at its discretion, to omit the annual session of the state organization which would ordinarily have convened in Battle Creek during the fall of this year.

A motion was adopted requesting that medical students and premedical students who agree to place their services at the command of the medical departments of the government, at the termination of their training, be given some insignia to indicate that they are following a course approved by the federal government.

Swiss Medical Profession on a War Footing.—War has not directly invaded Switzerland, but the military forces have been kept on a war footing for nearly three years. Dr. E. de Buman, in a recent address before a medical organization, told how this had affected the profession. He commented on the multiplicity of duties it entailed, the sacrifices that had to be made and the devoted services that had been lavished. "For some," he said, "there were the sudden separations, the sacrifice of a career laboriously built up, the crumbling of the dreams for the future. For others there was the extra work at the hour when weariness and age called for taking things less strenuously; for all it was the obligation to break with a life of well organized work and to sacrific on the altar of patriotism the most legitimate and the dearest aspirations. Our younger confrères left, full of zeal, to respond to the appeal of the military authorities. The older men added to their work in the hospitals and elsewhere an extra amount of labor and efforts, while the still older ones shouldered anew the burdens which they had partially shifted to younger men. . . . From behind the French front, in Belgium, in the Balkans and elsewhere, we hear of the devotion of Swiss physicians who are leading special missions at many points. In Switzerland it has been the medical profession that has made the most lavishly the greatest sacrifices. . . . The physicians of Switzerland took up the task of superintending the exchange of incapacitated prisoners of war, and the care of the thousands and thousands of interned sick and wounded. This whole matter was placed exclusively in the hands of the medical profession. And it can well be proud of the immense amount of good it has done and is doing in these lines."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

New Society Organized.—The Randolph County Medical Association was organized recently at Pocahontas. Dr. R. R. Johnson, Holmes, was elected president; Dr. William E. Hughes, Pocahontas, secretary, and Dr. Carl J. Scheid, Pocahantas, treasurer.

Medical Examiners Named.—The governor, on May 8, reappointed Dr. Oran D. Ward, England, and Dr. Thomas J. Stout, Brinkley, members of the State Board of Medical Examiners, and appointed Dr. Hugh H. Henry, Eagle Mills, a member of the board to succeed Dr. James C. Wallis, Arkadelphia, who was ineligible on account of having served two terms on the board.

New State Officers.—At the forty-first annual meeting of the Arkansas Medical Society, held in Little Rock, May 1-3, under the presidency of Dr. Merrieman L. Norwood, Lockesburg. Jonesboro was selected as the next place of meeting and the following officers were elected; president, Dr. William Breathwit, Pine Bluff; vice presidents, Drs. Homer A. Stroud, Jonesboro; Edward F. Ellis, Fayetteville, and William W. York, Ashdown; secretary, Dr. Clinton P. Meriwether, Little Rock (reelected); treasurer, Dr. William R. Bathurst, Little Rock; delegates to the American Medical Association, Drs. William T. Wootton, Hot Springs; Thomas F. Kittrell, Texarkana, and Clinton P. Meriwether, Little Rock, and councilors, first district, Dr. John H. Stidham, Hoxie; third district, Dr. Henry H. Rightor, Helena; fifth district, Dr. Foster Jarrell, Huttig; seventh district, Dr. James E. Jones, Sheridan, and ninth district, Dr. Leonidas Kirby, Harrison.

ILLINOIS

Smallpox at Stronghurst.—On account of the prevalence of smallpox at Stronghurst, where thirty-four cases have been reported, Dr. Edwin B. Godfrey, Springfield, of the state board of health, has been sent to take charge of the situation. All public meetings have been prohibited, churches and schools have been closed and general vaccination has been made.

Public Health and Welfare Meeting.—The first annual convention of the Illinois Public Health and Welfare Association was held in Springfield, April 12, under the presidency of Dr. George Thomas Palmer, Springfield. The presidential address described the formation and character of the association. In the absence of Dr. James W. Pettit of Ottawa, Mr. Thurber read a paper on the general subject of tuberculosis control. The association adopted resolutions endorsing the efforts of the newly created department of public health as regards the training and licensure of midwives; the safeguarding of the health of the Illinois troops especially against tuberculosis, and the senate bill which gives the state department of public health supervision over the installation and operation of public water supplies and sewerage; urging the governor and legislature to make adequate appropriations for the proper conduct of the state department of public health in all its activities, and endorsing the efforts of the Illinois Society for the Prevention of Blindness to prevent blindness and conserve the vision of citizens of the state.

Chicago

Personal.—Dr. Charles P. Caldwell has been reelected president of the board of directors of the Municipal Tuberculosis Sanitarium and Mr. T. Bowden De Forest has been elected secretary to succeed Dr. John Dill Robertson.——Dr. Frank Billings has been named as secretary of the Illinois State Council of Defense.

Smallpox.—Five cases of smallpox were discovered near Forty-Seventh and Federal Streets, May 2. Forty vaccinators were ordered to go to this district and vaccinate all those who had not been vaccinated recently. During the first four months of 1917, sixty cases of smallpox were reported, more than for both 1915 and 1916.

The Ricketts Prize.—On May 3, the anniversary of the death of Dr. Ricketts from typhus fever, the Howard Taylor Ricketts prize for research by students in the departments of pathology, bacteriology, and hygiene in the University of Chicago was awarded to Enrique E. Ecker, for his work entitled, "The Pathogenic Effect and the Nature of a Toxin Produced by Bacillus Paratyphosus B."

Hospital Purchases Building Site.—The Deaconess Institute of the Swedish Evangelical Lutheran Church has purchased the property of the United States Brewing Company at Garfield Avenue and Sedgwick Street as the new Augustana Hospital. The property is 379 by 268 feet. The consideration named in the deed is $100,000 and the buildings are expected to cost between $80,000 and $90,000.——Mr. Charles J. Happel has been promoted from business manager to general superintendent of the Municipal Tuberculosis Sanitarium.——Dr. Maximilian Herzog has been appointed superintendent of research work at the institution.——Mr. Frank E. Wing, business director of the sanatorium, has been appointed general secretary of the United Charities, Rochester, N. Y.

State Medical Society Meeting.—At the sixty-seventh annual meeting of the Illinois State Medical Society, held in Bloomington, May 15-17, under the presidency of Dr. William L. Noble, Chicago, the following officers were elected: president, Dr. Elmer B. Cooley, Danville; president-elect, Dr. Edward W. Fiegenbaum, Edwardsville; vice presidents, Drs. Edwin P. Sloan, Bloomington, and Sadie Bay Adair, Chicago; secretary, Dr. Wilbur H. Gilmore, Mount Vernon; treasurer, Dr. A. J. Markley, Belvidere; councilors, first district, Dr. Emil Windmueller, Woodstock; second district, Dr. Edwin S. Gillespie, Wenona, and eighth district, Dr. Cyrus E. Price, Robinson; delegates to the American Medical Association, Drs. Don W. Deal, Springfield; Roy R. Ferguson, Chicago; Charles J. Wahlen, Chicago; Alban L. Mann, Elgin; William O. Krohn, Chicago, and Clarence B. King, Chicago. Springfield was selected as the meeting place for 1918.

INDIANA

Barber Shops Closed.—Complying with an order issued by the state health commissioner, all barber shops in Hartford City have been closed for disinfection on account of the prevalence of "barber's itch."

New Building for University.—Steps have been taken to insure the erection of a new building for the Indiana University School of Medicine on a site near the Robert W. Long Hospital, Indianapolis.

Society Reorganized.—Physicians of White County met at Monticello, April 20, and reorganized the White County Medical Society, electing the following officers: president, Dr. Guy R. Coffin, Monticello; vice president, Dr. Ross M. Reagan, Monon; secretary, Dr. Homer B. Gable, Monticello, and treasurer, Dr. Madison T. Didlake, Monticello.

Personal.—Dr. Wilbur R. Hurst has been appointed local surgeon of the Louisville and Nashville Railway at Evansville, succeeding Dr. Pitt Y. McCoy, deceased.——Dr. Mitchell O. De Vaney, Indianapolis, has been appointed health commissioner of Marion County to succeed Dr. Jay D. Nusbaum.——Dr. Joseph Rilus Eastman, Indianapolis, has returned after ten months in charge of an army base hospital in Vienna.

KANSAS

McCormack Lectures at Lawrence.—Dr. Arthur T. McCormack, secretary of the Kentucky State Board of Health, delivered a course of lectures at the state university, Lawrence, during the last week of April and also attended the meeting of the city and county health officers, which was held in that city.

State Medical Society Meeting.—At the fifty-first annual meeting of the Kansas Medical Society, held in Salina, May 2-4, under the presidency of Dr. James W. May, Kansas City, the following officers were elected: president, Dr. Charles S. Huffman, Columbus; vice presidents, Drs. Tyler D. D. Blasdel, Parsons; Elmer E. Morrison, Great Bend, and Henry E. Haskins, Kingman; secretary, Dr. John F. Hassig, Kansas City, and treasurer, Lewis H. Munn, Topeka; delegate to the American Medical Association, Dr. James W. May, Kansas City; councilors, fourth district, O. Portis Davis, Topeka; fifth district, John J. Brownlee, Hutchinson, and third district, J. S. Mitchell. Kansas City was selected as the place of meeting for 1918.

MARYLAND

Johns Hopkins Hospital Needs Money.—The trustees of the Johns Hopkins Hospital have issued a letter to a limited

number of persons in which they draw attention to the fact that the institution is in need of the sum of about $30,000 to cover a deficit caused not alone by the increase in the cost of supplies, but also of the heating material of the institution. The hospital trustees feel that they will have to close the Johns Hopkins Convalescent Home for Crippled Children, one of the branches of the hospital, if sufficient sums are not contributed to enable them to keep this institution open. The main hospital is crowded and there is a waiting list of many persons who need medical attention.

Packing House at State Hospital.—The management of the Springfield State Hospital, at Sykesville, has adopted a plan by which it expects to increase the farm products at the institution. Last year Dr. Joseph C. Clark, the superintendent, had a small packing house erected at the institution and in this some 4,000 gallon cans of tomatoes were packed, also 3,000 cans of apples and peaches. This spring the plant will be enlarged and an effort to can vegetables in sufficient quantities to supply the hospital. The labor of preparing the fruit for packing will be done by women patients; some forty-five will be detailed to this work. In addition to conserving the resources of the hospital, the management thinks that employment for the women inmates will be of great value.

NEBRASKA

County Society Organizes.—Physicians of Antelope County met at Neligh, April 23, and perfected the organization of the Antelope County Medical Association, electing Dr. Stanley C. Clements, Neligh, president, and Dr. Uen S. Harrison, Topeka, secretary-treasurer.

State Medical Society Meeting.—The Nebraska State Medical Association held its forty-ninth annual convention at Lincoln, May 8-10, under the presidency of Dr. William S. Milroy, Omaha, and the following officers were elected: president, Dr. Charles L. Mullins, Broken Bow; vice presidents, Drs. Lucien Stark, Hartington, and Asa W. Montgomery, Stella; secretary, Dr. Joseph M. Aikin, Omaha (reelected); treasurer, Dr. Alexander S. von Mansfelde, Ashland, and librarian, Dr. William P. Wherry, Omaha.

NEW JERSEY

Course in Sanitary Science.—Rutgers College, New Brunswick, announces the establishment of a course in sanitary science for the special preparation of public health officers.

Public Health Study.—The first meeting in a course of study on public health, one of the activities of the Newark branch of the National League for Women's Service in the local board of health, was held in the health department auditorium, May 7, when boards of health, sanitary ordinances and the health code were discussed.

NEW YORK

Whitney Drug Bill Signed.—Governor Whitman has signed the Whitney committee's bill strengthening the law controlling the sale and distribution of habit forming drugs and providing that state health authorities may issue small amounts of narcotics in an effort to cure addicts.

Typhoid Lawsuits Settled.—The sixty-five lawsuits growing out of the typhoid fever cases which followed a trip of national guardsmen of Rhode Island, on the steamer *Rochester*, at the time of the Perry Centennial Celebration at Buffalo, was settled April 28, on a basis of $110,000 cash. The fever was traced to bad water furnished on the steamer, and fifty-nine cases of typhoid fever with six deaths resulted.

Personal.—Dr. Daniel S. Burr has resigned after eighteen years' service as health officer of Binghamton, and on his retirement was presented with a handsomely engraved cane by the employees of the board of health.——The completion by Dr. Louis P. Faust, Schenectady, of forty years in the practice of medicine, was celebrated, April 10, by the Schenectady County Medical Society, which gave a dinner in honor of Dr. Faust, at the Mohawk Club.

Meeting of Women Physicians.—The eleventh annual meeting of the Women's Medical Society of New York State was held in Utica, April 23, under the presidency of Dr. Eveline P. Ballintine, Rochester. The following officers were elected: president, Dr. Emily Dunning Barringer, New York; vice presidents, Drs. Marie L. Chard, New York; Mary T. Greene, Castile, and Florence I. Staunton, Utica; secretary, Dr. Ethel Doty Brown, New York, and treasurer, Dr. Phoebe M. Van Voast, New York.

New York City

Oral Hygiene Week.—The week beginning May 13 was celebrated in this city as "Oral Hygiene Week." Representatives of the various dental societies, the department of health and the department of education have cooperated to make the program of the week interesting and instructive. The usual methods, lectures, lantern slides and moving pictures, posters, pamphlets, toothbrush drills, etc., were employed to awaken public interest.

Instruction in Diagnosis of Pulmonary Tuberculosis.—The courses of instruction in contagious diseases given to the practicing physicians of the city during the past two years by the department of health have been so well received that it has been decided to inaugurate a similar course of instruction in the early diagnosis of pulmonary tuberculosis. The courses are of two weeks' duration, three sessions a week, and will be held in the tuberculosis clinics of the different boroughs. There are no fees, but physicians enrolling are expected to attend regularly. Applications may be made in writing to Dr. Bertram H. Waters, Bureau of Preventable Diseases, Department of Health, 139 Centre Street. The application should state the physician's choice for morning or afternoon course.

NORTH CAROLINA

District Physicians Meet.—At the annual meeting of the Ninth District Medical Society, held in Hickory, Mooresville was selected as the next place of meeting; Dr. Henry C. Menzies, Hickory, was elected president, and Dr. Andrew E. Bell, Mooresville, vice president.

Memorial Service for Aviator.—Memorial services for Sergt. J. R. McConnell, aviator in the French Service who was killed, March 18, were held at Carthage, April 1, and it was decided that the infirmary at the Eureka Farm Life School be named the McConnell Memorial Hospital.

Personal.—Dr. Julian G. Busby, Salisbury, has been forced to give up his practice for several months on account of a nervous breakdown, and is under treatment at Johns Hopkins Hospital, Baltimore.——Dr. Hubert A. Royster, Raleigh, was the guest of honor at the April meeting of the Pasquotank-Camden-Dare Counties Medical Society.

New Members of State Board.—The governor has appointed Dr. J. Howell Way, Waynesville, a member of the state board of health for a term of six years succeeding himself, and Dr. Edward C. Register, Charlotte, a member to succeed Dr. William O. Spencer, Winston-Salem. The state medical society elected Drs. Charles O'H. Laughinghouse, Greenville, and Thomas E. Anderson, Statesville, members of the state board of health, to succeed themselves. At the meeting of the board for organization, Dr. J. Howell Way was elected president to succeed himself.

State Medical Society Session.—The sixty-third annual meeting of the Medical Society of the State of North Carolina, was held in Asheville, April 17-19, under the presidency of Dr. Charles O'H. Laughinghouse, Greenville. Pinehurst was selected as the place of meeting for 1918, and the following officers were elected: president, Dr. Isaac W. Faison, Charlotte; vice presidents, Drs. William DeB. MacNider, Chapel Hill, Joseph B. Greene, Asheville, and Benjamin F. Royal, Morehead City; secretary, Dr. Benjamin K. Hays, Oxford (reelected), and treasurer, Dr. William M. Jones, Greensboro. The dominant subject at the meeting was medical preparedness. Strong arguments regarding the need of the country for medical officers were made by Drs. George W. Crile, Cleveland, and John W. Long, Greensboro, and a number of physicians took their examinations at this time for the Medical Reserve Corps.

NORTH DAKOTA

Hospital News.—The General Hospital Association, Minot, has purchased for $21,000 the McKeane property, as a site for the new hospital. On this site a building will be constructed at a cost of $100,000. A campaign is on foot at Hazen to raise $25,000 with which to build a hospital.

Personal.—Dr. Jacob F. Brenckle has been appointed surgeon for the Minneapolis, St. Paul & Sault Sainte Marie Railway Company at Kulm.——Dr. Charles J. McGurren, Devil's Lake, has been reappointed secretary of the state board of health.——Dr. Joseph P. Weyrens, Taylor, has been appointed a Fellow of the Mayo Foundation, Rochester, Minn.

PENNSYLVANIA

Personal.—Dr. Eugene Swayne, Philadelphia, has been appointed a major in the Medical Corps and assigned to command field hospital No. 3, Philadelphia.——Dr. Daniel E. Sable of Pittsburgh has been appointed major in the Medical Corps and assigned to the First Artillery.

Philadelphia

Tyson Testimonial Dinner.—At the testimonial dinner (May 11) given by the Philadelphia County Medical Society to Dr. James Tyson on his retirement after fifty-four years of practice, Dr. Hobart A. Hare was toastmaster and addresses were made by the following speakers: Dr. Henry D. Jump, president of the Philadelphia County Medical Society; Dr. Abraham Jacobi, New York; Dr. William H. Welch, Baltimore; Dr. James W. Holland, and Dr. Edward Martin. Besides Drs. Jacobi and Welch, the out-of-town guests included Drs. Theodore C. Janeway, Baltimore; Lewellys F. Barker, Baltimore; Frederick C. Shattuck, Boston; George Dock, St. Louis, and Cyrus Lee Stevens, Athens, Pa.

CANADA

Verdict on Chiropractic.—Investigating the death of a M. C. R. engineer in St. Thomas, Ont., who died from the effects of typhoid fever while under the treatment of a chiropractor, a coroner's jury returned a verdict that his death was due to fever, lack of nourishment, and improper treatment. They recommended: "We strongly recommend to the city solicitor or proper officials that the provincial government be petitioned with a view to compelling chiropractors to pass their matriculation, and define in their diplomas the diseases in which they are entitled to practice. We further are strongly of the opinion that they should not be allowed to mislead the public by their professional advertising."

Ontario Medical Commission.—Mr. Justice Frank Hodgins, the commissioner, held a session of the commission on May 11 and 12, in the Parliament Building, Toronto. Dr. John Ferguson, retiring president of the Academy of Medicine, appeared before the commission and read a paper from the point of view of the medical practitioners which was authorized by the academy. He declared that osteopaths and chiropractors were not scientists, claiming that they were but rubbers and manipulators, and described their pretensions and treatments as "diabolical and shameful." In his opinion the chiropractors were offshoots of the osteopaths, and that while once they worked together, they were now separated. He further declared that Christian Scientists were not practitioners of medicine. Justice Hodgins expressed his gratification that the medical profession had placed their views in writing through Dr. Ferguson, and asked the Christian Scientists to do likewise, stating that a day would be set for hearing their side of the question.——Surg.-Gen. John T. Fotheringham, C. M. G., also appeared before the commission and outlined the treatment of soldiers during his two years at the front, as well as in command camps. The treatment, which consisted of physical exercises, baths, heat and light, he declared had proved very satisfactory. It was one largely of recent growth, but the work was being done under experienced medical men and the results were very satisfactory. Justice Hodgins read a summary of the treatment from a paper by Major R. Tait Mackenzie, A. M. A., in which he showed that 50 per cent. of the men so treated were able to return to the firing line, while a Belgian doctor declared that at least 35 per cent. of the patients he had treated were soon made fit again. Surg.-Gen. John T. Fotheringham declared that the training could not satisfactorily be obtained during the student's undergraduate course, but should be taken up in postgraduate course; and any doctors he had working under him in these cases would have to take the officers' training course. There were no civil hospitals that the general knew of that were fitted up as the hospitals at command camps in England were; at any rate not to the same extent, and a separate building was almost needed.——Lieut.-Col. Irving H. Cameron, Toronto, informed the commission of what he had learned in England while connected with the Duchess of Connaught Hospital. There had been a great stimulation in the use of these methods and a great advance in experience. The treatment was used for fractures, dislocations, sprains, and gunshot wounds, but he could not say whether surgical cases were treated more largely than medical cases.——Dr. Charles R. Dickson, Toronto, had some complaints to make to the commission. He objected to the Roentgen-ray treatment being given at the General Hospital, Toronto, by one who was not a medical man; and he thought the Toronto General Hospital should not advertise about its treatment for different things, as it was considered unethical for a medical man to advertise. Justice Hodgins asked Dr. Dickson to give him the dates of said advertisements, and he would look into the matter. Dr. Dickson thought medical men should pay more attention to the teaching of psychology; then they would not have to bother their heads about chiropractors et al.

GENERAL

Railway Surgeons Elect Officers.—At the annual meeting of the Association of Railway Chief Surgeons, held in Chicago, May 7, the following officers were elected: president, Dr. Daniel Z. Dunott, Baltimore; vice president, Dr. Arthur M. Hume, Owosso, Mich.; executive board, Drs. Oscar Leseure, Detroit; Clarence W. Hopkins, Chicago, and Duncan Eve, Nashville, Tenn., and secretary-treasurer, Dr. Louis J. Mitchell, Chicago (reelected).

New Hospital in Porto Rico.—The new Presbyterian Hospital at Santurce, Porto Rico, was recently dedicated with much ceremony. It is built entirely of concrete and cost $145,000. The Medical Association of Porto Rico was represented at the ceremonies by Dr. Toro, the vice president, who remarked in his address that nothing in a country is such an index of the degree of civilization it has attained as the hospital.

"Patent" and Proprietary Medicines Dentifrices, etc., to Be Taxed.—The War Revenue Bill reported to the United States House of Representatives, on May 9, proposes a tax on proprietary and so-called patent medicines, whether for human beings or for animals, amounting to 5 per centum of the price for which sold. The tax is to be collected on all medicinal preparations, compounds, or compositions the manufacturer or producer of which claims to have any private formula, secret, or occult art for making or preparing, or which are prepared or sold under any letters patent or trade mark. The tax is to be applicable likewise if the substances are prepared by any formula, published or unpublished, and are held out or recommended by the manufacturers or sellers as proprietary medicines or proprietary medicinal preparations, or as remedies or specifics for any disease or affection relating to the human or animal body. A like tax is to be collected on petrolatums, tooth and mouth washes, dentifrices, tooth pastes, and toilet soaps and powders.

Conference on Habit-Forming Drugs.—A conference on habit-forming drugs, called by the National Drug Trades Conference, met in Washington, D. C., May 1 and 2. The National Drug Trades Conference itself was represented by delegates from its constituent organizations, the American Pharmaceutical Association, the National Wholesale Druggists' Association, the National Association of Retail Druggists, the American Association of Pharmaceutical Chemists, the American Drug Manufacturers' Association (formerly the National Association of Manufacturers of Medicinal Products), and the Proprietary Association of America. About twenty-five persons were present, including representatives from the United States Navy, the United States Public Health Service and the United States Internal Revenue Office. James H. Beal, Urbana, Ill., representing the American Pharmaceutical Association, submitted an analysis of the answers to a questionnaire sent by him to sixty-five members of the wholesale drug trade. Sales of narcotics sold on the official order blanks of the Internal Revenue Office showed an apparent average diminution of 66.2 per cent. Sales of proprietary compounds exempt under section 6 of the Harrison Narcotic Law showed diminished sales, according to eleven of those who responded to the questionnaire, amounting to from 10 to 80 per cent., but thirty-four others who responded said that there had been little or no change. Of the nonproprietary compounds exempt from the operation of the law, including paregoric, there had been increased sales. R. C. Stofer of Norwich, Conn., representing the American Association of Pharmaceutical Chemists, which comprises forty establishments selling to 40,000 physicians, reported that both physicians and druggists had worked earnestly for the control of the sale of habit-forming drugs. Sales in 1917 when compared with sales in 1915 show considerable decreases: cocain, 47 per cent.; opium, 34 per cent.; morphin, 45 per cent.; heroin, 29 per cent., and codein, 53 per cent. These decreases occurred despite a 40 per cent. increase in business generally. Heroin is apparently replacing codein and mor-

phin. Such abuses as occur are due to smugglers, burglars and pedlers. Abraham C. Webber, assistant district attorney, Suffolk District, Boston, was of the opinion that the supply of habit-forming drugs used by addicts comes largely from physicians and druggists who have evolved various methods of evading the law. L. L. Walton, Pennsylvania, announced that the proposed Pennsylvania narcotic law provides for the registration of addicts and the certification of each one for treatment by one specified physician. A special committee appointed to formulate and present to the National Drug Trades Conference the suggestions made during the joint conference called by it presented a report, which was adopted by the conference, in substance as follows:

The results of public and private investigations prove a great diminution in the distribution of habit-forming drugs. The supply to addicts and to the underworld is through unregistered dealers, smuggling, theft, and burglary. Further and stringent precautions should be taken against smuggling. To protect against theft and burglary, manufacturers, dealers, physicians and others having habit-forming drugs in their custody should keep their stocks in vaults or safes, to which no one should have access who is not known to be absolutely reliable.

The difficulty which the addict encounters in obtaining through lawful channels a supply of drugs to meet his imperative cravings creates a market for smuggled and stolen drugs of this kind, and leads to unlawful sales. Until the law makes provision whereby those already addicted to the use of drugs can obtain through recognized channels supplies that are adequate, for their needs, legislation can not prevent unlawful traffic.

Treatment of addicts whether public or private, should be under strict public supervision and control. Private sanatoria seem in many cases to be conducted for revenue only, and to perpetuate the drug habit. The institutions for the treatment of drug habit should be under the control and supervision of the authorities charged with the enforcement of the laws controlling the distribution of habit-forming drugs.

A law to be susceptible of effective enforcement must make possession of the tabooed drugs *prima facie* evidence of violation of the law, placing the burden of proof upon the defendant to justify such possession. State antinarcotic laws should provide for the revocation of license of physicians and pharmacists who wilfully violate them. Possession of hypodermic needles and syringes by addicts should be made unlawful. Whether addicts could or could not be safely entrusted in the course of treatment with habit-forming drugs for self-administration was not determined.

Revision of the postal regulations relating to the admission to mails of poisons, including narcotics, was recommended, and any amendment of the Harrison Narcotic Law except as suggested at the previous meeting of the National Drug Trades Conference was opposed.

FOREIGN

Personal.—Dr. Charles MacDonald, who has been practicing at Guayaquil, Ecuador, since last July, has returned to his home in Salem, N. J.——Rev. Elliott H. Thomson, archdeacon of Shanghai, China, who went to that country as a missionary in 1859, and was the founder of St. Luke's Hospital, died in that city recently.

Resolutions Against Use of Morphin in China.—At a joint conference of the National Medical Association and the China Medical Missionary Association held recently, a resolution was adopted placing on record the conclusions of the conference that the uncontrolled use of morphin will do far more harm to China than was ever done by opium. It was stated that this imminent danger can be averted only by the Chinese government enforcing without delay the provisions of the Hague Opium Convention so as to confine the employment of morphin to legitimate medical uses.

Death of Landouzy.—The death of Louis Landouzy, dean of the University of Paris, aged 72, is reported by cable. The Journal mentioned recently (Feb. 3, 1917, p. 383), that the French government had awarded him the gold "epidemics" medal, for his long and ceaseless study of tuberculosis and means to reduce its ravages, and his pioneer work in social prophylaxis which has supplanted the old ideas of "public health" work. He was also mainly instrumental in the organization of special welfare work for tuberculous soldiers during the last year and a half. In bestowing this medal on him the government sought to emphasize the endemic nature of tuberculosis. He was professor of clinical medicine, with his service in the Laennec Hospital, and was one of the founders and editors of the *Revue de médecine*. A leading part in international medical gatherings was frequently imposed on him. His term "typhobacillosis" has thrown light on many puzzling cases, as also his discovery of tuberculosis in infants and the tuberculous nature of pleurisy without tubercles. His leading principle, as he strove to impress it in his classes, was that we must be "preventers of disease as well as curers of the sick."

PARIS LETTER

Paris, April 19, 1917.

The War

A FORM OF TUBERCULOSIS COMMONLY OBSERVED IN THE ARMY

At the reunion of the physicians of the Fourth Army, Bauchant called attention to a group of symptoms believed to have a tuberculous basis occurring in a number of patients sent as doubtful to the central clearing station of the army. It concerns young subjects having, in the great majority of cases, a history of some past pulmonary trouble at the beginning of the war. On admission these patients present a condition of asthenia, and pallor of the face, with loss of weight of many pounds. The cough is constant, dry, capricious and always nocturnal. The expectoration is mucous or mucopurulent, with, rarely, streaks of blood. Tubercle bacilli are never found. A "stitch in the side" is always present. Its location is variable, being encountered both at the apex and at the base of the lung. Dyspnea is marked, occurring on slight effort, or even while lying in bed. Examination of the lung reveals signs of pleurisy. They may be located in all parts of the lung, but especially at the apex and at the base, at the site of the stitch in the side. Its presence is revealed on the surface sometimes by dry crepitation, very fine, necessitating for its discovery extremely delicate exploration. There is ordinarily no modification of the breath sounds, fremitus, or even obscuration of the respiration. More often the foci are multiple and frequently involve both lungs. The intensity of the signs varies from day to day. At first sometimes sibilant sounds are noted, but their duration is always transient. The exploration of the interscapulovertebral space shows, in young subjects almost constantly, and more rarely after the age of 30, the signs of tracheobronchial adenopathy, blowing, pectoriloquy, hollow voice and cough. At the apex of the axillary and cervical regions are found always a number of glands, hard, rolling under the finger, painless, having the size of a lentil or small pea or even larger. Roentgenologic examination furnishes inconstant results. More frequently the transparence of the lung is normal. Sometimes a part of the lung is slightly clouded. Most frequently enlarged glands are found in the region of the hilum. Fever is present in nearly all cases, which never exceeds 38 C. (100.4 F.). Most often it varies between 37.2 C. (99 F.) in the morning and 37.8 C. (100 F.) in the evening. It is not perceived by the patient. Sweating is always present. Other symptoms at times present are digestive disturbances, attacks of diarrhea, palpitation and a lowering of arterial tension, and fleeting pains in the joints and the head. There is above all an asthenia out of proportion to the general state of the patient who maintains his appetite.

The outcome of the condition is in general favorable, but after a variable time. From this point of view one can distinguish a light form in which the physical signs and the fever disappear in three weeks; a moderate form, the most common, which is prolonged for from five to ten weeks, and a more persistent form in which the symptoms may continue for two months or more. After apparent recovery a considerable rest is necessary before the patient recovers his usual strength. This form of benign tuberculosis is encountered at present with extreme frequency.

SYCOSIS IN THE ARMY

Spillman of Nancy, at the meeting of the physicians and surgeons of the Eighth Army, called attention to the frequency with which sycosis is observed among the troops in the field. This affection, inefficiently treated, keeps a great number of men out of service for many weeks and even several months, and with the usual forms of treatment it is difficult to avoid recurrences. Roentgenotherapy, judiciously employed, accomplishes a rapid, definite cure. This fact, under the circumstances, is of great importance. It shows the advantages of evacuating, as soon as possible, on the centers of dermatology, cases of persistent sycosis, roentgenotherapy being the therapeutic procedure most certain to return to the firing line patients whom it would be necessary, under ordinary forms of treatment, to detain for too long a time in the hospitals.

THE TAX ON WAR PROFITS AND PHYSICIANS

Gilbert Laurent, deputy, asked the minister of finance: 1. Does the tax on extraordinary war profits apply to the members of the liberal professions (lawyers, physicians, etc.)? 2. In case of an affirmative answer, how will these profits be established? The reply was: The law of July 1, 1916, in enumerating those subject to the extraordinary tax, names, without any restriction, the persons liable to the tax. It

follows that the tax must apply to taxable persons exercising the liberal professions, and it is established, in that case, following general rules, to take as a base the excess profits of each period of imposition over the normal profits.

PERSONAL HYGIENE OF THE TROOPS

The health service is preparing thirty new formations which, under the name of sections of body hygiene, will be charged with the cleanliness of the troops in the field. These formations, created on the demand of the general staff, will have charge of the sleeping tents and quarters, the showers, changes of clothing, and disinfecting apparatus. These outfits will provide for the body hygiene of 800 men per day.

LONDON LETTER

London, April 28, 1917.

The War

THE TORPEDOING OF HOSPITAL SHIPS AND THE SUPPLY OF PHYSICIANS

The sinking of two hospital ships without warning by the Germans has rendered more urgent the provision of additional physicians for the army. One ship was carrying slightly wounded men of whom twenty-nine, with twelve of the crew, have been lost. The other carried 234 wounded British, 167 wounded Germans and a medical personnel of fifty-two. Of these thirteen wounded British, one member of the medical corps and fifteen wounded Germans were lost. One of the vessels bore the distinctive marks laid down by the Hague conference. In future hospital ships will bear no distinctive marks and will proceed at night without lights, as the prescribed marks only render them a better target for an enemy who respects neither the rules of warfare nor the dictates of humanity. The International Red Cross Committee at Geneva has protested to the German government against the order to sink hospital ships. The British government has decided to establish a large number of hospitals overseas in the various theaters of war for the treatment of the sick and wounded, so as to avoid as far as possible the opportunity for these outrages. To do this it has become essential to secure the services of every physician who can possibly be spared from this country. As a first step it was decided that every physician of military age should be mobilized at once. The government also expressed the hope that every physician over military age would offer his services as willing to undertake any substitution work within his capacity which would help to release a man of military age who could otherwise not be spared.

VENEREAL DISEASE IN THE ARMY

In moving in the House of Commons the second reading of the Venereal Diseases Bill (described in previous letters to THE JOURNAL) Mr. Hayes Fisher said that it was not a war measure but that experience showed that after a war, outbreaks of the disease were certain to occur and it was essential that no time should be lost in making provision to deal with the matter. It should not be concluded that there was any increase in the disease. For the general population there are no accurate statistics, but the deaths recorded from syphilis suggest that this disease is stationary or at all events not increasing. Before the war, statistics showed a satisfactory decline in the army and navy. At present, so far as figures can be obtained, there is nothing to show an increase. The Royal Commission on Venereal Disease reported that no less than 10 per cent. of the population in the great towns are infected with syphilis and a greater proportion with gonorrhea. Sixty-one schemes, serving a population of over 19 millions have been approved and schemes covering a population of 6 millions are being submitted for approval. The government has introduced the present bill as a complement of legislative administrative action which has already been taken. It prevents the treatment of venereal disease otherwise than by a duly qualified physician or the dispensing of any remedy except on the written prescription of such physician. So far this is the only class of disease the treatment of which by an unqualified person will be prohibited by law. In a country where regard for the liberty of the individual is carried much farther than in any other, the government had to repudiate the charge of shutting out from the field of healing every one except qualified physicians. They pleaded that this was an exceptional case and that when they provided free a remedy of a scientific character they had a right to say that people should not go to some one who would treat them inefficiently.

Association News

NEW YORK CLINICAL SESSIONS

(*Continued from page 1425*)

ADMISSION TICKETS to the Clinics, Demonstrations and Exhibits incorporated in the Clinical Sessions program will be issued *only* to members and guests who register and make application at the American Medical Association Headquarters.

GUESTS other than physicians and dentists will not be admitted to the medical and surgical clinics.

SPECIAL BADGES and BUTTONS will be issued to guests (other than physicians and dentists) of the Clinical Sessions and of the American Medical Association who wish to attend the demonstrations, moving pictures and exhibits or inspect the different nursing, medical, municipal and public health institutions arranged for in the program by the Committee on Preventive Medicine and Public Health and the Committees on Allied Topics, including Trained Nursing and Training Schools, District Nursing System, Hospital Social Service, and Planning and Financing of Municipal and Non-Municipal Hospitals.

FELLOWS OF THE AMERICAN MEDICAL ASSOCIATION may apply in advance by mail for tickets of admission to the Clinical Sessions. In writing for the three sessions (Monday afternoon, Tuesday morning and Tuesday afternoon) give first, second and third choice, as seating capacity of amphitheaters is limited. Tickets of admission will be delivered after registration at the American Medical Association Headquarters.

GENERAL CLINICAL SESSIONS COMMITTEE[1]

Wendell C. Phillips, Chairman
Samuel G. Gant, Sec. — **D. Campbell, Asst. Sec.**
Alexander Lambert — **Floyd M. Crandall**

ANESTHETICS

JAMES T. GWATHMEY, Chairman — T. DRYSDALE BUCHANAN, Secretary
A. F. ERDMANN — JOSEPH E. LUMBARD
ISAAC D. KRUSKAL — CHARLES J. PICK

MONDAY MORNING, JUNE 4

BELLEVUE HOSPITAL—9. Open and closed method; ether.

BROOKLYN HOSPITAL—9. Nitrous oxid-oxygen, Dr. George Tong.

GERMAN HOSPITAL—9. Ether; chloroform anesthol; open; nitrous oxid-oxygen, ether; closed, Fischer apparatus; endotracheal.

GOUVERNEUR HOSPITAL—9. Ether; drop closed method.

HOSPITAL FOR DEFORMITIES AND JOINT DISEASES—9. Open drop; ether.

HOSPITAL FOR RUPTURED AND CRIPPLED—9. Open drop: ether; children; ethylchlorid.

LONG ISLAND COLLEGE HOSPITAL, Brooklyn—9. Collection of anesthesia charts.

METHODIST EPISCOPAL HOSPITAL, Brooklyn—9. Drop method; ether.

NEW YORK INFIRMARY FOR WOMEN AND CHILDREN—9. Demonstration, Dr. Alma Vedin.

POST-GRADUATE HOSPITAL—9. Nitrous oxid-oxygen; continuous; nitrous oxid-ether; closed, Dr. Buchanan.

PRESBYTERIAN HOSPITAL—9. General; gas-ether.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH—10. Endotracheal introduction of tube and efficient anesthetic and respiratory effect of endotracheal method on a dog with a wide open thorax; efficient effect endopharyngeal insufflation (Meltzer method) according to Meltzer method on a cat with open thorax; method of administering oxygen efficiently on an animal with open thorax, Dr. S. J. Meltzer.

ST. CATHERINE'S HOSPITAL, Brooklyn—9. Sequential, automatic dropping combination inhaler; nitrous oxid-oxygen, Drs. Sanders or Meeks.

ST. MARY'S FREE HOSPITAL FOR CHILDREN—9. Ether inhalation.

STATEN ISLAND HOSPITAL—11. Open-closed method: gas-ether, Dr. Louise Rosenzweig.

WOMEN'S HOSPITAL—9. Open drop: ether.

MONDAY AFTERNOON, JUNE 4

BELLEVUE HOSPITAL—2. Open and closed: ether.

BETH ISRAEL HOSPITAL—2. Oil-ether: colonic and endotracheal, Dr. S. B. Ehrlich.

BROOKLYN HOSPITAL—2. Nitrous oxid-oxygen, Dr. George Tong.

CITY HOSPITAL, Blackwell's Island—2. Open method: ether.

CUMBERLAND STREET HOSPITAL, Brooklyn—2. Endopharyngeal anesthesia; semiopen: ether, Drs. Sanders, Bomar or May Anderson.

EYE AND EAR HOSPITAL, Brooklyn—2. Exhibition apparatus, Dr. Erdmann.

1. The complete program will be available in due season, and will be mailed to those who request it, sending to the committee a stamped addressed envelope.

FORDHAM HOSPITAL—2. Open drop; ether; semiopen drop; closed-open drop; gas ether; vapor; oxygen ether, Dr. P. J. Flagg.
GERMAN HOSPITAL—See program, German Hospital, 9 a. m. Monday.
GOUVERNEUR HOSPITAL—2. Drop or closed: ether.
HARLEM HOSPITAL—2. Colonic anesthesia, oil ether; ethylchlorid-ether, open; vapor, and other methods, Dr. J. E. Lumbard.
HOSPITAL FOR DEFORMITIES AND JOINT DISEASES—2. Open drop: ether.
HOSPITAL FOR RUPTURED AND CRIPPLED—Open-drop method: ether; children started with ethylchlorid.
JEWISH HOSPITAL, Brooklyn—2. Closed: ether vapor; nitrous oxid-oxygen, Dr. I. D. Gruskal.
LONG ISLAND COLLEGE HOSPITAL, Brooklyn—2. Exhibition: anesthesia charts, Dr. Erdmann.
LYING-IN HOSPITAL—2. Open cone: ether.
MEMORIAL HOSPITAL—2. Closed ether; nitrous oxid and ether; infiltration and conduction; novocain and epinephrin, Dr. W. G. Doran.
METROPOLITAN HOSPITAL, Blackwell's Island (boat leaves foot East 70th Street, 2 o'clock)—2:30. Intravenous anesthesia, Dr. W. F. Honan.
MOUNT SINAI HOSPITAL—2. Endopharyngeal insufflation; nitrous oxid-oxygen and ether; anesthesia in major surgery; endothoracic surgery.
NEUROLOGICAL HOSPITAL—2. Etherometer; ether.
NEW YORK HOSPITAL—2. Endotracheal and other pharyngeal insufflation, Dr. Alma Vedin.
NEW YORK INFIRMARY FOR WOMEN AND CHILDREN—2. Demonstration, Dr. Alma Vedin.
PARK HOSPITAL—2. Colonic; oil-ether, Dr. H. D. Meeker.
POLYCLINIC HOSPITAL—2. Extradural or sacral; cocain combined with gas-oxygen; heated oxygenated ether vapor used in brain surgery and abodominal surgery, Dr. C. S. Hunt; extradural anesthesia, Dr. J. M. Lynch.
POST-GRADUATE HOSPITAL—2. Continuous; nitrous oxid-oxygen; closed; nitrous oxid-oxygen-ether, Dr. Buchanan.
PRESBYTERIAN HOSPITAL—2. General method: gas-ether.
ROOSEVELT HOSPITAL—2. Endotracheal and endopharyngeal insufflation anesthetometer, Dr. Booth.
SKIN AND CANCER HOSPITAL—2. Warm oxygenated ether vapor, Dr. J. T. Gwathmey; colonic anesthesia: oil-ether, Dr. E. M. Foote; local anesthesia, Dr. W. S. Bainbridge.
ST. BARTHOLOMEW'S HOSPITAL—7:30. Warm nitrous oxid and oxygen-ether vapor for adenoid and tonsil cases, Drs. Gwathmey and Palmatier.
ST. LUKE'S HOSPITAL—2. Mechanical drop ether; endotracheal; nitrous oxid-oxygen in major surgery, Dr. H. C. Luke.
ST. MARY'S FREE HOSPITAL FOR CHILDREN—Ether.
ST. VINCENT'S HOSPITAL—2. Ether, Dr. W. G. Doran.
WOMEN'S HOSPITAL—2. Open drop: ether.

Tuesday Morning, June 5

BETH ISRAEL HOSPITAL—9. Nitrous oxid-oxygen-ether, Dr. S. B. Ehrlich.
BELLEVUE HOSPITAL—9. Open-closed: ether.
BROOKLYN HOSPITAL—9. Nitrous oxid-oxygen, Dr. George Tong.
GERMAN HOSPITAL—9. See program, German Hospital, 9 a. m. Monday.
GERMAN HOSPITAL, Brooklyn—10. Warm oxygenated ether vapor, Dr. J. T. Gwathmey.
GOUVERNEUR HOSPITAL—9. Drop or closed: ether.
HARLEM HOSPITAL—9. See program, Harlem Hospital, 2 p. m. Monday.
HOSPITAL FOR DEFORMITIES AND JOINT DISEASES—9. Open drop: ether.
HOSPITAL FOR RUPTURED AND CRIPPLED—9. Open drop: ether; children started with ethylchlorid.
JEWISH HOSPITAL, Brooklyn—9. Closed; ether vapor, nitrous oxid-oxygen, Dr. I. D. Kruskal.
LONG ISLAND COLLEGE HOSPITAL, Brooklyn—9. Exhibition: anesthesia charts.
MEMORIAL HOSPITAL—9. See program, Memorial Hospital, 2 p. m. Monday.
METHODIST EPISCOPAL HOSPITAL, Brooklyn—9. Drop method; nitrous oxid-ether-oxygen.
NEW YORK INFIRMARY FOR WOMEN AND CHILDREN—9-1. Demonstration, Dr. Alma Vedin.
POLYCLINIC HOSPITAL—9-1. Dr. C. S. Hunt; see program, Polyclinic Hospital, 2 p. m. Monday. 10. Local anesthesia, Dr. J. A. Bodine.
POST-GRADUATE HOSPITAL—9. See program, Post-Graduate Hospital, 2 p. m. Monday.
PRESBYTERIAN HOSPITAL—9. General: gas-ether.
ROOSEVELT HOSPITAL—9. Endopharyngeal inhalation, Dr. P. J. Flagg.
ST. CATHERINE'S HOSPITAL, Brooklyn—9. See program, St. Catherine's Hospital, 9 a. m. Monday.
ST. GILES HOSPITAL—8. Ether with nitrous oxid and oxygen: closed, Dr. Erdmann.
ST. LUKE'S HOSPITAL—9. Mechanical drop: ether; endotracheal; nitrous oxid-oxygen in major surgery.
ST. MARY'S FREE HOSPITAL FOR CHILDREN—9. Ether inhalation.
ST. PETER'S HOSPITAL, Brooklyn—8:30. Ether; Allis inhaler.

Tuesday Afternoon, June 5

HOSPITAL FOR RUPTURED AND CRIPPLED—9. Open drop: ether; children started with ethylchlorid.
ROOSEVELT HOSPITAL—9. Endopharyngeal inhalation, Dr. P. J. Flagg.
ST. CATHERINE'S HOSPITAL, Brooklyn—9. See program, St. Catherine's Hospital, 9 a. m. Monday.
ST. GILES HOSPITAL—8. Ether with nitrous oxid and oxygen; closed, Dr. Erdmann.
ST. LUKE'S HOSPITAL—9. Mechanical drop: ether; endotracheal; nitrous oxid-oxygen in major surgery.
ST. MARY'S FREE HOSPITAL FOR CHILDREN—9. Ether inhalation.
ST. PETER'S HOSPITAL, Brooklyn—8:30. Ether; Allis inhaler.

Tuesday Afternoon, June 5

BELLEVUE HOSPITAL—2. Open and closed: ether.
BROOKLYN HOSPITAL—2. Nitrous oxid-oxygen, Dr. George Tong.
CUMBERLAND STREET HOSPITAL, Brooklyn—2. See program, Cumberland Street Hospital, 2 p. m. Monday.
EYE AND EAR HOSPITAL, Brooklyn—2. Exhibition apparatus, Dr. Erdmann.
FORDHAM HOSPITAL—2. See program, Fordham Hospital, 2 p. m. Monday.
GERMAN HOSPITAL—2. See program, German Hospital, 9 a. m. Monday.
GOUVERNEUR HOSPITAL—2. Drop or closed: ether.
HARLEM HOSPITAL—2. See program, Harlem Hospital, 2 p. m. Monday.
HOSPITAL FOR DEFORMITIES AND JOINT DISEASES—2. Open drop: ether.
HOSPITAL FOR RUPTURED AND CRIPPLED—2. Open drop: ether; children, ethylchlorid.
JEWISH HOSPITAL, Brooklyn—2. Closed method: ether vapor; nitrous oxid-oxygen, Dr. I. D. Kruskal.
LONG ISLAND COLLEGE HOSPITAL, Brooklyn—2. Exhibition: anesthesia charts.
LYING-IN HOSPITAL—2. Open cone; ether.
MEMORIAL HOSPITAL—2. See program, Memorial Hospital, 2 p. m. Monday.
METHODIST EPISCOPAL HOSPITAL, Brooklyn—2. Drop method: ether.
METROPOLITAN HOSPITAL, Blackwell's Island—2:30. See program, Metropolitan Hospital, 2:30 p. m. Monday.
MOUNT SINAI HOSPITAL—2. Endopharyngeal insufflation; nitrous oxid-oxygen and ether; anesthesia in major surgery; endothoracic surgery; device for artificial respiration; endopharyngeal anesthesia, Dr. W. Branower; endotracheal anesthesia, Dr. Charles A. Elsberg.
NEW YORK CITY CHILDREN'S HOSPITAL AND SCHOOLS, Randall's Island (boat from foot East 125th Street)—2. Spinal anesthesia, Dr. William Seaman Bainbridge; ethylchlorid, warmed oxygenated ether vapor, Drs. Munkittrick and Gwathmey.
NEW YORK HOSPITAL—2. Gas-oxygen, Dr. Alma Vedin.
POST-GRADUATE HOSPITAL—2. Continuous: nitrous oxid-oxygen; closed: nitrous oxid-oxygen-ether, Dr. Buchanan; nitrous oxid-oxygen-ether, Dr. R. C. Coburn; oil-ether colonic, Dr. B. Douglass; spinal analgesia, Dr. D. W. Furniss.
PRESBYTERIAN HOSPITAL—2. General; gas-ether.
ROOSEVELT HOSPITAL—2. Endotracheal and endopharyngeal insufflation anesthetometer, Dr. Booth.
ST. BARTHOLOMEW'S HOSPITAL—7:30. Warmed nitrous oxid and oxygen-ether vapor for adenoids and tonsils, Drs. J. T. Gwathmey and Palmatier.
ST. LUKE'S HOSPITAL—2. Mechanical drop ether; endotracheal; nitrous oxid-oxygen in major surgery, Dr. H. C. Luke.
ST. MARK'S HOSPITAL—2. Nitrous oxid-oxygen-ether sequence, Dr. S. B. Ehrlich.
ST. VINCENT'S HOSPITAL—2. Ether, Dr. W. G. Doran.
ST. MARY'S FREE HOSPITAL FOR CHILDREN—2. Ether inhalation.
SKENE'S SANITARIUM, Brooklyn—2:30. Ether; Allis inhaler.
STATEN ISLAND HOSPITAL—2. Gas-ether; open; closed, Dr. Louise Rosenzweig.
WOMEN'S HOSPITAL—2. Open drop: ether.

ORTHOPEDIC SURGERY

Virgil P. Gibney, Chairman — T. Halsted Myers
Fred H. Albee — Arthur H. Cilley, Secretary
Henry W. Frauenthal — P. William Nathan
Russell A. Hibbs — Reginald H. Sayre
Walter Truslow

Monday Morning, June 4

BELLEVUE HOSPITAL, Outdoor Department—10. After-care infantile paralysis; demonstration electricity and exercises, Drs. Reginald H. Sayre, F. J. Wettervik.
BETH ISRAEL HOSPITAL—9. After-care infantile paralysis; ambulatory orthopedics, Drs. William Frieder, Edgar Oppenheimer, Isadore Leavy.
GERMAN HOSPITAL—10. Demonstration Zander apparatus, Dr. Jacob Heckman.
VANDERBILT CLINIC—10. After-care infantile paralysis; ambulatory orthopedics, Drs. Charles H. Jaeger, chief; Samuel Boorstein, Harry D. Sonnenschein.

Monday Afternoon, June 4

BELLEVUE HOSPITAL, Ward 40—2. Hospital after-care infantile paralysis; use of electric baking and massage, Dr. Reginald H. Sayre.
BROOKLYN HOSPITAL—3. After-care infantile paralysis; ambulatory orthopedics, Drs. Walter Truslow, chief; E. F. Wolfert, G. H. A. Hunter.
CORNELL UNIVERSITY MEDICAL COLLEGE—1. After-care infantile paralysis; ambulatory orthopedics, Drs. Arthur Gilley, chief; N. P. Breed.
ENGINEERING SOCIETIES' BUILDING, 29 West 39th Street, Auditorium—5. Motion picture exhibition, bone graft (inlay); replacing portion of humerus, Dr. Fred H. Albee.
HOSPITAL FOR DEFORMITIES AND JOINT DISEASES (Dispensary)—2. Obliterating endarteritis, Dr. Henry W. Frauenthal, surgeon-in-chief; late operations for infantile paralysis, Dr. Herman C. Frauenthal; focal infections, Dr. Harry Finkelstein; syphilitic joints, Roentgen ray, Dr. Joseph Roth; gonorrheal joint disease, male, Dr. Max Strunsky; gonorrheal joint disease, female, Dr. John C. Bradner; orthopedic operations, operating room, Dr. Henry W. Frauenthal.

HOSPITAL FOR RUPTURED AND CRIPPLED—1. After-care infantile paralysis; ambulatory orthopedics; postoperative cases; corrective gymnastics, Miss Calderwood. 2. Fractures of the neck of the femur in children, Dr. H. L. Taylor; teeth as an indication of bone disease, Dr. F. W. Roberts; treatment of fractures, new methods, Dr. G. W. Hawley; hemorrhagic osteomyelitis, Dr. George Barrie. 3. Bone dystrophies, Dr. W. W. Strang; quiet hip disease, Dr. William Frieder.

JAMAICA HOSPITAL—2. After-care infantile paralysis, Dr. Henry C. Courten.

LEBANON HOSPITAL—2. After-care infantile paralysis; ambulatory orthopedics, Drs. Samuel Kleinberg, chief; M. Cohn, M. Kaiden; tuberculin in bone and joint tuberculosis, Dr. J. Braun.

MOUNT SINAI HOSPITAL DISPENSARY—1. After-care infantile paralysis; ambulatory orthopedics, Drs. E. Oppenheimer, Sigmund Epstein.

NEW YORK CITY CHILDREN'S HOSPITAL AND SCHOOLS, Randall's Island (East 125th Street ferry half hourly)—2. Clinic. Dr. Benjamin F. Riley.

ORTHOPEDIC DISPENSARY AND HOSPITAL—2. After-care infantile paralysis; ambulatory orthopedics, Drs. Russell A. Hibbs, surgeon-in-chief; Benjamin P. Farrell, assistant surgeon-in-chief; R. E. Humphries, chief of clinic; E. W. Lawrance, Nathaniel Mills, R. S. Farr.

POST-GRADUATE HOSPITAL—4:30. Ambulatory orthopedics; after-care infantile paralysis, Drs. Henry Ling Taylor, P. W. Roberts, William Frieder.

UNIVERSITY AND BELLEVUE MEDICAL COLLEGE CLINIC—3. After-care infantile paralysis; ambulatory orthopedics, Drs. Reginald Sayre, F. J. Wettervik.

TUESDAY MORNING, JUNE 5

BELLEVUE HOSPITAL, Outdoor Department—10. After-care infantile paralysis, Drs. Reginald H. Sayre, F. J. Wettervik.

BETH ISRAEL HOSPITAL—9. After-care infantile paralysis; ambulatory orthopedics, Drs. William Frieder, Henry Finkelstein.

FORDHAM HOSPITAL—10. Hemiplegics; cases showing beneficial effects of early evacuation of the clot; case showing restoration of function in a resected nerve with considerable loss of nerve tissue; Erb's palsy; postoperative cases; case complete recovery following removal of enlarged transverse process of fifth lumbar vertebra, Drs. Alfred S. Taylor, Samuel W. Boorstein; general after-care infantile paralysis; postoperative cases; old cases infantile paralysis; chondroma following trauma, Drs. Samuel W. Boorstein, S. Brody.

GERMAN HOSPITAL—9. Demonstration of Zander apparatus, Drs. Charles H. Jaeger, Charles H. Sanford.

HOSPITAL FOR RUPTURED AND CRIPPLED—8:30. Operations, Dr. Virgil P. Gibney, surgeon-in-chief. 9:30. Operations. Dr. Royal Whitman. 10:30. Operations, Dr. Henry Ling Taylor.

LONG ISLAND COLLEGE HOSPITAL, Brooklyn (Polhemus Dispensary)—10. After-care infantile paralysis; ambulatory orthopedics, Drs. Jacques C. Rushmore, S. L. Fisher, H. C. Fett, H. G. Durham.

ORTHOPEDIC DISPENSARY AND HOSPITAL—8. Operations, Drs. Russell A. Hibbs, surgeon-in-chief; B. P. Farrell, assistant surgeon-in-chief; Robert E. Humphries, Herbert A. Durham.

SEA SIDE HOSPITAL, Coney Island—10. After-care infantile paralysis, 100 ward cases, Drs. Walter Truslow, E. B. Ebright.

VANDERBILT CLINIC—10. After-care infantile paralysis; ambulatory orthopedics, Drs. Charles H. Jaeger, chief; William Frieder.

TUESDAY AFTERNOON, JUNE 5

BELLEVUE HOSPITAL, Ward 40—2. Hospital after-care; demonstration baking and massage, Dr. Reginald H. Sayre; Wards I-7, K-7, cyst of femoral neck; adult and adolescent rickets; slipping of upper epiphysis of femur, Dr. Reginald H. Sayre; round cell sarcoma of head of tibia treated by enucleation and radium, Dr. Joseph B. Bissell.

CORNELL UNIVERSITY MEDICAL COLLEGE—1. After-care infantile paralysis; ambulatory orthopedics, Dr. John S. Ware.

GERMAN EAST SIDE POLYCLINIC—1:30. After-care infantile paralysis; ambulatory orthopedics; postoperative cases, Dr. Dexter D. Ashley.

HOSPITAL FOR RUPTURED AND CRIPPLED—1. After-care infantile paralysis; treatment of scoliosis (*a*) by corrective gymnastics, Miss Calderwood; (*b*) by plaster-of-Paris jackets and braces, Dr. S. Kleinberg; photographic and Roentgen-ray demonstration of orthopedic conditions, Mr. Percy R. Ashley; treatment of congenital clubfoot in babies, and general plaster-of-Paris work, Dr. William L. Sneed; result of operation for deformities following poliomyelitis, Dr. Royal Whitman. 2:30. Fracture of neck of femur, Whitman's abduction method, Dr. B. H. Whitbeck; treatment of injury to tibial tubercle (Osgood-Schlatter's disease), Dr. Richmond Stevens. 2:30. Joint manifestations due to tonsillar affections; operations, Dr. James J. King.

LEBANON HOSPITAL—2. After-care infantile paralysis; ambulatory orthopedics, Dr. Jacob Grossman.

LONG ISLAND COLLEGE HOSPITAL, Brooklyn (Polhemus Dispensary—12:30. Operations, Dr. Jacques C. Rushmore.

MONTEFIORE HOME AND HOSPITAL—2. Chronic multiple arthritis; cases; peculiar types chronic bone disease; cases, Dr. George R. Elliott; neurologic conditions associated with polyarthritis, Drs. I. Strauss, P. William Nathan; pathology and treatment, polyarthritis, Dr. P. William Nathan; tuberculous arthritis treated by heliotherapy; neglected hemiplegics treated by orthopedics, Dr. S. W. Boorstein.

MOUNT SINAI DISPENSARY—1. After-care infantile paralysis; ambulatory orthopedics, Drs. P. William Nathan, William Frieder, Isadore Leavy.

NEW YORK AMERICAN BABY HOSPITAL, Brooklyn—2. After-care infantile paralysis; cases; operative clinic, Dr. Louis C. Ager.

ORTHOPEDIC DISPENSARY AND HOSPITAL—2. After-care infantile paralysis; ambulatory orthopedics; postoperative cases, Drs. Russell A. Hibbs, surgeon-in-chief; B. P. Farrell, assistant surgeon-in-chief; H. J. Bogardus, visiting surgeon; H. A. Durham, chief of clinic; Reginald Burbank, Frederick Williams, C. H. Saford.

POST-GRADUATE HOSPITAL—4: 30. Bone operations, Dr. F. H. Albee.

ST. LUKE'S HOSPITAL—2: 30. After-care infantile paralysis; ambulatory orthopedics; operations, Dr. T. Halsted Myers.

UNIVERSITY OF BELLEVUE MEDICAL COLLEGE (Hyde operating room)—3. Torticollis operation, Dr. Reginald H. Sayre; after-care infantile paralysis; ambulatory orthopedics, Drs. Reginald H. Sayre, J. J. Nutt.

(*To be continued next week*)

Marriages

HAROLD FRANK TIDWELL, M.D., West New York, N. J., to Miss Kathleen Galloway of New York, April 11.

JOHN ADOLPH FORST, M.D., Elmhurst, N. Y., to Miss Frances May Nicholson of Flushing, N. Y., April 30.

FREDERICK WALKER ST. CLAIR, M.D., to Miss Loretta Louise Grant, both of Indiana, Pa., March 31.

JOHN EDWARD GILLESPIE BEARDSLEY, M.D., to Miss Minerva Post, both of Philadelphia, April 30.

P. A. SURG. MARTIN DONELSON, U. S. Navy, to Miss Virginia Dance of Danville, Va., April 25.

EDWARD H. MOSS, M.D., Cincinnati, to Miss Mabel Willis of Bellevue, Ky., April 30.

JOHN B. FRICK, M.D., to Miss Ardis M. Tanquay, both of Philadelphia, May 3.

Deaths

Marden Babin, M.D., Centerville, Mich.; Western Reserve University, Cleveland, 1867; aged 77; a Fellow of the American Medical Association, and president of the St. Joseph County Medical Society in 1910; once president of the village of Centerville and for twenty years president of the village board of education; a member of the state senate in 1891 and 1893, a veteran of the Civil War; died at the home of his son in Battle Creek, Mich., April 10.

William Watt Kerr, M.D., San Francisco; University of Edinburgh, Scotland, 1881; aged 59; a Fellow of the American Medical Association; professor of clinical medicine in the University of California, San Francisco; visiting physician to the San Francisco City and County Hospital and the Children's Hospital; consulting physician to St. Luke's Hospital and the San Francisco Lying-In Hospital; died at his home, April 26, from heart disease.

Herman Craft, M.D., Stone Ridge, N. Y.; New York University, New York, 1859; aged 80; a member of the Medical Society of the State of New York; assistant surgeon of the One Hundred and Forty-Third New York Volunteer Infantry, and later in the regular establishment during the Civil War; a member of the state assembly in 1886, and from 1887 to 1895, township supervisor; died at his home, April 21.

John Theodore DeMund, M.D., Ridgewood, N. J.; University of Pennsylvania, Philadelphia, 1864; aged 77; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; twice coroner of Bergen County; surgeon of the Fifty-Ninth Pennsylvania Volunteer Infantry during the Civil War; died at his home, April 30.

William Thomas Adams, M.D., Elgin, Minn.; Rush Medical College, 1874; aged 67; a Fellow of the American Medical Association; secretary of the Southern Minnesota Medical Society, since its foundation; one of the best known general practitioners of Southern Minnesota; died at his home, April 25, from chronic interstitial nephritis.

Edwin Bradbury Lyon, M.D., West Hartford, Conn.; Berkshire Medical College, Pittsfield, Mass., 1862; aged 86; a member of the Connecticut State Medical Society; demonstrator of anatomy and prosector in surgery in his alma mater; surgeon of U. S. Volunteers during the Civil War; died at his home, April 12.

John J. Williams, M.D., Wayne, Neb.; State University of Iowa, Iowa City, 1880; aged 66; formerly a Fellow of the American Medical Association; a member of the Nebraska State Medical Association; at one time a member of the state legislature; died suddenly at his home, April 25, from heart disease.

Martin Piper Judkins, M.D., Rockland, Me.; Medical School of Maine, Brunswick, 1884; aged 63; a member of the Maine Medical Association; for twelve years coroner of Knox County and at one time a member of the Rockland Board of Health; died in a sanatorium at Wells, Me., April 26.

Matthew Charles O'Connor, M.D., New Haven, Conn.; College of Physicians and Surgeons in the City of New York, 1873; aged 68; a Fellow of the American Medical Association; one of the incorporators of the Knights of Columbus; died at his home, April 30, from cerebral hemorrhage.

Charles E. Simmons, M.D., New York; College of Physicians and Surgeons in the City of New York, 1864; aged 77; a member of the Medical Society of the State of New York and the New York Academy of Medicine; for ten years commissioner of charities of New York; died at his home, May 3.

Freeborn Stanton Lewis, M.D., Port Angeles, Wash.; Detroit Medical College, 1874; aged 68; a member of the Washington State Medical Association; postmaster of Port Angeles and for three terms mayor of the city; died at his home, April 8, from cerebral hemorrhage.

Owen E. Metzger, M.D., South Whitley, Ind.; University of Michigan, Ann Arbor, 1908; aged 35; a Fellow of the American Medical Association; died in the Lutheran Hospital, Fort Wayne, Ind., March 11, four days after an operation for appendicitis.

Joseph D. Alderson, M.D., Meadow View, Va.; Kentucky School of Medicine, Louisville, 1876; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died at his home, March 30, from myocarditis.

Thomas Stanley Hodge, Torrington, Conn. (license, Connecticut, 1893); aged 69; formerly president of the Connecticut Eclectic Medical Association; secretary of the Connecticut Eclectic Medical Examining Board; died at his home, April 20.

James W. McClanahan, M.D., Forest City, Mo.; Ensworth Medical College, St. Joseph, Mo., 1889; aged 66; a member of the Missouri State Medical Association; died in Ensworth Hospital, St. Joseph, Mo., February 17, from carcinoma of the stomach.

William Gunton Budington, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1872; aged 71; who retired from practice in 1881; died in his apartments in New York City, April 15, from chronic bronchitis.

Ida B. Parker, M.D., Orange, Calif.; University of Southern California, Los Angeles, 1895; aged 47; formerly a Fellow of the American Medical Association and president of the Orange County Medical Society in 1913; died at her home, April 15.

James Alfred Andrews, M.D., Kearney, Neb.; Rush Medical College, 1893; aged 57; formerly a Fellow of the American Medical Association; a member of the Nebraska Legislature, in 1901; died in Green Gables Sanitarium, Lincoln, Neb., April 28.

Sum S. Linder, M.D., Union, S.C.; Medical College of the State of South Carolina, Charleston, 1876; aged 62; for many years a practitioner and scientific dairyman of Union County, S. C.; died in his office, in Union, March 31, from acute gastritis.

Rae Felt, M.D., Eureka, Calif.; University of California, San Francisco, 1890; aged 47; a Fellow of the American Medical Association; died in St. Francis Hospital, San Francisco, April 18, from complications following gallstones.

George Roger Smith, M.D., Bloomington, Ill.; Northwestern University Medical School, Chicago, 1887; aged 57; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, April 21.

Powhatan Clarke, M.D., Douglaston, N. Y.; New York University, New York City, 1858; aged 81; for thirty-eight years professor of chemistry in Baltimore Medical College; died at the home of his daughter in Douglaston, April 25.

John N. Mallory, Emily, Minn. (license Minnesota, exemption certificate, 1883); aged 65; formerly a member of the Minnesota State Medical Association; a practitioner since 1874; died in a hospital in Brainerd, Minn., April 17.

James A. Bigelow, M.D., Elkhart, Ind.; Yale University, New Haven, Conn., 1861; aged 79; surgeon of the Eighth and Eleventh Connecticut Volunteer Infantry, during the Civil War; died at his home, April 1, from pneumonia.

William Sanford Kingsbury, M.D., Clastonbury, Conn.; Yale University, New Haven, 1896; aged 49; a Fellow of the American Medical Association; a specialist in obstetrics; died at his home, April 9, from angina pectoris.

Michael J. Coholan, M.D., New Britain, Conn.; New York University, New York City, 1865; aged 72; a member of the Connecticut State Medical Society; died in Mercy Hospital, Springfield, Mass., April 14, from pneumonia.

Sylvester Byron Davis, M.D., Hollywood, Calif.; University of Michigan, Ann Arbor, 1875; aged 68; a member of the Medical Society of the State of California; died at his home, February 20, from chronic myocarditis.

John Dennis Tierney, M.D., Ridgewood, Long Island, N. Y.; Cornell University, New York City, 1911; aged 29; associate physician of St. Mary's Hospital, Jamaica, L. I.; died in that institution, April 17, from pneumonia.

Robert Bailey, M.D., Cleveland; Western Reserve University, Cleveland, 1870; aged 68; a member of the Ohio State Medical Association; and a member of the staff of St. Clair Hospital; died at his home, April 20.

John F. Cochran, M.D., Port Myers, Fla.; Memphis Medical College, Memphis, Tenn., 1871; aged 72; formerly a member of the Tennessee State Medical Association; died at his home, February 15, from anemia.

Rezin Warfield Hall, M.D., Moundsville, W. Va.; University of Maryland, Baltimore, 1874; aged 72; a Fellow of the American Medical Association; a veteran of the Civil War; died at his home, April 22.

John W. Harvey, M.D., Chico, Calif.; California Medical College, San Francisco, 1887; formerly a member of the Medical Society of the State of California; died in San Francisco, May 2.

George Henry Codding, M.D., Amenia, N.Y.; College of Physicians and Surgeons in the City of New York, 1881; aged 62; died in Dover Plains, N. Y., March 6, from arteriosclerosis.

Augustus Bosworth Stone, M.D., Linden, Ala.; University of Alabama, Mobile, 1886; aged 67; a member of the Medical Association of the State of Alabama; died at his home, April 4.

Joseph S. Lehman, M.D., Clarence Center, N. Y.; Unversity of Buffalo, N. Y., 1893; aged 70; a Fellow of the American Medical Association; died at his home, March 14, from pneumonia.

Joseph Spratt Dodds, M.D., Pittsburgh; Jefferson Medical College, 1875; aged 70; a specialist in proctology; died at the home of his daughter, in Pittsburgh, April 18, from pneumonia.

Joseph Wallace Haverfield, M.D., Uhrichsville, Ohio; Starling Medical College, Columbus, Ohio, 1878; aged 64; died in his office, February 12, from organic heart disease.

John Marlin Habel, M.D., Onancock, Va.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1867; aged 91; died at the home of his nephew in Onancock, April 15.

Thomas Morris, M.D., Mount Zion, Ind.; Medical College of Fort Wayne, Ind., 1883; aged 68; a member of the Indiana State Medical Association; died at his home, April 17.

Thomas John Lally, M.D., Waterbury, Conn.; Albany, N.Y., Medical College, 1899; aged 41; a Fellow of the American Medical Association; died at his home, April 19.

Anson A. DePuy, M.D., Fruitvale, Calif.; University of California, San Francisco, 1881; aged 70; died in Providence Hospital, Oakland, Calif., April 8.

Joseph Moorhead Taylor, M.D., Altoona, Pa.; College of Physicians and Surgeons, Baltimore, 1885; died at his home, January 17, from heart disease.

John W. Morris, M.D., Wheeling, W. Va.; Pulte Medical College, Cincinnati, 1876; aged 64; died at his home, March 4, from cerebral hemorrhage.

Alfred Ernest Arthur McCann, M.D., Lowell, Mass.; McGill University, Montreal, 1892; aged 48; died in St. John's Hospital, Lowell, April 12.

William W. Yandell, M.D., Bedford, Ind.; University of Louisville, Ky., 1848; aged 88; died at his home, January 7, from cerebral hemorrhage.

W. T. Sutton, Ashbyburg, Ky.; (license, Kentucky, thirty-one years practice, 1894); aged 80; died at the home of his son in Ashbyburg, April 8.

James Rufus Pou, M.D., Uniontown, Ala.; Medical College of the State of South Carolina, Charleston, 1854; aged 84; died at his home, April 13.

William John Neill, M.D., Chicago; Rush Medical College, 1880; aged 66; an ophthalmologist; died at his home, April 18, from arteriosclerosis.

J. J. Moore, M.D., Trenton, Mo.; St. Louis Medical College, 1868; aged 71; died at Excelsior Springs, Mo., February 4, from pneumonia.

George E. Alexander, M.D., Hayward, Calif.; Jefferson Medical College, 1873; aged 69; died at his home, recently.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION]

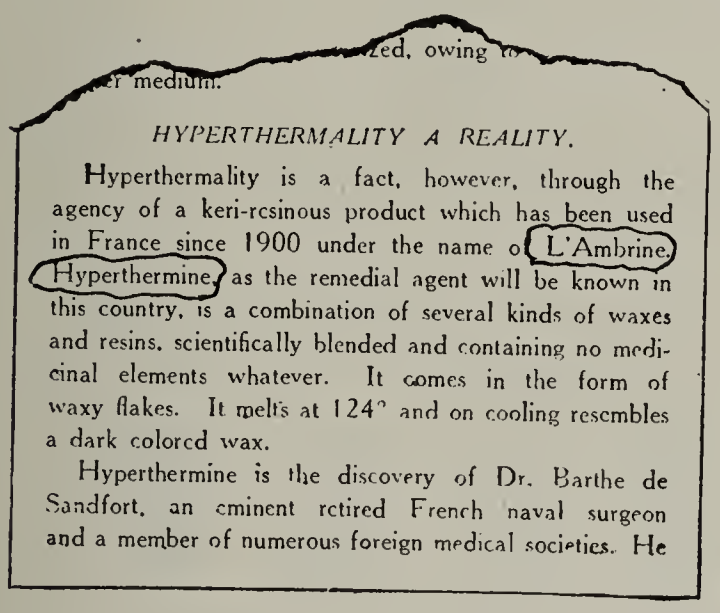
"AMBRINE" AND PARAFFIN FILMS*

Paul Nicholas Leech, Ph.D.

In the last year or so, the hot-wax or paraffin treatment of burns has been widely discussed both in medical and lay periodicals. Although the treatment is simply a modification of the well-known use of oil and ointments, it has received unusual attention, owing to the widespread sensationalism following the exploitation in France of a secret and therefore mysterious mixture, "Ambrine," the formula of Dr. Barthe de Sandfort. Owing to this publicity, it seemed desirable, to investigate the chemical composition, and to compare its physical properties with other waxlike substances.

"Ambrine" is promoted as a dressing for burns, frostbites, neuritis, varicose ulcers, phlebitis, neuralgia, rheumatism, sciatica, gout, etc. It is a smoky-appearing substance, resembling paraffin in consistency and without odor. For application, Ambrine is melted and applied to the wound either with a brush or with a specially devised atomizer. It cools quickly, and leaves a solid, protecting film.

It is said that de Sandfort "stumbled on this treatment by accident."[1] Being a sufferer of rheumatism, he had been benefited by hot mud baths; on returning home he sought a substitute, and finally made a mixture of paraffin, oil of amber and amber resin. This was applied hot, serving as a firm poultice. "Years later, he went on service to a railway in China and was in Yunnan at the time of the incendiary insurrection, and many badly burned Chinese were brought



...ized, owing to ...
...er medium.

HYPERTHERMALITY A REALITY.

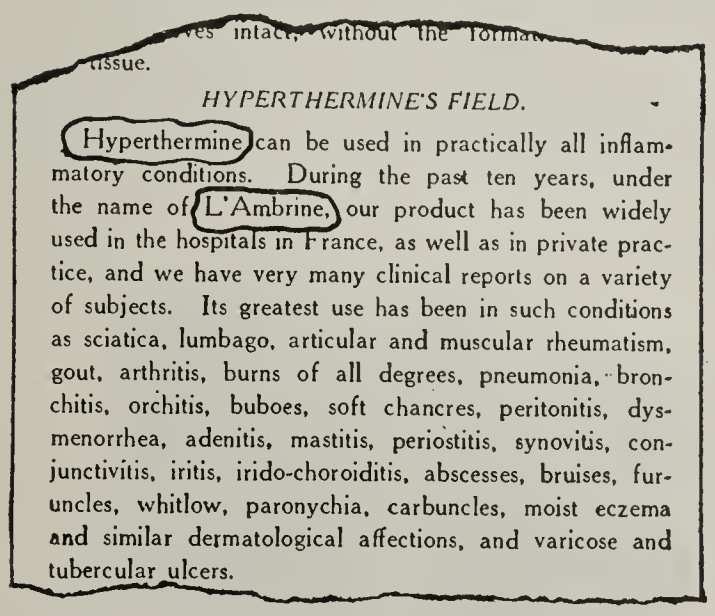
Hyperthermality is a fact, however, through the agency of a keri-resinous product which has been used in France since 1900 under the name of L'Ambrine. Hyperthermine, as the remedial agent will be known in this country, is a combination of several kinds of waxes and resins, scientifically blended and containing no medicinal elements whatever. It comes in the form of waxy flakes. It melts at 124° and on cooling resembles a dark colored wax.

Hyperthermine is the discovery of Dr. Barthe de Sandfort, an eminent retired French naval surgeon and a member of numerous foreign medical societies. He

"Ambrine" has been exploited in the United States for some time. To physicians it was sold under the name "Hyperthermine." Above is a photographic reproduction (reduced) of a portion of a booklet describing "Hyperthermine," which has been in THE JOURNAL office for some years.

in for treatment. Remembering that Ambroise Paré treated such cases with hot oil, he tried the effect of covering the burn with his melted ambrine which at once glazes over, forming a coat impervious to the air, and his patients ceased to suffer."[2]

"Ambrine" has been sold in America under two names: "Hyperthermine," as exploited to physicians, and "Thermozine," as advertised to the public. Physical comparison alone shows that Ambrine as now sold differs from "Hyperthermine" of a few years ago; the probable reason is that "Ambrine" has changed its formula. This is borne out by Matas,[3] who states that de Sandfort "admitted that Ambrine was a compound of paraffin, oil of sesame and resins, but was not at liberty to divulge its exact composition, as the formula and manufacture of this substance was now the property of a private corporation which was exploiting it as a proprietary and secret remedy." The later formula differs from the original.



...ves intact, without the formation of ...
tissue.

HYPERTHERMINE'S FIELD.

Hyperthermine can be used in practically all inflammatory conditions. During the past ten years, under the name of L'Ambrine, our product has been widely used in the hospitals in France, as well as in private practice, and we have very many clinical reports on a variety of subjects. Its greatest use has been in such conditions as sciatica, lumbago, articular and muscular rheumatism, gout, arthritis, burns of all degrees, pneumonia, bronchitis, orchitis, buboes, soft chancres, peritonitis, dysmenorrhea, adenitis, mastitis, periostitis, synovitis, conjunctivitis, iritis, irido-choroiditis, abscesses, bruises, furuncles, whitlow, paronychia, carbuncles, moist eczema and similar dermatological affections, and varicose and tubercular ulcers.

Photographic reproduction (reduced) from the "Hyperthermine" ("Ambrine") booklet recommending it for use in rheumatism, gout, pneumonia, buboes, dysmenorrhea, eczema, tuberculous ulcers, etc.

Besides the foregoing paraffin preparations, two others have recently been placed on the American market, "Parresine" (nonsecret) and "Mulene" (secret).

ANALYSIS OF AMBRINE

"Ambrine" comes in rectangular cakes, about 1½ inches wide, 6 inches long and ½ inch thick. It is moderately soft, but somewhat brittle at ordinary room temperature. A black substance is present which evidently settles out during the compounding, as in one side of the cake these particles can be clearly discerned by holding it up to the light; in the other side there are no suspended particles. When melted, the solution is not clear, and a sediment forms. The melting point (U. S. P. method; see later) is 48.4 C. The plasticity and ductility[4] are 27 and 30.5, respectively. It is pliable and strong at body temperature. The saponification number and acid number are both very low, but a fatty oil is present. Tests indicated oil of sesame. Ninety-eight per cent. of "Ambrine" is soluble in ether; this soluble portion may be treated with low-boiling ligroin (petroleum ether), out of which, on standing, a black asphalt-like substance separates. Of the ether-insoluble substance, 65 per cent. is soluble in chloroform. The remaining insoluble substance contains a small amount of silica and vegetable fiber. The paraffin obtained from "Ambrine" melted at 48.6 C. As a result of various experiments, it appears that the composition of "Ambrine" is essentially as follows:

Paraffin (M. P. 48.6 C.)	97.0 per cent.
Fatty oil (sesame?)	1.5 per cent.
Asphalt-like body	0.5 per cent.
Coloring matter, and undetermined	1.0 per cent.
	100.0

OTHER PROPRIETARY PARAFFIN FILMS

A cursory examination of "Mulene," manufactured by the Mulene Company, Pittsburgh, was also made. This appears to contain paraffin, beeswax, a fat-soluble red dye and considerable rosin. When heated carefully in a beaker, the rosin "sticks" to the bottom, and does not go into solution readily.[5]

* A number of physicians are testing out various paraffin films clinically. Their reports will appear in THE JOURNAL in the near future. —ED.

1. The Outlook, Jan. 17, 1917, p. 100.
2. Med. Rec., New York, Jan. 27, 1917, p. 160.
3. Matas, Rudolph: Burns Treated with Paraffin Mixtures, New Orleans Med. and Surg. Jour., April, 1917, p. 681.
4. These determinations will be described later.
5. When the sample was first obtained, this feature was not observed.

"Parresine,"[6] according to the manufacturers, is a mixture composed of paraffin, 94 to 96 per cent.; gum elemi, 0.20 to 0.25 per cent.; Japan wax, 0.40 to 0.50 per cent.; asphalt, 0.20 to 0.25 per cent., and eucalyptol, 2 per cent., the whole being colored with alkannin and gentian violet.[7]

FORMULA FOR A PARAFFIN FILM

In a recent article, Sollmann[8] presented various suggestions for the compounding of paraffin films. Some of the formulas were promising and others were not, but all were simple. He did not try to imitate "Ambrine." Lieut.-Col. A. J. Hull[9] of the Royal Army Medical Corps, after experimenting with different combinations, concluded that a mixture of "1 part resorcin, 2 parts eucalyptus oil, 5 parts olive oil, 25 parts soft paraffin [petrolatum][10] and 67 parts hard paraffin" served the purpose as well as "Ambrine." The following formula, which might be called Asphalt-Paraffin No. 21, much more closely


SMITH'S MAGAZINE ADVERTISER

Thermozine

MEDICATED WAX APPLICATION.
A FRENCH DISCOVERY. ABSOLUTELY SANITARY.

Used for ten years in the French Army and Navy.

A new discovery with almost miraculous powers for drawing out poison and healing inflamed and suppurating sores of the skin.

Makes an airtight antiseptic cover for a burnt surface and heals quicker than any other method.

Retaining heat for many hours makes it ideal for Pleurisy. Severe Burns, Boils, Carbuncles, Ringworms, Rheumatism, Neuralgia, Sprains, Aching Muscles, Eczemas, yield almost instantly to this wonderful application.

Produces healing in one-half the time of other remedies.

It is a clean application and does not stick nor soil the clothing. Easily applied—simply heated and put on with a brush.

Many recent testimonials on file open for inspection.

Outfit, consisting of a can of Thermozine, with proper accessories, prepaid - - **$1.00**

SOLD ONLY BY THE MANUFACTURERS

PASTEUR CHEMICAL CO., 98 Beekman Street, N. Y. City

Please mention this magazine when answering advertisements.

Photographic reproduction (greatly reduced) of a full page magazine advertisement of "Thermozine," the name under which "Ambrine" was sold to the public.

resembles "Ambrine," and it seems to have certain advantages, due to the use of a more suitable grade of paraffin:

Paraffin[11] (M. P. by U. S. P. method 47.2 C.)	97.5 gm.
Asphalt	from 3 to 5 drops
Olive oil	1.5 c.c.

6. Made by the Abbott Laboratories, Chicago, and accepted by the Council on Pharmacy and Chemistry for New and Nonofficial Remedies, THE JOURNAL, May 12, 1917, p. 1406.

7. No chemical examination was made.

8. Sollmann, Torald: Suggested Formulas for Paraffin Films, THE JOURNAL A. M. A., April 7, 1917, p. 1037.

9. Hull, A. J.: The Treatment of Burns by Paraffin, Brit. Med. Jour., Jan. 13, 1917, p. 37, The Treatment of Burns by Paraffin, Therapeutics, THE JOURNAL A. M. A., Feb. 3, 1917, p. 373.

10. The "soft paraffin' 'of the British Pharmacopeia resembles petrolatum, U. S. P., Queries and Minor Notes, THE JOURNAL A. M. A., April 28, 1917, p. 1281.

11. The paraffin used in this formula was supplied by the Standard Oil Company of Indiana; the melting point given by the manufacturers is from 120 to 122 F. which, according to the American Standard of taking melting points, gives higher results than the method described in the pharmacopeia.

About 10 c.c. of "asphalt varnish" (B. Asphaltum)[12] is placed in a beaker and heated on the steam bath for one-half hour. From 3 to 5 drops, delivered from a 1 c.c. pipet, are then placed in a casserole, and 1.5 c.c. of olive oil added. The mixture is heated and stirred for a few minutes until perfect solution is effected. To this is then added, with stirring, the paraffin, which has been previously melted. When it is cooled, a brown solid is obtained.[13] The physical factors of this paraffin mixture are, melting point 45.4 C. (U. S. P. method); plasticity, 28.5; ductility, 29; it is very pliable and

inception.

Where the Dry Wax Poultice has been used

Thermozine, known in France as L'Ambrine. has been used in the following Parisian hospitals, with 92% of cures:

Hospital de la Pitie, services of Drs. Lion, Darier

Photographic reproduction from a booklet on "Thermozine" showing that it is identical with "Ambrine."

strong at 38 C., and adheres exceedingly well to the skin, although it detaches easily. This mixture, which is easy to prepare, is inexpensive, the cost of the materials being approximately 10 cents a pound.

Both Hull and Sollmann noticed that tarlike substances and melted paraffin do not mix well. This is noticeable in "Ambrine," which cannot be called an "elegant" preparation. The difficulty may be overcome by first mixing hot olive oil and asphalt; the asphalt will then go into solution. It is interesting to note that the suggested formula (as well as others which were also prepared) is not as plastic as the paraffin itself.[14] This is also true of "Ambrine." On the other hand, the melting point of the paraffin is higher. *The important point, however, in compounding all paraffin preparations is to select a proper grade of paraffin as elaborated below.*

EXAMINATION OF PARAFFINS AND PARAFFIN PREPARATIONS

The name "paraffin" generally applies to a colorless and tasteless waxlike substance that is solid at ordinary temperature. It is composed of saturated hydrocarbons, that is, they are unable to take up any more hydrogen, and thereby are quite stable; the hydrocarbons in paraffin have the general formula of C_nH_{2n+2}, ranging as high as $C_{24}H_{50}$ to

Indications for the Use of Thermozine

Thermozine will be found very useful in the following conditions:

Abscess	Colic	Lumbago	Rheumatism
Asthma	Carbuncle	Mumps	Ring Worm
Boils	Eczema	Neuritis	Sprains
Bronchitis	Felons	Neuralgia	Synovitis
Bruises	Gout	Open Sores	Tonsilitis
Burns	Laryngitis	Pneumonia	Ulcers

and any and all inflammations and swellings.

These conditions show a partial list of the indications for Thermozine's

Photographic reproduction from a booklet on "Thermozine" giving the conditions in which the stuff was alleged to be "very useful."

$C_{27}H_{56}$. Paraffin may be found in crude form in coal, from which source the first paraffin candles were made. It may

12. The "Asphalt Varnish" used was obtained from Remien and Kuhnert Company, Chicago.

13. While needless, a color resembling "Ambrine" may be obtained by the addition of coloring agents.

14. In a personal communication Dr. Sollmann expressed the opinion that the synthetic preparation is inferior to the paraffin used in the formula, basing the view on the greater plasticity of the paraffin. For practical purposes, the paraffin will most probably serve as well as the mixture, especially when it is held in place by bandages, but I believe that the mixture is more adhesive.

be produced from the distillation of brown coal, as in Germany, or from bituminous shale. In America, it is obtained chiefly from the distillation of crude petroleum, being in the residue after the distillation of such products as naphtha (gasoline), kerosene and the lubricating oils. The residue is treated by one of a number of processes causing the unpurified solid paraffin to be made available. The crude paraffin is either sold as such, or is refined. Paraffin or "paraffin waxes"[15] are designated in the trade by their melting points (which in the "American standard" is expressed in Fahrenheit degrees), and as to their state of refinement as "crude," "semirefined" and "fully refined" paraffin. There are certain chemical and physical differences so that two refined waxes having the same melting point would not have the same plasticity. The higher melting point varieties of paraffin are hard and tough at room temperature; when melted, paraffin expands and forms a thin, mobile liquid.

The significant requirements of paraffin for surgical dressings are that it should be solid at body temperature, at the same time having flexibility and adhesiveness, together with a certain amount of strength. A number of brands of paraffin are sold in the United States, so that it seemed advisable to examine some of them and compare them with certain paraffin-film preparations. They were tested as to their melting points, plasticity, ductility, strength of film, etc.

Melting Point Determination.—The melting point was determined by the method of the U. S. Pharmacopeia IX, p. 596. The melting point as obtained by this method is lower than the melting point used by manufacturers of paraffin (after conversion to Fahrenheit).

Pliability and Ductility, Limit Temperature.[16]—A little of the melted wax was poured from a teaspoon on the surface of the water at about 40 C., in a tin pan (bread mold). This formed a fairly thin film. The temperature of the water was then lowered by the addition of cold water. At each temperature the pliability and ductility were tested thus:

Pliability Test.—The film, immersed in water, was doubled on itself, note being taken whether or not it broke.

PARAFFINS AND PARAFFIN PREPARATIONS

Formula No.	Substance	Melting Point, U. S. P.	Ductility Limit	Plasticity Limit	(*a*) Adhesiveness and Detachability (*b*) Strength of Film at 38°
1	"Parowax," Stand. Oil Co. of Ind.	50.8	32.5	29.0	(*a*) Adheres and detaches well; rather hard (*b*) Pliable and strong
3	"Paraffin 118-120 F.," Stand. Oil Co. of Ind.	46.8	28.5	24.5	(*a*) Does not adhere well; detaches easily (*b*) Pliable but not strong
4	"Paraffin 120-122 F.," Stand. Oil Co. of Ind.	47.2	29.0	24.5	(*a*) Adheres well; detaches well (*b*) Pliable and fairly strong
5	"Paraffin 123-125 F.," Stand. Oil Co. of Ind.	48.8	31.5	28.5	Same as 4
6	"Paraffin 128-130 F.," Stand. Oil Co. of Ind.	52.0	33.0	30.0	(*a*) Adheres well; detaches not so easily (*b*) Pliable and strong
7	"Texwax," Texas Co., Port Arthur, Texas	51.2	32.5	29.8	Same as 6
8	"Paraffin Wax 122-124 F.," Warren Refining Co., Warren, Pa.	50.6	36.0	34–35	(*a*) Unsatisfactory; does not adhere (*b*) Only slightly pliable; too tough
9	"Paraffin No. 910," Waverly Oil Works, Pittsburgh	47.0	30.5	26–27	(*a*) Adheres well; detaches well (*b*) Pliable and strong
10	"Paraffin No. 920," Waverly Oil Works, Pittsburgh	44.4	27.5	25.0	(*a*) Adheres well; detaches well (*b*) Pliable and fairly strong
11	"Hard Paraffin," Rob't Stevenson & Co., Chicago	48.0	28.5	24.5–25.5	(*a*) Adheres well; detaches well (*b*) Pliable and strong
12	"Paraffin," Island Petroleum Co., Chicago	47.2	33.0	32.5	Not quite as good as 11
13	"Paraffin 122 F.," Gulf Refining Co., Pittsburgh	46.8	30.5	27.5–28	(*a*) Does not adhere so well; detaches well (*b*) Very pliable
14	"Paraffin 125 F.," Gulf Refining Co., Pittsburgh	50.0	32.0	31.0	About as 13
15	"Paraffin 132 F.," Gulf Refining Co., Pittsburgh	54.8	35.5	34.0	(*a*) Does not adhere well (*b*) Not very pliable, but strong
16	"Paraffin No. 301," National Refining Co., Cleveland	50.2	33.0	32–32.5	(*a*) Does not adhere well (*b*) Not very pliable
18	Paraffin recovered from "Ambrine"	48.6	30.5	28–28.5	(*a*) Adheres well; detaches well (*b*) Pliable but not strong
19	"Hyperthermine"	49.4	33.5	30.5–31	(*a*) Does not adhere well; detaches well (*b*) Very pliable and strong
20	"Ambrine"	48.4	30.5	27.0	(*a*) Adheres well; detaches well (*b*) Very pliable and strong
21	Paraffin 120-122 F. (see 4), 97.5; olive oil, 1.5; asphalt, 4 drops	45.4	29.0	28.5	(*a*) Adheres excellently; detaches well (*b*) Very pliable and strong
22	"Parowax" (see 1), 97.5; olive oil, 1.5; asphalt, 4 drops	49.2	32.0	30.5	(*a*) Adheres well; detaches easily (*b*) Pliable and strong
23	"Mulene"	51.0	36.0	28.0	(*a*) Adheres but detaches with difficulty (*b*) Pliable but not strong
24	"Parresine," Abbott Laboratories, Chicago	46.0	29.5	26.0	(*a*) Adheres well; detaches easily (*b*) Pliable and fairly strong
25	"Paraffin 118-121 F.," The Atlantic Refining Co., Philadelphia	45.8	26.4	23.2	(*a*) Adheres well; detaches well (*b*) Pliable and fairly strong

15. Paraffin is sometimes spoken of as "white wax." This is unfortunate, as "white wax" is an official name for "White Beeswax, U. S. P." The term "white wax" is also often applied to "Chinese wax," which is formed from an insect living on the tree, Ligustrum lucidum.

16. I am indebted to Dr. Torald Sollmann for these methods.

Ductility Test.—The film was pulled under water, note being taken whether it stretched on being pulled and broke with a ragged fracture; or whether it broke sharp without stretching. It is desirable that the pliability and ductility be preserved at as low a temperature as possible.

Cotton Films, Adhesives and Detachability.[16]—The melted wax was applied as it would be for burns; namely, a thin layer was painted on the inner surface of the forearm with a camel's hair brush,[17] a transverse strip about an inch wide being made. This was covered with a very thin layer of absorbent cotton, and over this another layer of melted wax was painted. As soon as this had cooled a little, it was covered by a few layers of bandage and left on for at least an hour. At the end of that time, the bandage was removed. The cotton film should be found at the place at which it was applied, showing that it is sufficiently adherent. It should detach without "pulling" the skin.

The results of these tests are given in the accompanying table. It can be seen that nearly all the paraffins examined have properties which would make them useful, the notable exceptions being Nos. 8, 15 and 16. The more satisfactory products would be those having a melting point about 47 C., ductility of 30 or below, and plasticity of 28 or below. The paraffin described in the U. S. Pharmacopeia is not so satisfactory, the required melting point being between 50 and 57 C.



Photographic reproduction (greatly reduced) of the carton in which "Ambrine" is now sold.

The use of paraffin bandages has been suggested by Fisher[18] and Sollmann.[19] In such cases, it may very likely be that a paraffin of higher melting point would be more satisfactory, owing to its greater resistance and tougher fiber.

SUMMARY

1. "Ambrine" is essentially paraffin in which a small amount of fatty and asphalt-like body is incorporated; like most secret mixtures, its composition varies.

2. A simple formula for a paraffin film, similar in chemical composition but superior in physical properties to "Ambrine," is that described as Formula 21. The superiority is due to using a grade of paraffin that is better adapted to the purpose. The cost of materials is about 10 cents a pound.

3. The properties of the paraffin used for a surgical dressing are important. A number of different grades have been examined, in order to determine the ones that appear most promising. Paraffins Nos. 3, 4, 10, 11 and 25 are the best in the table, and surpass "Ambrine" itself.

4. It is exceedingly probable that further experience will show that for most purposes simple paraffin will serve just as well as the mixtures—if, indeed, not better.

17. When painting a surface with a paraffin film, I found that the temperature of the paraffin should not be too close to the melting point, but several degrees above; otherwise it does not "set" well.

18. Fisher, H. E.: Nonadhering Surgical Gauze, The Journal A. M. A., March 25, 1916, p. 939.

19. Sollmann, Torald: Paraffin-Covered Bandages, The Journal A. M. A., April 21, 1917, p. 1178.

Correspondence

ARGUMENTS AGAINST THE "STANDARD BILL" FOR COMPULSORY HEALTH INSURANCE

To the Editor:—We oppose the "standard bill" for compulsory health insurance:

1. Because it is un-American. Americanism means that the individual amounts to something; paternalism, that the individual is nonimportant but that the state is all important. Even a beneficent paternalism is harmful because it destroys individualism and discourages thrift.

2. Because it is not demanded by the employees, the employers, or by the physicians who will be compelled to work under its provisions. On the contrary, the employees as represented by organized labor; the employers as represented by the National Association of Manufacturers, the Real Estate Owners Association, the New York Chamber of Commerce, the Board of Trade and Transportation, and others; a combination of both employees and employers as represented by the National Civic Federation; the physicians as represented by the largest and about twenty other county medical societies in this state and the New York State Medical Society; the Chicago Medical Society, and even the Social Insurance Commission of the state of California have all gone on record as being squarely in opposition to the "standard bill"; and moreover, the Special Commission on Social Insurance of the state of Massachusetts reports that "the commission is therefore unanimous in not recommending any health insurance legislation for immediate passage," but it does recommend "an act to establish a state board of employment, printed in appendix . . . ."

3. Because we also "have an instinctive desire to see fair play," and it is not fair play to tax only the thrift of the wage earners and the employers in order to care for the misfortunes of a part of the population only.

4. Because I have learned during twenty-six years of active private practice among the wage earners that: (*a*) more is paid for "movies" and "rum" than is paid for medical attendance and treatment; (*b*) destitution is not all due to sickness—the loss per year due to sickness is much less than that due to voluntary and involuntary holidays; (*c*) the wage earner prefers to be free and independent and not tied down by identification cards, etc.; (*d*) he prefers to have a physician of his own choice to attend and treat him and his family and not have one forced on him by the insurance carrier, and (*e*) he prefers to pay his physician himself, and not through an insurance carrier.

5. Because only a very small part of the population is without needed medical care—so-called surveys made by medically unqualified and therefore incompetent persons to the contrary notwithstanding—and among those who can well afford to pay for proper and adequate medical attendance and treatment, many go entirely without, or depend on "home treatment" or on quack medicines.

6. Because the wage earners receiving in the neighborhood of $1,200 per year can and do receive proper and adequate medical care and treatment when they desire it; the hospitals are not the only places in which the sick can get good medical care, and most of the sick prefer to be treated at home. The man who can do only one thing well must not think all others can do only the same.

7. Because under all the schemes for compulsory health insurance as yet proposed, the persons most needing the insurance will not get it: those who are out of work, except on account of illness, longer than the extension of one week for each four weeks during the previous twenty-six weeks of paid up assessments; those who are unable to get into the voluntary insurance societies because they are unable to pass the medical examination, and those who are not insured because they are unable to get work on account of their age, alcoholism, shiftlessness, general incompetency, or any other disabling condition which prevents them from being employed. In times of financial distress or panic, these unfortunate conditions will be magnified many fold.

8. Because the employer, in order to keep his assessments low, will carefully choose his employees, selecting only the healthy and excluding the others by medical examinations, and therefore there will be a strong tendency to the formation of a large permanent pauper class.

9. Because, while the employer has a great responsibility for occupational diseases, it is unfair to compel him to pay 40 per cent. of the cost of the care and treatment of his employees suffering from sickness due to extrinsic causes—venereal diseases and even from injuries received while committing a misdemeanor or felony.

10. Because, if individual health is proved to be a state asset, then the state should pay the entire cost of the care of all the sick. It can be done better and more cheaply by directly paying the cost of the medical attendance and treatment of the sick, than by the complicated, cumbersome, top-heavy, and dangerous scheme proposed under the "standard bill."

11. Because, under the proposed scheme, the insurance carrier has the choice of making the arrangements for the medical attendance and treatment of the sick wage earner either with the physicians on the panels, if there are any, or with salaried physicians; and either with or without free choice of the physician by the sick wage earner, and it is easy to foresee which the employers—for they will dominate the carriers—will choose: the salaried physicians, because they can get them more cheaply.

12. Because it is the universal experience in medical practice that contract work by the physician is uniformly detrimental to the development of good service and of science. The "standard bill" is simply an extension and legalization of the well known opprobrious and malodorous lodge practice.

13. Because under the foregoing conditions there will not be the same grade and quality of men who will enter the study and practice of medicine, and the public will suffer incomparably therefrom. On account of the low salaries paid by our government it is very difficult to get enough medical men for service in times of peace, and now that we are in a state of war it is necessary to appeal to patriotism in order to get enough medical men to care for our army and navy.

14. Because in the so-called "standard bill" the medical men have not a proper and adequate representation on the commission, council, and on all other boards having to do with medical matters. The "physician" on the commission may be one who has never practiced medicine; or he may have done so for a few years and then have given it up for a more congenial and lucrative business; or he may have practiced medicine among the very wealthy and have never come into contact with the persons who will come under the provisions of this measure except in hospitals and dispensaries. All of these will be out of touch and sympathy with both the sick wage earners and the physicians who will work among them.

15. Because under the provisions of the "standard bill" the physician will be compelled to hire himself out to the insurance carrier on the carrier's own terms, or he can and undoubtedly will have his practice almost or entirely taken away from him and given to one of the salaried physicians.

16. Because we must reason from premises which we can establish, and in New York State, the birthplace of the movement, and where the statistics have been worked out, the number of persons coming directly and indirectly under the provisions of the "standard bill" will be 73.42 per cent. of the entire population, and by adding the estimated number of paupers and improvident persons who will not be able to pay a physician—5 per cent.—there will be only 21.58 per cent. left for private practice.

17. Because with such a large part of the population joined together into societies or "funds" for their own pecuniary benefit, as the employees and employers would be under the "standard bill," it would be a dangerous thing for the state if they should be united as a political party under an unscrupulous boss. The rest of the state would be compelled to yield to them in everything.

18. Because the number of deaths per year in New York State among those directly insured will be 35 per cent. of 147,000, or 51,450, and at $100 per funeral the total amount paid to the undertakers per year will be $5,145,000.

Should the state subsidize the undertaking business?

EDEN V. DELPHEY, M.D., New York.
Chairman, Health Insurance Committee, Federation of Medical Economic Leagues.

A LITTLE MORE CONSERVATISM WITH THE TONSILS DESIRABLE

To the Editor:—Truly we are a race of hysterical extremists! We surge madly from the condition of license known as a "wide open town" to the puritanic restraint which follows the Billy Sunday type of religious campaign in the smaller community. We emerge from an era in which thrift was lauded as the greatest of the private virtues to a mad national extravagance which includes every class. We are either very "wet" or so dry that ginger ale and root beer are looked on askance. Either we are so peaceful that the author of "I Didn't Raise My Boy to Be a Soldier" is nearly canonized, or so warlike—in emotion, at least—that those of our legislators who wish to observe some system and economy in our going to war are candidates for lynching, a practice in itself which too well expresses the national impulsiveness. We have gone in for Christian Science, osteopathy, chiropractic, faith healing, fletcherism, Doan's Kidney Pills, electric belts, and every other wild idea that any seeker after publicity or pelf could promulgate.

Unfortunately this national trait too often works to discredit the efforts of earnest, sincere workers in scientific fields. In the etiology of rheumatism and other diseases, there can be no question of the importance of focal infection in the tonsils, about the teeth, and elsewhere. If there is a tendency on the part of some physicians to overwork this factor in obscure cases, it will be eliminated in the reaction, and the focal infection accorded its true importance as an etiologic factor. An unfortunate phase of the prominence given to this idea, however, is the effect on the lay mind. Our impetuous clients hear that "bad teeth and tonsils can cause rheumatism."

From that truth it is an easy step for them to the conclusion that teeth and tonsils are always the cause of all of those myriad symptoms which the layman refers to as "rheumatism." And equally easy is the conclusion that all tonsils are pathologic and should be removed, and they go, not to the internist for diagnosis and treatment of any so-called "rheumatic" condition, but to the laryngologist, and to him not for examination but avowedly for tonsillectomy. If, as one suspects sometimes happens, the laryngologist removes the tonsils on the patient's request without too close a scrutiny to determine whether or not there is a condition which really indicates the procedure, the ultimate result is easy to foresee. The operation will be discredited, and it will become difficult to persuade those really in need of it to undergo it. As a nation we seem incapable of exercising moderation, but the medical profession should carefully avoid being influenced by any therapeutic fads which the public seizes on.

CHARLES DARWIN ENFIELD, M.D., Jefferson, Iowa.

Philadelphia Large Drug Center.—The United States leads the world in the manufacture of drugs, and Philadelphia ranks first among the drug centers of the country according to Charles E. Hires, director of the Philadelphia Drug Exchange. The first chemicals manufactured in this country were made in Philadelphia by Christopher, Jr., and Charles Marshall, who began the manufacture of chemicals in 1789. The first morphin, quinin and strychnin were made in this city and the first drug mill in the country was established at the Falls of Schuylkill. The United States census for 1914 credited Philadelphia with twenty-two pharmaceutical and fifteen chemical plants. More than 20,000 people are employed and millions of dollars worth of the products are being shipped to foreign countries.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SWINDLER WITH A HARD LUCK STORY

To the Editor:—Dr. Walter A. Landry of Chester, Pa., warned in a recent letter against a swindler who imposed on him—a man from 25 to 30 years of age, of dark complexion, about 5 feet 5 inches, about 130 pounds, thin and anemic, who speaks with a German accent. This description fits closely a swindler who imposed on me about six weeks ago. The only difference is that, I should say, my swindler could not be described as thin and anemic. He was about 5 feet 6 inches, weighing from 145 to 150 pounds, and spoke with a strong German accent. The game he worked on me was to claim relationship with people whom I knew in a neighboring city and with a well-known doctor of my acquaintance. He was suddenly stranded in Chicago and needed enough money to get home. He worked me for $10. The circumstances of his swindle would indicate that he was a rather ingenious swindler, who would be able to invent various schemes to suit different occasions.

ONE ASHAMED TO SIGN HIS NAME, Chicago.

ANOTHER CAUTION NOTE

To the Editor:—A young man of dark complexion, rather slim, who weighs about 135 pounds, is going through the country posing as a major of the French army, home on a furlough, showing scars on his body as proof of having been wounded. His idea is to get acquainted with influential business and professional men, and finally procure money on his personal check without any funds.

U. D. SEIDEL, M.D., Akron, Ohio.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, June 19-21. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA, Regular: Palatka, June 19-20. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 14-16. Sec., Dr. C. St. Clair Drake, Springfield.

IOWA: Iowa City, June 7-9. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 19-21. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 19-21. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.

MARYLAND: Baltimore, June 19. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MICHIGAN: Ann Arbor, June 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 5-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 19-20. Sec., Dr. W. S. Leathers, Oxford.

MISSOURI: St. Louis, June 18. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEBRASKA: Lincoln, May 31-June 1, Sec., Dr. E. Arthur Carr, 516 Banker's Life Bldg., Lincoln.

NEW HAMPSHIRE: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

NEW JERSEY: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, 438 East State St., Trenton.

NEW YORK: Albany, Buffalo, New York, and Syracuse, May 22-25. Sec., W. J. Denno, Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.

OHIO: Columbus, June 11-14. Sec., Dr. George H. Matson, State House, Columbus.

OREGON: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.

SOUTH CAROLINA: Columbia, June 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 15-16. Sec., Dr. A. B. De Loach, Scimitar Bldg., Memphis.

TEXAS: Austin, June 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, June 19-22. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WISCONSIN: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.

Chiropractic Bill in Hawaii Vetoed

A bill to legalize chiropractic passed the Hawaiian Territorial Legislature recently but was vetoed by Governor Pinkham, who explained his veto in part as follows:

First, it (the chiropractic bill) conflicts with the laws heretofore enacted and now on the statute books for the protection of public health, for which public health the legislature has appropriated in the past and is now appropriating great sums of money.

Second, the law already provides ample means and avenues for special practice, hence whatever benefit may accrue to human beings by any special practice is now available to whomsoever elects.

In its exactions the (medical practice) law has laid its hand heavily on those professionally concerned in the diagnosis and treatment of disease and in the practice of surgery. It has compelled them to submit to a searching examination as to their qualifications and their ability to comply with the law, and their practice, after admission, is strictly controlled by law.

Included among licensed practitioners are those who specialize, but they do not demand or request, nor does the law concede them legal recognition based on their ability to specialize, for these thoroughly equipped men are aware that, if a practitioner is not qualified to diagnose the range of general disease and the specifically legally listed diseases, such practitioner is dangerous to public health and public finance, as our past epidemic expenditures strikingly illustrate.

Other classes of specialists have arisen, and others will arise, who demand almost complete immunity from thorough, comprehensive education and experience. They demand absolute exemption from official examination as to their knowledge of and experience with disease. They demand the utmost unrestricted freedom in spite of their acknowledged limitations and definite inexperience, to decide for themselves.

No school can comply with the law unless its education has been comprehensive. Chiropractic is deficient in the essentials, hence seeks special immunities, which I cannot see my way to approve.

Kansas February Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 13, 1917. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 2 passed, and 5 failed, including 2 osteopaths. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Tulane University of Louisiana		(1916)	91
Jefferson Medical College of Philadelphia		(1916)	90
	FAILED		
University of West Tennessee		(1915) 64; (1916)	74
McGill University		(1897)	63

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
American College of Medicine and Surgery		(1903)	Arkansas
State University of Iowa College of Medicine		(1889)	Iowa
State University of Iowa Coll. of Homeo. Med.		(1890)	Iowa
Coll. of P. and S., Kansas City, Kan.		(1901)	Missouri
Central Medical College of St. Joseph		(1900)	Missouri
Marion-Sims College of Medicine		(1899)	Oklahoma
National University of Arts and Sciences		(1915)	Missouri

Kentucky Reciprocity Report

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports that the following candidates were licensed through reciprocity from Jan. 1 to March 7, 1917:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Meharry Medical College		(1902)	Iowa
Universities of Nashville and Tennessee		(1911)	New Mexico

Pennsylvania Reciprocity Report

Mr. N. C. Schaeffer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports that 4 candidates were licensed through reciprocity from Jan. 4 to Jan. 29, 1917:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Howard University		(1909)	Virginia
Johns Hopkins University		(1897)	Maryland
Hahnemann Med. Coll. and Hospital of Phila.		(1913)	New Jersey
University College of Medicine		(1909)	W. Virginia

Medicolegal

City Not Liable for Death Attributed to Stagnant Water

(Bruggeman et al. vs. City of York (Pa.), 98 Atl. R. 970)

The Supreme Court of Pennsylvania, in affirming a judgment of compulsory nonsuit, say that the plaintiffs sued to recover damages from the city of York for the death of their 9 year old son, alleged to have been due to disease contracted from a stagnant pool of water which the municipality permitted to collect and remain on the street in front of the plaintiffs' residence. The nonsuit was entered by the court below on the ground of insufficiency of proof to show that death was caused by the alleged negligence of the defendant. The municipality had constructed a fire engine house opposite the plaintiffs' residence, and in the course of the work raised the grade of the lot on which the building was erected, and in so doing caused water which formerly passed over its surface to collect in front of the plaintiff's dwelling and remain there and collect drainage water and filth of various kinds and become stagnant. On occasions of heavy rains the pool formed by the filling done by the city would overflow, causing the stagnant water to flow into the cellar of the plaintiffs' house, making it damp and musty. One Sunday the plaintiffs' son played in the cellar the greater part of the day. The following Tuesday, after returning from school in the afternoon, he assisted his mother in cleaning the gutter of the street in front of their home. The odor arising from the gutter while being cleaned was very offensive. That evening the boy complained of not feeling well and ate but little supper, and during the following day had little or no appetite. On Thursday he complained of stomach trouble and headache, and on Friday remained home from school in the afternoon. He continued in this condition until the following Sunday, when the family physician was called, who found him suffering from pneumonia, from which disease the boy died on the following Tuesday. The physician testified that when he first saw the boy on Sunday he was in an anemic condition resulting, in his opinion, from impure air, and because of this condition was unable to resist the attack of pneumonia which followed. Two physicians testified on behalf of the plaintiffs, and both said that in their opinion the death of the boy was the result of his insanitary surroundings. But, in view of other testimony, the court holds that a verdict for the plaintiffs would be the result of mere conjecture on the part of the jurors, based on an inference selected from a number of equally probable inferences, in other words, a mere guess as to the precise cause of the disease, and that the trial court was right in declining to submit the cause to a jury and in entering a compulsory nonsuit. It was not enough for the plaintiffs to show that the injury complained of was due to one of two or more possible causes if the defendant was responsible for but one of them. They must go farther and show that the latter cause was the proximate one from which the injury followed as the natural and probable result, and that the succession of events leading up to the injury were linked together as a natural whole without intermediate cause not attributable to the defendant's wrongful act.

Not Privileged

(Kelly vs. Dykes et al. (N. Y.), 161 N. Y. Supp. 551)

The Supreme Court of New York, Appellate Division, First Department, in reversing a judgment obtained by the plaintiff in this personal injury case, says that a claim of error was predicated on a refusal of the trial court to permit the defendants to interrogate a physician on whom the plaintiff had called a few days before the trial. The defendants sought to show, and if permitted might have been able to show, that this visit and the conversation which ensued had nothing to do with any medical treatment, but was only as to the testimony the physician would give if called as a witness. To this extent, at least, the defendants should have been allowed to go, for it is not every conversation with a physician which is protected by statute.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Assn. of Genito-Urinary Surgeons, Rochester, Minn., May 21-23.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
American Neurological Association, Boston, May 21-23.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Psychopathological Association, Boston, May 24.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Connecticut State Medical Society, New Haven, May 23-24.
Florida Medical Association, Atlantic Beach, May 18-19.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Oregon State Medical Association, Portland, June 28-30.
Rhode Island Medical Society, Providence, May 31.
South Dakota State Medical Association, Yankton, May 28-30.
Washington State Medical Association, Spokane, June 17-19.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS

Fourth Annual Meeting, held at New York, April 6-7, 1917

The President, Dr. Richard Weil, in the Chair

Treatment of Dermatitis Venenata by Vaccines

DR. ALBERT STRICKLER, Philadelphia: I undertook this study with the object of throwing some light on a number of factors relative to dermatitis venenata: (1) the elaboration of an endermic skin test; (2) the determination of a possible influence of an intramuscular injection of homologous vegetable toxins; (3) possible desensitization of individuals by injection of homologous vegetable toxins; determination of complement fixing bodies (if existing) in serums of patients who had had an attack and had been treated by injection of homologous vegetable toxins. Toxins of ivy, sumac and nettle were isolated and employed. Twelve patients were studied, with the following impressions: 1. Intramuscular injection of the toxins of these poisonous plants has an influence on the course of dermatitis venenata. 2. This is not advocated as a routine procedure, except in severe cases. 3. The immunity is probably a tissue immunity, transient in character. 4. It is possible to develop a skin test in this condition, and also to desensitize individuals against plant poisoning. 5. Complement fixation is apparently absent in dermatitis venenata.

DISCUSSION

DR. A. P. HITCHENS, Glenolden, Pa.: Some years ago Dr. Frod studied the substance in *Rhus toxicodendron* responsible for the dermatitis. An antirhus serum was produced in horses. In patients in whom this was applied locally, the rash disappeared over night. This seemed to show an immunity reaction in the horses. "Toxin" was hardly the correct word to describe these extracts.

DR. A. F. COCA, New York: I think Dr. Hitchens is correct in saying that this is not a "toxin." The condition depends on the sensitiveness of the individual, just as to pollen, or any other protein. The resistance after treatment is not immunity, but desensitization, as in recovery from hay-fever. No antibodies are formed in so short a time. Application of the antigen into the body fluids differs from local external application. I would ask whether these persons showed positive skin tests after the treatment. Dr. Cooke finds they are still positive after successful pollen treatment, but the ophthalmic test is negative.

Dr. J. Head: Is the injection attended with any soreness?

Dr. A. Strickler, Philadelphia: When the test is made with small doses, there is no soreness; when with large doses, there is considerable soreness. I have not done the skin reaction after the treatment. I think it is a very good suggestion.

The Epidemiology of Bacillary Dysentery

Dr. W. G. Smillie, Boston: I reported the results of a series of studies conducted by the Floating Hospital of Boston, in 1916, to discover the points of origin of infection in cases of bacillary dysentery, and the means of transmission. Cases were studied as regards temperature, humidity, neighborhood conditions, family conditions, source of infection. 1. The incidence seemed to follow the fly curve more closely than the temperature curve. 2. Poor housing conditions were a fertile source of infection. 3. Breast fed infants of foreign parents escaped more than American children. 4. Sources of infection were: contact with an acute case or carrier; contact with a house case; condensed milk; ice cream; flies; milk; water; fruit. Results in infants from contact with mild adult cases were often fatal. As a rule, the older the children, the milder the disease.

Some of the Conclusions Drawn from a Comparative Study of Different Methods of Performing the Wassermann Reaction

Drs. J. Bronfenbrenner and M. J. Schlesinger, Pittsburgh: There is as yet no absolute method for standardization of the Wassermann reaction. Discrepancies occur in different laboratories between the clinician and the serologist. The clinician does not take sufficient care to secure uniform conditions, or supply an adequate history. There are also many serologists who are incapable of controlling their own tests. Methods differ in delicacy. Serum should be fresh and not inactivated, and antigen protein free. The procedure of preference makes use of fresh unheated serum. The complement of the serum is titrated and utilized in the test, guinea-pig complement being added when necessary. We use reprecipitated acetone-insoluble lipoids of which one-tenth the anticomplementary dose still contains from ten to 100 antigenic units. The antihuman hemolytic system is used and the erythrocytes are sensitized before being added to detect the presence of free complement. Incubation for fixation of complement is best performed for thirty minutes at 37 C. in the water bath. However, one can use ice-box incubation for from ten to fifteen hours as a presumptive test to eliminate the negative serums, and 37 C. incubation for five minutes to eliminate the strongly positive serums. For diagnosis, however, one-half hour incubation at 37 C. is the best.

DISCUSSION

Dr. Hans Zinsser, New York: I agree that fresh serum is absolutely necessary, but I do not think that it is a good plan to work with unheated serum.

Dr. J. A. Kolmer, Philadelphia: I agree that crude alcoholic extracts of tissues, with or without the addition of cholesterol, should not be used in conducting the syphilis reaction with active serum, as in Noguchi's test and that of Hecht-Gradwohl. A suitable insoluble lipoid extract serves best as antigen and yields less nonspecific reactions.

Dr. Richard Weil, New York: It is a fallacy for the serologist to assume the clinical history as a guide. He should not need the history as proof of the disease. The serologist must report the reaction as he finds it, without reference to the clinician.

Dr. J. Bronfenbrenner, Pittsburgh: An essential point is that in the preparation of Noguchi's antigen, the cholesterol is removed, and this makes the sample of antigen less anticomplementary. To Dr. Weil I would say that the only way for a serologist to standardize his reagents is to do so with a known syphilitic serum on hand. A good and complete history must be obtained, but the serologist should not attempt to make a diagnosis. His duty is to report the reaction. Many doubtful reactions, however, could be better understood if a proper history were available.

An Antigenic Classification of the Group IV Pneumococci

Miss Miriam P. Olmstead, New York: A study of the Type IV pneumococci, which have been considered a heterogeneous series of independent strains, was undertaken at the Presbyterian Hospital in connection with an investigation of postoperative pneumonia, in which the Type IV pneumococci have been found to be an important etiologic factor. Agglutination has been used for differentiating the strains, confirmed by a few absorption experiments and complement fixation tests. Thirty-seven immune serums have been used and ninety-four cultures have been grouped. Forty-six from normal mouths, forty-eight from other sources. Not all cultures have been tested against all serums, but enough tests have been performed to demonstrate twelve distinct groups, the members of which crossagglutinate with each other but not with other groups. The groups contain from two to seventeen strains each, many apparently identical, but some divided into subgroups, evidenced by nonreversible reactions. A few strains are slightly and irregularly agglutinated by Type II serums, but according to agglutination and complement fixation reactions are much more closely related to Type IV strains. These may be considered connecting links between Type II and Type IV, but should be classified as Pneumococcus IV rather than II.

DISCUSSION

Dr. Rufus I. Cole, New York: I would ask Miss Olmstead whether she has tried dilutions of these serums, and also if she finds that the organisms are typical. The study of these types of organisms is going to be interesting work from an immunologic standpoint. It will be interesting to discover whether or not persons closely associated with each other carry organisms of these nonpathogenic groups. It remains to be shown whether these atypical kinds tend to become more fixed and whether their occurrence ever produces epidemics. In South Africa the type that causes the disease most frequently is not the kind we usually have.

Dr. Richard Weil, New York: I would like to know whether or not the absorption tests followed an absolute parallel with the agglutination tests. Do the different known agglutinating strains show any capacity whatever for absorption?

Miss Miriam P. Olmstead, New York: The strains within any group agglutinated each other 1:80 or 1:160. In some groups there were subgroups, the type serums agglutinating all strains in the same dilutions, but the serums of the subgroup not agglutinating the type strains. The strains agglutinated by both II and IV serums were agglutinated very slightly by II, 1:2, or 1:10 only. In many instances, no agglutination was noticeable until the tests had stood in the ice-box over night. One of the strains that I considered Group IV was also tested at the Rockefeller Institute and called Group IV, while a strain agglutinated slightly by II serum and strongly by the IV serum was called II-x. Few absorption tests have been done, but those few paralleled the agglutination tests.

Complement Fixation Studies on the Group of Acid Fast Bacteria

Dr. Jean V. Cooke, San Francisco: Cross fixation tests, with varying amount of immune rabbit serums and a number of both pathogenic and nonpathogenic acid fast bacteria as antigens, gave the following results: 1. Immune serums which will give fixation in amounts varying from 0.004 to 0.0002 c.c. can be obtained with any of the acid fast bacteria. 2. There is a group fixation reaction in which all members of the group participate when 0.1 c.c. of immune serum is used. With serums of very high titer, all organisms will react with 0.01 c.c. of serum. As smaller amounts of serum are employed, various members of the group fail to give fixation until near the titer limit there is usually a small group which still reacts. These groups are not always sharply defined. 3. The immune substances are still present and can be detected in serums for more than three years.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

April, XV, No. 4

1 Scoliosis. Treatment. E. G. Abbott, Portland, Me.—p. 243.
2 Use of Autogenous Bone Graft Pin in Treatment of Painful Flat Foot, Paralytic Valgus, etc. R. E. Soule, New York.—p. 292.
3 *Relation of Blood Supply to Longitudinal Growth of Bone. S. L. Haas, San Francisco.—p. 305.
4 *Giant Cell Sarcoma and Benign Cysts of Bone; Report of Cases. A. R. Kimpton, Boston.—p. 317.
5 Portable Plaster Apparatus. A. O'Reilly, St. Louis.—p. 324.

3. **Blood Supply and Longitudinal Bone Growth.**—The practical lesson to be derived from Haas' investigation is to caution surgeons to exercise care to preserve the blood supply to the epiphysis when performing any extensive operations on actively growing bones, especially, if the greatest amount of growth takes place from that particular epiphyseal line.

4. **Giant Cell Sarcoma and Benign Cysts of Bone.**—Following a slight injury, one of Kimpton's patients, a girl, 5 years of age, sustained a "green stick" fracture of the upper end of the right tibia. Nothing abnormal about the leg had been noted previous to injury. Swelling began about the time of the fracture. There was no pain. Thirteen months later operation showed that the growth was a solid tumor of soft, granular, whitish material, divided into sections by fibrous tissue. There was a small amount of fluid, probably edema. The tumor was removed by curetting, the cavity wiped out with phenol and alcohol, and then packed with dry sterile gauze. Pathologic report: "giant cell sarcoma." Two years later a return was noted. Curetting repeated. No return after four years. A second patient, a girl, 15 years of age, sustained an injury to her hand, while playing in the gymnasium. A diagnosis of fracture was made, and the Roentgen ray showed not only fracture but probable bone cyst. The patient refused operation. One year later a resection was done. Nine months after this there was a recurrence, Kimpton again operated and since then there has been no recurrence. At both operations the tumor consisted of a shell of bone filled with dark brown fluid, which was under pressure. Pathologic report: "giant cell sarcoma." A recent report shows the patient to be perfectly well.

Archives of Internal Medicine, Chicago

April, XIX, No. 4

6 *Effect of Muscular Work, Diet and Hemolysis on Serum Proteins. A. H. Rowe, Oakland, Calif.—p. 499.
7 *Causes of Variation in Concentration of Urea in Blood of Young Healthy Adults. T. Addis and C. K. Watanabe, San Francisco. —p. 507.
8 *Autotransplantation and Homotransplantation of Thyroid, Using Thyroid Capsule as Seat of Transplantation. J. H. Hess and A. A. Strauss, Chicago.—p. 518.
9 *Effect of Salicylates on Experimental Arthritis in Rabbits. B. Fantus, W. E. Simmonds and J. J. Moore, Chicago.—p. 529.
10 *Roentgenography of Lungs. Roentgenographic Studies in Living Animals After Intratracheal Injection of Iodoform Emulsion. C. A. Waters, S. Bayne-Jones, Baltimore, and L. G. Rowntree, Minneapolis.—p. 538.
11 *Case of Infundibular Tumor in Child, Causing Diabetes Insipidus with Tolerance of Alcohol. L. Newmark, San Francisco.—p. 550.
12 *Reactivated Thymus; Report of Case of Thymic Myasthenia. G. H. Hoxie, Kansas City, Mo.—p. 564.
13 *Diastatic Activity of Urine and Feces with Special Reference to Diseases of Pancreas. C. W. McClure and J. H. Pratt, Boston. —p. 568.
14 *Suprarenal System and Carbohydrate Metabolism. G. M. Mackenzie, New York.—p. 593.
15 *Study of Ethylhydrocuprein (Optochin) in Treatment of Acute Lobar Pneumonia. H. F. Moore and A. M. Chesney, New York. —p. 611.

6. **Effect of Muscular Work, Diet., etc., on Serum Proteins.**—Rowe's investigations on this effect of work on serum proteins in normal men show a very decided increase in the total proteins, which increase occurs more in the albumin than in the globulin fraction. The nonproteins increase very slightly. The work done was on a bicycle ergometer to a point where the subjects were near exhaustion, except one instance in which increase in proteins due to merely walking around the laboratory is shown. An immediate effect of diet on serum proteins is practically wanting, while a high protein diet continued for several days produces a slight increase in the serum proteins. The percentage of globulin seems to be slightly increased in cases in which healing of fractures or operative incisions is occurring and in which no signs of infection are present. Serum proteins undergo no marked changes after the serum has been kept on ice for forty-eight hours. Hemolysis, when excessive, definitely increases serum concentration, while slight hemolysis produces only a very slight increase. A few suggestions about the technic and use of Robertson's microrefractometric method are given.

7. **Concentration of Urea in Blood.**—Differences in diet are held by Addis and Watanabe to be a cause of variation in the concentration of urea in the blood of normal persons. On a constant diet a variation of from 0.0156 to 0.0438 gm. urea per hundred cubic centimeters of blood was found in twenty-nine experiments on twenty-five normal persons. Differences in the rate of protein catabolism are the principal cause of the variation which was found in the blood urea concentration of normal persons on a constant diet. The blood urea concentration of normal persons is not maintained at a constant level by a proportionate increase in the rate of excretion of urea from the blood by the kidneys, whenever there is an increase in the rate of entrance of urea from the tissues into the blood. Under inconstant conditions variation in blood urea concentration may be caused by alterations in the activity of the kidneys. Permanent individual peculiarities play no part as a cause of variation in the blood urea concentration of different normal persons. In a group of twenty-two subjects a variation of from 0.0225 to 0.06 gm. urea per hundred cubic centimeters of blood was found in a series of 106 estimations, carried out in the morning before breakfast. Practically the same degree of variation was shown by one of these subjects, on whom fifty estimations were made.

8. **Thyroid Autotransplantation.**—Having under their care a large number of cretins in whom cessation of thyroid feeding leads rapidly to a recurrence of myxedema with its train of symptoms, Hess and Strauss were led to undertake experimental work on autotransplantation and homotransplantation of the thyroid. Autotransplantation of the thyroid into the thyroid capsule was successful in all cases. The authors believe that there should be a minimum disturbance of the blood supply in the region in which the transplant is placed, and that foreign bodies, such as suture material, should not come into contact with the transplant. The varying degree to which a homotransplant takes depends on the amount of reaction between the host and the tissue transplanted. A familial relationship and probably the early age of the animals on which operation was performed were important factors in the results.

9. **Salicylates in Arthritis.**—The results of the experiments reported by Fantus and his associates indicate that in the experimentally induced arthritis of rabbits salicylates are not only worthless, but even harmful. Sodium salicylate, when used in a dose comparatively harmless to animal controls, was decidedly detrimental and liable to be fatal to animals infected with the hemolytic streptococcus. The addition of sodium bicarbonate does not lessen much the harmfulness of the salicylate to infected rabbits. Sodium bicarbonate given alone is not injurious to infected rabbits, neither does it produce a noticeable improvement. Acetylsalicylic acid, in equivalent dosage, appears to be much more toxic to normal rabbits than is sodium salicylate, and is harmful to infected rabbits as well. Salophen has either no influence or an unfavorable one on the course of the infection.

10. **Roentgenography of Lungs.**—A 10 per cent. suspension of iodoform in olive oil was injected into the lungs for purposes of roentgenography with most satisfactory results. Experiments were made with solution of thorium. The shadows cast by this fluid in the air passages were too faint and diffuse for practical value. The fluid also seemed more toxic than the iodoform emulsion. When the lungs were dissected after an intratracheal injection of iodoform oil, this material, apparently in the same degree of suspension, was found in the bronchi, bronchioles and smallest air passages.

The mortality among the animals injected appears to be approximately 25 per cent., or three out of thirteen. The type of lesion in the lungs of the dogs whose death was considered to be due ultimately to the injected emulsion, was that of a proliferative bronchopneumonia. As similar suspensions of iodoform in oil have been used in the local therapy of human pulmonary diseases, it is hoped that perfection of the method may ultimately permit its application to man. This preliminary study is the basis of the belief of the authors that by such a method it may become possible to define with precision many roentgenographic shadows which are at present largely data for speculation.

11. **Infundibular Tumor.**—An account is given by Newmark of a boy who died at 14 years after having had diabetes insipidus continuously for about five years. Signs of a tumor appeared only about two weeks before death. A craving for alcoholic drink and unusual tolerance of it are recorded. A tumor occupying the region of the infundibulum, extending forward through the lamina terminalis, between the frontal lobes, and backward into the third ventricle and destroying the neurohypophysis and most of the pars intermedia, accounted for the diabetes insipidus. There was also atrophy of the pineal body. A survey of the literature confirms the view that a tumor causing diabetes insipidus is commonly situated in, or near, the neurohypophysis, but occasionally in the pineal body. It does not appear from clinico-pathologic observations that it is overproduction of a diuretic substance that causes diabetes insipidus.

12. **Reactivated Thymus.**—Hoxie's patient, first seen at the age of 19, had been suffering for two years from shortness of breath. He had measles as a child; no other diseases except a headache about three to five times a year since 10 years of age. The patient vomited at the end of each attack. Formerly he was the "fattest" one in the family, but was now thin. Sleep was poor on account of a "stretching of the diaphragm"—evidently a feeling of constriction. The only important physical finding was increased submanubrial dulness. The roentgenogram of the chest showed an enlarged shadow in this area. The manubrium was resected and some pieces of thymus removed. The microscopic study of these showed the epithelialization described by Matti and Klose as characteristic of the reactivation of the adult thymus.

13. **Diastatic Activity of Urine.**—The results reported by various authors, not only in experimental pancreatic lesions in animals, but in pancreatic disease in man, led McClure and Pratt to the present study. The method employed to estimate diastatic activity was one devised by Wohlgemuth. The authors studied the diastatic activity of the urine in twenty-two healthy adults and in 108 hospital patients. These patients were without evidences of pancreatic disease or diabetes mellitus. The conclusions arrived at, in part, are: The estimation of the diastatic activity of the urine is of very slight value in the diagnosis of pancreatic disease. In rare instances, however, a large amount of diastase is present—more than 500 units per cubic centimeter. This finding strongly suggests disease of the pancreas. The diastatic activity in the urines of persons with normal pancreas varies widely. The estimation of diastatic activity in the feces is of slight value as an aid to the diagnosis of disease of the pancreas. Obstruction of the pancreatic ducts in man results in a low diastatic activity in the feces. The diastatic activity in the feces of persons without pancreatic disease varies widely. The authors suggest that the absence of diastatic activity in conditions in which the pancreas is normal is probably due to complete absorption of the diastase by the intestines.

14. **Suprarenal System and Carbohydrate Metabolism.**—Mackenzie believes he is justified in accepting the following view of the relation of the suprarenal system to carbohydrate metabolism: 1. Nervous stimuli, especially of the sympathetic, represented by piqûre or splanchnic stimulation, are followed by an increased secretion of epinephrin, and this hypersuprarenalinemia like that following epinephrin injections, causes hyperglycemia and glycosuria in part by inhibiting glycogenesis, and in part by furthering glycogenolysis. 2. The hyperglycogenolysis thus produced is dependent partly on a direct stimulation of the liver cells and partly on its action in rendering the receptive material between the sympathetic nerve endings and the liver cells more sensitive to nervous stimulation. 3. Epinephrin does not produce its effects by inhibiting glycolysis, and the disturbances in sugar metabolism following its administration have little or nothing to do with the loss of glycolytic power, which is probably a part of the altered metabolism in diabetes mellitus. 4. A specific physiologic relation between the islands of Langerhans and the suprarenal medulla is unproved. 5. Suprarenalectomized dogs show a diminution of the power to form glycogen from glycose. 6. Following extirpation of the suprarenals in depancreatized dogs there is a rapid disappearance of hyperglycemia. 7. Sugar administered to such animals is neither oxidized nor stored as glycogen, but appears quantitatively in the urine.

15. **Ethylhydrocuprein in Treatment of Lobar Pneumonia.**—As judged from the series of thirty-two cases studied by Moore and Chesney when ethylhydrocuprein hydrochlorid is given by mouth to patients suffering from acute lobar pneumonia in such amounts that they receive at least 0.024 gm. per kilogram of body weight twenty-four hours, and when the size and spacing of the individual doses are adequately regulated, a specific pneumococcidal action appears in their blood within a few hours, and it can be maintained more or less constant for several days. In order to maintain the bactericidal action in the blood at a constant level the intervals between the individual doses given by mouth should not ordinarily exceed about two and one-half to three hours. When ethylhydrocuprein is given by mouth according to a scheme of dosage as outlined, the evidence points to some retention or accumulation in the blood of part of the drug absorbed. Administration of ethylhydrocuprein hydrochlorid by mouth appears to be more satisfactory than intramuscular administration. Pneumococci, not only in vitro, but also in the human body in patients treated with ethylhydrocuprein, may acquire the property of more or less complete resistance or "fastness" to the drug. Toxic symptoms, such as tinnitus, deafness, amblyopia or amaurosis (retinitis) may be observed in the use of the drug in man; they are generally transient. Retinitis, however, may result in more or less permanent impairment of vision.

Arkansas Medical Society Journal, Little Rock

April, XIII, No. 11

16 Information Regarding Correlated Activities of Council of National Defense and Advisory Commission, Medical Departments of Government and Committee of American Physicians for Medical Preparedness. F. F. Simpson, Pittsburgh.—p. 223.
17 Case of Uncinariasis Complicated with Hyperchlorhydria and Pylorospasm. T. M. Fly, Little Rock.—p. 227.

Boston Medical and Surgical Journal

April 26, CLXXVI, No. 17

18 *Comparative Results in Suprapubic and Perineal Prostatectomies. J. M. Gile, Hanover, N. H.—p. 587.
19 *Method of Supporting Bladder in Certain Cases of Cystocele. H. L. Smith, Nashua, N. H.—p. 591.
20 Diagnosis of Extra-Uterine Pregnancy. G. DeN. Hough, New Bedford.—p. 593.
21 Extra-Uterine Pregnancy. R. H. Seelye, Springfield.—p. 595.
22 *Variations in Pulmonary Resonance. G. C. Shattuck, Boston.—p. 599.
23 *Variations in Pulmonary Voice Sounds. W. D. Reid, Newton.—p. 601.

18. **Results in Suprapubic and Perineal Prostatectomies.**—The total number of cases operated on by Gile was 62. Of these, 24 were performed by the suprapubic route and 38 by the perineal. Among the 24 suprapubic operations there were 11 deaths; in the 38 perineal operations there were 4 deaths; a total of practically 24 per cent. of fatalities for all operations, and a fatality of nearly 46 per cent. in the suprapubic cases and 10.6 per cent. for the 38 perineal cases. Of the 47 patients who recovered, there were 42 perfect functional results. Of the five imperfect functional results, one patient had a permanent abdominal sinus, this, of course, being a case of suprapubic operation. Two other suprapubic patients required secondary operation for closure of abdominal sinuses, this procedure giving final perfect result, and so are classed with the 42 functional cures. Of the 5 imperfect results, 2 patients had slight, but permanent, perineal sinuses, leaking occurring only at time of urination. Both, however, were in cases of malignant disease of the prostate. One had rectal

fistula, this also a malignant case. One perineal patient at last report had a partial incontinence of urine, and this was the only nonmalignant case of the perineal service that failed of perfect functional result. In the patients that recovered there were 2—1 perineal and 1 suprapubic—that suffered with very severe infection following the operation. One perineal patient had a severe hemorrhage into the bladder, the blood clotting and giving much difficulty in emptying it, but made final complete recovery. One perineal patient had extensive scrotal infiltration with urine, which persisted for some weeks. One had late stricture, which was permanently relieved by passing sounds. Two patients in the course of recovery developed orchitis of brief duration. Of the 15 cases of death 2 were from exhaustion; 1 patient died of pulmonary embolism forty days after operation, but having a sinus not quite healed; 2 died of suppression of urine and resulting uremia; 3 died of mixed pyogenic infections and 1 of tetanus; 3 died promptly after operation, and are credited to surgical shock; these three were suprapubic operations; 1 died of hemorrhage a week after operation—a suprapubic case; 1 patient a perineal case, appeared to die of dynamic ileus or intestinal stasis; 1 died of persistent vomiting that came on ten days after operation, and the whole clinical picture was that of cancer of the stomach with pyloric stenosis.

19. **Method of Supporting Bladder in Certain Cases of Cystocele.**—Smith's method consists in attaching the uterus to the posterior inferior surface of the bladder, the cervix being sutured firmly to the posterior wall of the urethra, just above and behind the meatus. By this maneuver the bladder pouch is tucked up into the pelvis, and the bladder as a whole rests on the anterior wall of the uterus as on a shelf.

22. **Variations in Pulmonary Resonance.**—According to Shattuck, slight differences in pulmonary resonance below the clavicles in front, and at the apices and bases behind, are common in chests which can properly be regarded as negative from a clinical standpoint. These differences are ordinarily disregarded. They are important when, for other reasons, the existence of pulmonary disease is suspected. Under these conditions they may lead the examiner to believe the disease is more extensive than it is, or they may be a factor in causing him to make diagnosis of phthisis when it does not in fact exist. Shattuck has seen many cases in which the diagnosis of phthisis has been made on insufficient evidence, with resulting hardship to the patient, and the variations of resonance mentioned may have led to errors in this direction. On the other hand, he emphasizes that the variations of resonance are slight, and that the importance of well marked dulness for diagnosis is not in question.

23. **Variations in Pulmonary Voice Sounds.**—The spoken and whispered voice, Reid says, though most often louder at the right apex, is not necessarily so in chests that are clinically negative. The left base may transmit the spoken voice louder in a surprising number of cases. The variations in pulmonary voice sounds do not follow with any degree of accuracy those in pulmonary resonance, save over the right apex. The transmission of the spoken and whispered voice over normal chests presents considerable variation, and this should be clearly appreciated in drawing conclusions as to the presence of pathologic conditions, such as pulmonary tuberculosis, etc.

Cleveland Medical Journal

March, XVI, No. 3

24 Pulmonary Syphilis; Report of Case. R. Dexter, Cleveland.—p. 147.
25 Use of Blood Transfusion. A. B. Eisenbrey, Cleveland.—p. 155.
26 Abdominal Tumor (Papilloma of Ovary) of Unusual Size (180 Pounds). W. E. Lower, Cleveland.—p. 161.
27 Relation of Syphilis to Mental Disease. A. G. Hyde, Cleveland.—p. 163.
28 Influence of Force of Gravity on Circulation. R. J. Schraff, Cleveland.—p. 170.

Indiana State Medical Association Journal, Fort Wayne

April, X, No. 4

29 *Occlusive Drainage for Empyema of Chest, Demonstration of Operation and Instruments. M. I. Rosenthal, Fort Wayne.—p. 135.
30 Roentgen Ray Diagnosis of Mastoid Disease. A. M. Cole, Indianapolis.—p. 139.
31 Infections of Mastoid; Roentgenography and Other Aids to Early Diagnosis. W. F. Clevenger, Indianapolis.—p. 140.
32 Errors in Diagnosis of Diseases of Accessory Sinuses. J. Maurer, Marion.—p. 143.

29. Abstracted in THE JOURNAL, Oct. 21, 1916, p. 1251.

Iowa State Medical Society Journal, Des Moines

April, VII, No. 4

33 Hematoma of Abdominal Wall Simulating Intra-Abdominal Accident. W. M. Shirley, Carroll.—p. 138.
34 Fractures of Os Calcis. P. A. Bendixen, Davenport.—p. 140.
35 Case of Complete Circumflex Paralysis. A. M. Evetz.—p. 143.
36 Continuous Sponge. C. A. Boice, Washington.—p. 145.
37 Present Day Surgery of Abdomen. D. W. Ward, Oelwein.—p. 149.
38 Four Cases of Status Epilepticus Treated with Success. W. Held, Chicago.—p. 151.
39 Facts, Fads and Fancies Relative to Medical Practice. P. R. Wood, Cedar Falls.—p. 152.
40 Exhibition Clinical Eye Case. G. F. Harkness, Davenport.—p. 154.

Journal of Laboratory and Clinical Medicine, St. Louis

April, II, No. 7

41 Calcium Sulphid, as Chemical and Clinical Antidote for Mercuric Chlorid Poisoning, with Experiments; Report of Case. J. H. Wilms, Cincinnati.—p. 445.
42 Preliminary Medical Study of Positive Cases Found in First Year's Work of Michigan Tuberculosis Survey. V. C. Vaughan, Jr., Detroit.—p. 459.
43 Spirochetes. H. Noguchi, New York.—p. 472.
44 *Effect of Extensive Venesection and Transfusion on Kidney Lesions in Severe Acute Mercuric Chlorid Poisoning. W. H. Burmeister, Chicago.—p. 500.
45 Recent Advances in Study of Autolysis. M. Morse, Chicago.—p. 506.
46 Pernicious Vomiting without Acidosis Associated with Disturbance of Ammonia Urea Quotient of Blood. H. L. McNeil and M. D. Levy, Galveston, Texas.—p. 509.
47 Use of Fehling's Solution in Determination of Blood Sugar. H. McGuigan, Chicago.—p. 514.
48 Preservation of Erythrocytes of Known Group for Iso-Agglutinin Group Determination. M. G. Wohl, Omaha.—p. 516.
49 Construction of Apparatus Using Structural Steel Toy. S. B. Kleiner, New Haven, Conn.—p. 517.
50 Clarification of Complement in Relation to Its Preservation. N. E. Williamson, Stockton, Calif.—p. 518.

44. **Effect of Venesection and Transfusion on Kidney Lesions.**—Copious venesection followed by transfusion of normal blood according to Burmeister inhibits both qualitatively and quantitatively the characteristic degeneration usually found in the epithelium of the ascending loop of Henle in the kidneys of dogs acutely poisoned by mercuric chlorid. In desperate and other cases of acute mercurial poisoning, venesection followed by transfusion should be practiced in addition to other therapeutic measures now in use. In this way metallic mercury can be removed in vitro from the blood of animals poisoned by mercuric chlorid and this blood qualitatively freed from its corrosive contamination can again be utilized in subsequent transfusions.

Journal of Nervous and Mental Disease, Lancaster, Pa.

April, XLV, No. 4

51 *Anatomic Findings in Case of Progressive Lenticular Degeneration. J. A. F. Pfeiffer, Washington, D. C.—p. 289.
52 Mechanism of Paranoia. E. S. Abbot, Waverly, Mass.—p. 312.
53 Dynamic Psychology and Practice of Medicine. H. D. Singer, Hospital, Ill.—p. 324.
54 *Symptom Complex Associated with Interpeduncular Tumors. H. I. Gosline, Worcester, Mass.—p. 337.

51. **Progressive Lenticular Degeneration.**—The case reported by Pfeiffer presented the essential aspects of the disease described by Wilson as progressive lenticular degeneration. The anatomic changes found are analogous with those described by Wilson. The basal ganglions were most severely diseased, especially that portion of the lenticulate nucleus known as the putamen, in which area an extensive destruction and softening of the tissue occurred. The remaining part of the lenticulate nucleus, and the caudate nucleus, were less severely affected, and the alterations in the cortex were not intense. The pathologic changes were characterized by a degeneration of the neuronic elements, with a compensatory proliferation and hyperplasia of the glial tissue. Many singular morphologic gliogenous variations were exhibited. No evidence of inflammation or pathologic vascular alterations were discovered.

54. **Symptom Complex of Interpeduncular Tumors.**—Gosline cites the case of a man of 30 years who had active symptoms of eight months' duration characterized by drowsiness of such persistence that he lost various positions. He died with signs of interpeduncular tumor. The tumor was made up of undifferentiated anterior lobe cells such as are found in the hibernating animal, and a correlation is suggested between tumors of this sort and the possibility of human hibernation. There was a high incidence of twins in the immediate family of the patient. His organs showed fetal lobulations and other variations from the normal.

Medical Record, New York

April 28, XCI, No. 17

55 Biopsy and Cancer—Review. W. S. Bainbridge, New York.—p. 705.
56 Intravenous and Intraprostatic Injections of Methylphenol and Normal Phenol Serum in Gonorrhea. F. G. Cano, San Salvador, T. M. Townsend and J. J. Valentine, New York.—p. 715.
57 Radium Dosage. J. B. Bissell, New York.—p. 720.
58 Acute Pancreatitis. L. H. Levy, New Haven, Conn.—p. 721.
59 Anxiety About Lumbar Puncture. L. Newmark and W. F. Beerman, San Francisco.—p. 723.
60 Plan for Prevention of Venereal Disease in Our Military Forces. A. L. Wolbarst, New York.—p. 725.

Mental Hygiene, Concord, N. H.

January, I, No. 1

61 Wider Field of Work of National Committee for Mental Hygiene. L. F. Barker, Baltimore.—p. 4.
62 Underlying Concepts in Mental Hygiene. W. A. White, Washington, D. C.—p. 7.
63 Unemployment and Personality—Study of Psychopathic Cases. H. M. Adler, Boston.—p. 16.
64 Insane in County Poor Farm. T. W. Salmon, New York.—p. 25.
65 Growth of Provision for Feebleminded in United States. W. E. Fernald, Waverly, Mass.—p. 34.
66 Mental Adaptation. F. L. Wells, Waverly, Mass.—p. 60.
67 Organized Work in Mental Hygiene. C. W. Beers.—p. 81.
68 What State Hospital Can Do in Mental Hygiene. W. L. Russell, White Plains, N. Y.—p. 88.
69 Subnormal Child—Survey of School Population in Locust Point District of Baltimore. C. M. Campbell, Baltimore.—p. 96.

Missouri State Medical Association Journal, St. Louis

April, XIV, No. 4

70 Discussion on: Should Asymptomatic Individual with Positive Wassermann Be Treated? M. E. Engman, St. Louis and others.—p. 145.
71 Blastomycosis; Report of Three Cases. W. Frick, Kansas City.—p. 158.
72 Medical Education in Missouri an Ideal. F. G. Nifong, Columbia.—p. 161.
73 Tonsils and Adenoids. J. P. McCann, Warrensburg.—p. 164.
74 Relation of Nasal and Oral Sepsis to Systemic Disease. T. A. Blackmore, Windsor.—p. 166.
75 Everyday Use of Bacterins. C. F. Briegleb, St. Clair.—p. 170.
76 Magnesium Oxid in Treatment of Mercury Poisoning; Report of Cases. E. Schisler, St. Louis.—p. 173.

New York Medical Journal

April 28, CV, No. 17

77 Pneumococcic Peritonitis in Infancy and Childhood. I. A. Abt, Chicago.—p. 769.
78 Some Problems of Differential Diagnosis in Chronic Pulmonary Disease. J. A. Miller, New York.—p. 773.
79 Channels of Infection and Methods of Transmission of Tuberculosis. W. H. Park, New York.—p. 777.
80 Nonsurgical Cures of Exophthalmic Goiter. I. Bram, Philadelphia.—p. 778.
81 Value of Early Vaccine Treatment of Pneumonia. G. H. Sherman, Detroit.—p. 781.
82 Circumcision of Tonsil. F. G. Murphy, Mason City, Iowa.—p. 785.
83 Obstetric Paralysis; Review of Its Mechanism and Outlook for Its Relief. H. W. Wright, San Francisco.—p. 788.
84 Municipal Birth Control Clinic. M. H. Kahn, New York.—p. 790.

Pennsylvania Medical Journal, Athens

April, XX, No. 7

85 Disposition of Ligaments in Hysterectomy. S. E. Tracy, Philadelphia.—p. 461.
86 *Conservative Treatment of Puerperal Sepsis. E. E. Montgomery, Philadelphia.—p. 465.
87 *Roentgenotherapy in Gynecology. F. E. Keene, Philadelphia.—p. 469.
88 *Attitude of Department of Labor and Industry Toward Problem of Occupational Diseases. J. P. Jackson, Harrisburg.—p. 472.
89 Cranial Nerve Syphilis; Technic of Treatment. F. Eastman, Erie.—p. 478.
90 Use of Prisms in Ophthalmic Practice. J. E. Willetts, Pittsburgh.—p. 483.
91 Use of Ethylhydrocuprein in Diseases of Eye. W. Zentmayer, Philadelphia.—p. 487.
92 Symptoms of Empyema of Maxillary Sinus; Simple Operative Method for Its Relief. J. J. Sullivan, Jr., Scranton.—p 491.
93 Status of Lingual Tonsil and Its Surgery. J. A. Babbit, Philadelphia.—p. 495.
94 Exaggerated Importance of Blood Pressure. R. Parker, Norristown.—p. 503.
95 Industrial Injuries to Eyes. W. C. Posey, Philadelphia.—p. 504.
96 Treatment of Acute Anilin Poisoning and Various Derivations Incident to Its Manufacture. J. C. Lyons, Marcus Hook.—p. 509.
97 Vesical Calculus Incarcerated in Vagina. E. Lyon, Williamsport.—p. 510.
98 Case of Mercurial Poisoning. F. L. Marsh and W. A. Marsh, Mount Pleasant.—p. 510.

86. Abstracted in The Journal, Nov. 4, 1916, p. 1396.
87. Abstracted in The Journal, Oct. 28, 1916, p. 1328.
88. Abstracted in The Journal, Nov. 4, 1916, p. 1394.

Rhode Island Medical Journal, Providence

April, I, No. 4

99 Industrial Accident Compensation Legislation; Medical Phase. F. I. McCanna, Providence.—p. 83.
100 Decadence in Medical Economics. W. L. Harris, Providence. p. 92.
101 Case of Gangrenous Arthritis of Knee of Diabetic Origin. J. C. Rutherford, Providence.—p. 98.

Surgery, Gynecology and Obstetrics, Chicago

May, XXIV, No. 5

102 *Hypospadias and Its Treatment; a New Operation. C. Beck, Chicago.—p. 511.
103 *Pernicious Anemia with Special Reference to Its Surgical Management. N. M. Percy, Chicago.—p. 533.
104 Cancer of Large Bowel. G. E. Armstrong, Montreal, Canada. p. 545.
105 Cancer of Stomach. C. H. Peck, New York.—p. 549.
106 Cancer of Breast. W. Meyer, New York.—p. 553.
107 *Transplantations of Ectopic Pregnancy from Fallopian Tube to Cavity of Uterus. C. J. Wallace, Duluth, Minn.—p. 578.
108 Present Status of Roentgenotherapy in Management of Deep-Seated Malignancy. J. T. Case, Battle Creek, Mich.—p. 580.
109 Present Status of Roentgenology in Management of Deep-Seated Malignancy. G. E. Pfahler, Philadelphia.—p. 588.
110 Hernia Through Triangle of Petit; Report of Case. J. H. Rishmiller, Minneapolis.—p. 589.
111 Sterility in Female. M. T. Goldstine, Chicago.—p. 592.
112 Sterility in Male. L. E. Schmidt, Chicago.—p. 594.
113 Id. V. D. Lespinasse, Chicago.—p. 597.
114 *Tuberculosis of Spine; End Results of Operative Treatment. M. S. Henderson, Rochester, Minn.—p. 600.
115 *Carcinomatous Ovarian Teratoma with Premature Puberty and Precocious Somatic Development. R. H. Harris, Battle Creek, Mich.—p. 604.
116 *Operative Treatment of Pes Cavus; Stripping of Os Calcis. A. Steindler, Iowa City, Iowa.—p. 612.
117 Unique Case of Injury of Elbow Joint. P. W. Davis, Portland, Maine.—p. 615.
118 Lateral Double Loop Suture for Fatty or Infected Abdominal Walls. A. Schwyzer, St. Paul.—p. 617.
119 External Urethrotomy; Its Technic. J. F. McCarthy, New York. p. 619.
120 *Plastic Operation on Fallopian Tubes for Production of Temporary Sterility. C. Culbertson, Chicago.—p. 622.
121 Conduct of Third Stage of Labor. H. K. Gibson, Chicago.—p. 625.

102. **Hypospadias and Its Treatment.**—Beck's method is a flap method with the extensive use of the prepuce. He has observed fifteen cases for a period of from one to eight years each. They have been almost normal in appearance and function.

103. **Pernicious Anemia and Its Surgical Management.**—Percy has operated in thirty-seven cases of pernicious anemia, but this report includes only the first twenty-four cases, in which the elapsed interval since the operation has been six months or more. The regions in which foci were found were the gallbladder, the appendix, and the mouth and throat. In twenty of the twenty-four cases, chronic cholecystitis, with or without stones, was present, seventeen of which also presented evidence of previous inflammation of the appendix, and six of this group also had marked infection in or about the teeth, and one had infected tonsils. Four cases had marked evidence of a subacute infection in the appendix. In one patient the only focus found was in the teeth. From the last nine cases bacteria were grown from three of the nine spleens removed, from four of the seven gallbladders removed, and from six of seven appendixes removed. The only case not giving a bacteriologic growth, was one in which the spleen

was the only specimen removed, the appendix having been previously removed. This patient had had a long standing pyorrhea, for the relief of which a number of teeth had been extracted. No culture was made from the mouth. The predominating micro-organism found was the hemolytic streptococcus, being obtained in seven of the nine cases, the colon bacillus in five, the *Streptococcus viridans* in four, the *Staphylococcus albus* in one.

Splenectomy, cholecystectomy and appendectomy were done in seventeen cases; splenectomy, cholecystostomy and appendectomy in one case; splenectomy and cholecystectomy in two cases; splenectomy and appendectomy in three cases; splenectomy alone in one case. In this one several teeth were extracted later, as well as the tonsils removed in one other case. Teeth were also extracted in five other cases. Transfusion was done routinely on the table immediately at the close of each operation. There were two operative deaths; 8.3 per cent. One of these patients died on the twelfth day from uremia, the other about sixteen hours after operation, apparently from some form of blood crisis beginning about five hours after operation. One patient showed practically no improvement, but had relief from mental and gastric symptoms for four weeks, at the end of which time the symptoms recurred, the spinal cord symptoms progressed rapidly, and the patient died at the end of ten weeks. The other twenty-one, or 87 per cent., were markedly improved. Two patients had recurrence of symptoms at the end of four months, death at eight months. One died from an accident four months after operation, with blood count nearly 5 million. Four patients had recurrence of symptoms just about six months after operation; interval of these now since operation, eight, nine, ten and eleven months, respectively. The other fourteen, or 58 per cent., are all clinically in good condition, the interval since operation being as follows; three about seven months; two, eight months; two, nine months; one, ten months; one, fourteen months; two, fifteen months; one, eighteen months; one, twenty-three months, and one, thirty-two months. This latter case, at the end of two years and eight months is clinically perfectly well and carries no evidence of pernicious anemia in her blood, except that an occasional normoblast can be found. In every case except one in which recurrence of the disease has occurred, the patient presented mental, nervous or spinal cord symptoms at the time they came under treatment, and in most of them, these symptoms occurred early in the disease. From observations of these cases it would seem that in all cases of pernicious anemia with involvement of the spinal cord and central nervous system, the prognosis is extremely bad under any form of treatment, and the patients should not be operated on.

107. **Transplantation of Ectopic Pregnancy.**—In an early case in which the tube is still in a healthy condition, not too badly distended, and all things favorable, Wallace thinks a supreme attempt should be made to save the life of the growing child by opening the tube carefully and dissecting out the pregnancy intact and transplanting it into the uterus. This can be very quickly done. It does not endanger the life of the mother and may be her only chance to bear a child. In support of this theory Wallace reports a case which will show without doubt that it can be done. The pregnancy went on normally to full term and resulted in the natural birth of a fully developed child.

114. **Tuberculosis of Spine.**—In the Mayo Clinic, from July, 1912, to July, 1916, 274 cases of tuberculosis of the spine were observed. Eighty-one patients were operated on, seventy-four according to the method of Albee and seven according to the method of Hibbs. The oldest patient was 53, the youngest 2. Only seven were under 12 years of age. The disease was located in the lumbar region in thirty-four instances, in the dorsal in thirty-six and in the dorsolumbar in eleven. The average duration of symptoms was two years and six months. There were no deaths due to the operation. Seven patients of the series are known to have died some time after the operation. Seventy-three cases, therefore, are the basis of Henderson's percentages. Thirty-one patients (42.4 per cent.) are cured. Thirty-three patients (45.2 per cent.) are classified as relieved, though no doubt some of this group will go on to a cure when sufficient time has elapsed. Although there were no operative deaths, seven of the seventy-three patients (9.5 per cent.) are known to have died later; two of these had been cured of the tuberculosis of the spine. Henderson concludes that neither the Hibbs nor the Albee type of operation for ankylosing the diseased area in tuberculosis of the spine is in any sense a radical operation for extirpation of the focus of disease. Patients submitted to these procedures should be in good general condition. Paraplegia per se is not a contraindication. These procedures in themselves are not serious. A proper selection of patients will give a high percentage of cure and considerably shorten the period of treatment.

115. **Carcinomatous Ovarian Teratoma.**—Harris' patient was only 5 years and 10 months old. The growth of the tumor was associated with the beginning of puberty at 5 years of age and with rapid bodily development. The tumor was a complex cystosolid teratoma with definite adenocarcinomatous areas. There has been no menstruation since the removal of the tumor, and no further precocious growth. The first menstrual period appeared when the patient was 5 years old. The second period began two months later and was followed at regular intervals of four weeks by five other menstrual periods. Each period lasted one week, and was accompanied by profuse menstrual flow and by pain in the lower abdomen. The physical changes usually observed at puberty began to be noticed soon after the first menstrual period. The breasts grew larger, the areolae darkened, the pubic region became covered with dark brown hair, hair appeared in the axillae, and the whole body developed rapidly. The growth of the ovarian tumor was well advanced by the time of the third menstrual period, seven months before operation, when its presence was discovered by the family physician. There was no discoverable recurrence when the patient was examined thirty months after removal of the tumor.

116. **Operative Treatment of Pes Cavus.**—The lower surface of the os calcis is stripped by Steindler entirely to its anterior edge where the short flexors of the toes and the abductors of the first and fifth toes are inserted together with plantar fascia.

120. **Plastic Operation to Produce Temporary Sterility.**—The procedure described by Culbertson involves the fimbriated end of the tube only, and is performed by transposing the infundibulum beneath the round ligament into the anterior culdesac, and then closing off the anterior culdesac by a transverse ventrosuspension of the uterus, employing the round ligaments throughout their entire length, from the inguinal ring on one side to the inguinal ring on the other.

Tennessee State Medical Association Journal, Nashville

April, IX, No. 12

122 Trend of Times in Medicine and Surgery. C. N. Cowden, Nashville.—p. 463.
123 Trachoma. A. F. Richards, Sparta.—p. 470.
124 Tubercular Peritonitis. R. A. Barr, Nashville.—p. 477.
125 Hernia. E. H. Baird, Dyersburg.—p. 481.

Vermont Medicine, Rutland

April, II, No. 4

126 Tardy Pain of Stomach. A. H. Bellerose, Rutland.—p. 85.
127 Hernia of Urinary Bladder. A. P. Heineck, Chicago.—p. 92.

West Virginia Medical Journal, Huntington

March, XI, No. 9

128 Aggravated Coryza—So-Called Grippe. G. A. Aschman, Wheeling.—p. 313.
129 Pathogenesis of Some Nonpsychogenetic Types of Functional Nervous Disorders. T. A. Williams, Washington, D. C.—p. 316.
130 Roentgen Rays in Diagnosis. W. C. Moser, Morgantown.—p. 320.
131 Study of Arsenic Compounds in Chemotherapy of Tuberculosis. A. Arkin, Morgantown.—p. 329.

April, No. 10

132 Prodigal Sister. W. C. Slusher, Bluefield.—p. 353.
133 Indications for Operation in Head Injuries. A. McGlannan, Baltimore.—p. 355.
134 Case of Multiple Fibrocystic Tumor of Endometrium. A. S. Grimm, St. Marys.—p. 357.
135 Report of Several Cases, Showing Results Obtained in Treating Pathologic Lesions of Deep Male Urethra with Aid of Modern Urethroscope. O. D. Barker, Parkersburg.—p. 358.
136 Methods and Results in Surgery of Stomach and Intestine. G. W. Crile, Cleveland.—p. 365.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

April, XVIII, No. 4

1 *Fragilitas Ossium and Its Association with Blue Sclerotics and Otosclerosis. E. Bronson.—p. 240.
2 Two Cases of Congenital Superior Radio-Ulnar Synostosis. D. M. Greig.—p. 281.
3 Laparotomy under Local Anesthesia. J. M. Graham.—p. 284.

1. **Fragilitas Ossium.**—A description is given by Bronson of two families with hereditary fragility of the bones associated with gray-blue sclerotics, and in one family with otosclerosis also. A summary of the literature of these peculiarities in relation to fragilitas ossium is presented, together with a general discussion of the whole subject, case reports of the congenital type, and a bibliography. In the first family, consisting of fifty-five individuals in four generations, twenty-one had gray-blue sclerotics. Of these twenty-one, only one, a 6 year old boy, who survived infancy, has had no fractures. The number of fractures in any individual is not excessive, and they require a certain amount of force for their production. Sprains and dislocations are also common. The majority of adults are in good general health, and are able to do ordinary work. The mortality among infants with blue sclerotics is in this family greater than among those not affected. The heads of those individuals in this family who have blue sclerotics and bone fragility show an abnormal prominence of the frontal and occipital bones. In two of them there is a history of patency of the fontanel throughout life. Of eight adults with blue sclerotics and fractures, seven had varying degrees of deafness, the eighth died at 23 without deafness. In the second family, consisting of eight individuals in three generations, seven have blue sclerotics, and four of these have had fractures; two others have a tendency to sprains. All are able to lead an ordinary life, except one child, which is somewhat crippled and incurs fractures too easily to be able to run and play. In this family the head has the characteristic shape frequently seen in osteogenesis imperfecta congenita, namely, increase in the bitemporal diameter, so that the ears are turned outward and downward, slight downward tilting of the axis of the eyes, and an underhung lower jaw. There is no tendency, as in the first family, to deafness, nor any to arterial sclerosis. In both families the stature of those affected is below the average, with the exception of three members of the first family.

Indian Medical Gazette, Calcutta

March, LII, No. 3

4 Gunshot Wounds of Abdomen (During Siege of Kut). C. H. Barber.—p. 81.
5 Cataract Operation Old and New. M. Corry and R. H. S. Bahadur. —p. 90.
6 Influence of Beriberi on Body Weight. J. Mulvany.—p. 98.
7 Surface Tension and Wassermann Reaction. V. Nesfield.—p. 99.
8 Prevention of Sepsis in Cataract Extraction. H. Herbert.—p. 100.

Journal of Tropical Medicine and Hygiene, London

April 2, XX, No. 7

9 Disposal of Town Refuse. J. T. Clarke.—p. 73.

Lancet, London

April 14, I, No. 4885

10 War Surgery of Abdomen. C. Wallace.—p. 561.
11 Importance of Diagnosis of Enteric Fevers by Agglutinin Determinations. E. W. A. Walker.—p. 568.
12 *Easy and Rapid Method of Detecting Protozoal Cysts in Feces by Means of Wet-Stained Preparations. R. Donaldson.—p. 571.
13 *Toxic Symptoms After Use of Bismuth Paste. F. A. Hepworth. —p. 573.
14 Relation of Structure to Function as Seen in Mechanism of Venous System. F. W. Jones.—p. 574.
15 Immediate After-Treatment of Guillotine Amputation Stump. H. F. Woolfenden and J. Campbell.—p. 576.

12. **Detection of Protozoal Cysts in Feces.**—A mixture of equal parts of the two stains used in any of the three following combinations Donaldson found will yield the best results. A. Five per cent. aqueous solution of potassium iodid saturated with iodin to which is added an equal volume of ether. B. (1) A saturated aqueous solution of rubin S; or (2) a saturated aqueous solution of eosin; or (3) Stephens' scarlet writing fluid. A few loopfuls of one of the above stain combinations are placed on a clean slide, a loopful of feces taken and rubbed up with the stain to form a fairly smooth suspension, and a clean cover slip gently lowered over the drop. The cysts stand out as brilliant yellow or greenish-yellow spheres, which even the veriest tyro cannot miss seeing. Such cysts have a very sharply defined outline which in the case of coli and histolytica cysts appears, in the rubin S combination, using daylight as the illumination, as a sharp deep purple ring. In the case of other cysts this well recognized outline is not so deeply colored, although it is still tolerably sharp. The nuclear structures in the cyst stand out as prominently as with the old simple iodin method. In cases in which the light is too strong, it may be necessary to close the iris diaphragm slightly to bring the nuclei into relief.

13. **Toxic Symptoms After Use of Bismuth Paste.**—Five men were found by Hepworth to show symptoms suggesting plumbism, and although under the care of different surgeons and in different wards, all alike suffer from severe septic wounds and all were treated by the application of bismuth and iodoform paste, according to Morison's technic.

Bulletin de l'Académie de Médecine, Paris

April 3, LXXVII, No. 14, pp. 425-480

16 *Prophylaxis of Syphilis. Gaucher and others.—p. 433.
17 The Fissured or Grooved Tongue as Sign of Syphilis. (La langue fissurée ou fendillée, son origine syphilitique ou hérédo-syphilitique.) Gaucher.—p. 437.
18 *The Hygienic Meal. (Des repas à 2 plats et 2 desserts devant l'hygiène.) E. Maurel.—p. 442.
19 Oil-Ether Mixture for Dressing Wounds. G. Duchesne.—p. 451.
20 *System of Writing for the Blind. A. Cantonnet.—p. 453.
21 Apparatus for Compound Fracture of the Long Bones. Prat and P. Reynier.—p. 459.

16. **Prophylaxis of Syphilis.**—The Académie adopted the following six resolutions presented by a committee headed by Gaucher: "The Académie, alarmed by the rapid progress of syphilis, insists with emphasis: 1. On the necessity for letting young men know that chastity is not only possible but recommendable and salutary, and letting married men know that it is their duty from the point of view of morality and of hygiene to avoid chance intercourse. 2. On the absolute necessity for medical examination of military contingents and laborers from the colonies, before they embark for France, and also after their arrival in France, and for medical inspection of colonial workmen every fortnight in the factories where they are employed. 3. On the necessity for strict observance by the police of the ordinances relating to hotels and furnished rooms. The proprietors must insist on the tenants registering their name and civil position whether they rent a room for the night or even during the day. 4. On the necessity for strict enforcement of the ordinances against soliciting and severe repression of the penal offense *racolage* (crimping). 5. On the necessity for informing men who might succumb to temptation that it is indispensable for them to use preventives. 6. On the absolute necessity for entrusting the diagnosis and treatment both in military and civilian circles exclusively to physicians known to be competent, and on the necessity for extension of training in syphilography." In speaking to the question before the vote, Gaucher related a number of instances where men with various other skin affections had been erroneously treated for syphilis. One soldier with scabies for more than a year had spent three months of the year in the hospital, taking treatment for non-existent syphilis, and returned to his service with his still unrecognized, untreated and uncured scabies. In another instance, typical recent syphilis in a prostitute long escaped detection under weekly medical inspections.

18. **The Hygienic Meal.**—Maurel for some years has been affirming that the general health would be better if the average healthy adult would confine himself to two dishes at noon and eve, one from the animal and one from the vegetable kingdom, with two desserts, balanced in the same way, fruits from the vegetable kingdom and cheese, creams, etc., from the animal. With soup at one meal and 350 gm. bread during the day this ration represents 2,445 calories, 35 per kilogram. He gives a menu showing the variety that can be secured with this ration, and compares it with orders recently issued by the

anthorities in France forbidding all hotels, restaurants, diners and other public eating places from serving more than two dishes at a meal, one of meat, with soup, one entrée, cheese and one dessert dish. Cooked or raw vegetables are to be counted as a dish when they are served separately, not as garnishes. The bill of fare for one meal must not comprise more than two soups and nine dishes, namely, one dish of eggs, and choice from two dishes of fish, three dishes of meat, and three dishes of vegetables. The menu each day has to be submitted to the officials if required. Maurel declares that these new regulations, which went into effect in February, are directly in line with what he has been advocating for some years as the rational and hygienic table.

20. **Writing for the Blind.**—The advantage of the method described by Cantonnet is that it can be read by those who see as well as by the blind. The letters are punched dots, but they are arranged in the shape of the ordinary capitals and are thus easily read by anyone. They are punched through a tin ruler which has two rows of slits arranged in groups of three, and the dots are punched through these slits. The letter H, for example, is made with three dots in each of the outer slits and one dot in the center of the middle slit. If a carbon paper is placed under the writing paper, the punched through dots show up plainer. They can be read from the dots or by holding the back of the paper in front of a mirror. Samples of the writing are given, and an illustration of the tin ruler with its two rows of sixteen groups of slits; thirty-two letters can thus be written before the ruler has to be moved down. The method does not compete with the Braille, but supplements it by providing a means of communication with the seeing.

Paris Médical

March 24, VII, No. 12, pp. 229-244

22 The Auscultation Method of Using the Sphygmomanometer: Technic and Findings. L. Tixier.—p. 229.
23 Treatment on the Firing Line of Wounds of the Chest. Schwartz.—p. 235.
24 *Camphor Treatment of Trench Foot. (Pied de tranchée.) V. Raymond and J. Parisot.—p. 238.
25 Training the Crippled by Outdoor Games and Sports. Moreau-Defarges.—p. 241.

March 31, No. 13, pp. 245-260

26 Electrodiagnosis in War. J. Cluzet.—p. 246.
27 Medicated Paraffin Film Treatment for Frostbite and Burns. (Traitement des "gelures des pieds" et des brulures.) F. Rathery and L. Bauzil.—p. 249.
28 *Localized Muscular Rigidity as Sign of Impending Gangrene. (Le signe de Prat.) J. Fiévez.—p. 250.
29 *Continuous Aspiration in Treatment of Infected Wounds. A. Grimberg.—p. 253.

24. **Treatment of Trench Foot.**—Raymond and Parisot state that further experience has confirmed their assumption that the so-called trench frostbite is an infection from some fungus germs, normally in the soil, which acquire pathogenic properties for man under long standing in cold water. Similar affections can be induced in animals by submitting them to stagnation and wet cold. Conditions are like those in Pasteur's experiments with chilled hens. Treatment based on this etiology has given good results, especially dressing the foot with cotton dipped in a mixture of 1.1 gm. pulverized camphor; 15 gm. sodium borate and 1,000 gm. boiled water. Among the 1,093 cases in Africans, October to January, there were four deaths from septicemia or tetanus, but 95 per cent. were cured without a mutilating operation. Of the 232 Arabs, none died and 95 per cent. were cured without an operation. Of the 891 French soldiers, all but fifty returned to active service in from three to five weeks and only five required an operation. Only two had to be discharged from active service.

28. **Sign of Impending Gangrene.**—Prat has called attention to a peculiar rigidity in the muscles after an injury of the limb which he says is a warning of impending gangrene. Fiévez reports several cases in which this sign: hardness of the leg below traumatic injury, persisted until gangrene developed. It is evidently a sign of ischemia, and the ischemia is the result of injury of some large blood vessel above. Necrosis and gangrene almost inevitably follow this muscular rigidity ischemia, and the board-like hardness of the muscles is their precursor. It consequently should turn the scale in favor of amputation in doubtful cases. Theoretically, this pregangrenous ischemic rigidity is capable of retrogression, but in reality it must be regarded as an actual segmental cadaveric rigidity. Conservative surgery is perilous in these conditions. The rigidity further serves to limit the doomed from the sound muscles or group of muscles.

29. **Aspiration Treatment of Wounds.**—Grimberg introduces the rinsing fluid (Dakin solution) into the wound in a continuous flow and aspirates it below by the simple device of a jar with the tube entering the stopper and a tube and faucet below. As the fluid in the jar flows off through the lower tube, the vacuum left aspirates the fluid in the wound. The ends of the tubes in the wound are wrapped with cotton and gauze, tied in place, and the aspiration continues automatically for hours at a time.

Presse Médicale, Paris

March 15, XXV, No. 16, pp. 153-160

30 *Importance of Oxygen in Treatment of Carbon Monoxid Poisoning. (L'instabilité de l'hemoglobine oxycarbonée en présence d'oxygène.) M. Nicloux.—p. 153.
31 The Lesions in Rectum and Colon with Amebic Dysentery. J. Carles and Froussard.—p. 154.

March 22, No. 17, pp. 161-176

32 Primary Malaria in Macedonia and Treatment. P. Abrami.—p. 161.
33 *Abscesses and Eschars from Subcutaneous Injections of Quinin. L. Moreau.—p. 164.
34 Perforation by Scrap of Shell of Stomach Protruding through a Congenital Hernia of the Diaphragm. S. Mercadé.—p. 166.
35 *Barium Sulphate in Gelatin for Roentgen Work. R. Bensaude and M. Terry.—p. 168.
36 *Molar Tooth Sign of Inherited Syphilis. R. Sabouraud.—p. 169.

30. **Treatment of Carbon Monoxid Poisoning.**—Nicloux is professor of chemistry at the University of Paris. He here reiterates that the traditional idea that a red corpuscle once choked with carbon monoxid is a dead corpuscle, is no longer tenable. The corpuscle is not dead; all it needs is oxygen under sufficient tension to displace the carbon monoxid in it. His research has demonstrated that 1 volume of carbon monoxid acts like 220 volumes of oxygen. Hemoglobin in contact with one part carbon monoxid in 220 parts oxygen, takes up equal parts of each, half of the hemoglobin becoming oxygenated, the other half carbon monoxidated. Air contains only 21 per cent. oxygen, so that the proportion would have to be 1:1,000 when air instead of pure oxygen is used. The practical conclusions from the data presented are that when a person suffering from carbon monoxid poisoning is made to breathe pure oxygen as soon as possible, actual resurrection may ensue. In animals deeply intoxicated with carbon monoxid, nearly the whole had disappeared from the blood by the end of an hour of oxygen breathing.

33. **Quinin Abscesses and Eschars.**—Moreau comments on the number of severe abscesses and eschars developing after subcutaneous injections of quinin in the Macedonian campaign. Intramuscular injections seem to be less dangerous from this standpoint. Others have reported severe injury of the sciatic nerve from intragluteal injections of quinin. To be safe, the injection should be made three fingerbreadths outside of the posterior superior spine of the ilium, on a level with the spine.

35. **Simplification of Technic for Roentgen Examination of Digestive Canal.**—Bensaude and Terrey extol the advantages for Roentgen examination of finely pulverized barium sulphate in a 50 per cent. gelatinous vehicle. It forms a velvety cream without any tendency to precipitation of the metal for several hours or days.

36. **Isolated Tooth Sign of Inherited Syphilis.**—Sabouraud for five years has been studying a certain anomaly in the first large molars in the upper jaw, which he has found only in children and other persons giving a positive response to the Wassermann test. He hence regards it as a sign of inherited syphilis, and it often is the only sign to call attention to it. Normally, each cusp of a tooth corresponds to a root, but in the molars in question there seems to be a supernumerary cusp on the inside of the tooth. It forms a protuberance more or less pronounced, and he has discovered it often when the teeth otherwise seemed free from syphilitic stigmata. He calls it the *eminence mamillaire de la face interne des premières grosses molaires supérieures,* and relates instances

in which it gave the clue to specific and effectual treatment. His illustrations show teeth with this rudimentary cusp, with views of normal teeth and of the well known types of other syphilitic dental anomalies.

Progrès Médical, Paris

March 31, XXXII, No. 13, pp. 101-108

37 Microbian Infections of the Scalp. (La teigne amiantacée d'Alibert, etc.) Gougerot.—p. 101.
38 Gas Gangrene. R. Dumas.—p. 102.

April 7, No. 14, pp. 109-122

39 Symptoms Following Injury of Both Median and Ulnar Nerves. M. Loeper and G. Giraud.—p. 109.
40 *Psychotherapy in Wartime. G. L. Duprat.—p. 113. To be continued.
41 No Dressings after Aseptic Operations. A. Chalier.—p. 116.
42 The Effects of the Nervous Strain of Trench Life. (Le cafard.) P. Voivenel.—p. 117.

40. **Psychotherapy in Wartime.**—Duprat states that the rôle of psychiatry has been singularly enlarged by the number and variety of mental pathologic conditions during the war. The war has also emphasized the importance of neurology, but he warns that while waiting for time to heal certain nervous affections there is danger of atrophy from disuse. The neurologic centers should be equipped for exercises and the physiologic play of body and mind. Reeducation is as important, often, as any operation. The concussions and commotions of the war usually aggravate or accelerate preexisting pathologic conditions. Consequently the symptoms induced are out of all proportion to the apparent cause. The latter reveals the extent of a latent ill, such as a brain tumor, sclerosis, tabes, degeneracy, progressive paralysis, etc. The mental confusion that follows shell shock soon disappears when the soil is healthy. He insists on the necessity for early correction of contraction and paralysis, before they become inveterate, and describes the means for this and other fields of psychotherapy.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 31, XLVII, No. 13, pp. 385-416

43 *Gastroptosis and Gastropexy. E. Bircher.—p. 385.

43. **Gastroptosis and Gastropexy.**—Bircher lists the symptoms with gastroptosis as gastric discomfort and pains and constipation, the latter liable to entail nervous disturbances of all kinds, especially pains in various parts of the abdomen and particularly in the sacral region. Headache is also common, and lack of appetite; the loss of weight from inadequate intake of food may turn the scale in favor of the erroneous diagnosis of malignant disease. The pains in the stomach are worse during the day, especially when much on the feet, and they subside on reclining. The pain with ptosis is more to the left than with ulcer, as a rule, and it depends more on the quantity than on the character of the food. Bircher warns, however, that gastroptosis predisposes to ulcer, and may accompany it or cholelithiasis, stenosis of the pylorus, or myasthenia. Actual hysteric stigmata are rare with pure ptosis, but nervous disturbances are common. In women who have borne children, the ptosis is due to loss of elasticity in the abdominal walls and ligaments, and constipation dominates the clinical picture. In the virginal type, the tendency to ptosis is aggravated by pressure from corsets, etc., forcing down the organs below the diaphragm and thus dragging down on the esophagus, ligaments, vessels and nerves. Pain and vomiting are the main symptoms; the ptosis and the constipation are not very pronounced. This type benefits better from gastropexy than the maternal gastroptosis. Gastroplication, shortening the lesser omentum, gives good results at first, but then the omentum stretches and the previous condition returns. Gastro-enterostomy is absolutely contraindicated with gastroptosis. He tried it on a patient with supposed gastric ulcer, but the young woman vomited incessantly afterward and succumbed to inanition in two months. Necropsy confirmed the existence of two ulcers in the duodenum, but the stomach sagged down into the small pelvis, thus closing the gastro-enterostomy opening. In a second similar case he opened the abdomen, resected the gastro-enterostomy opening, and fastened the stomach in place, thus curing the patient completely.

He has applied gastropexy in 62 cases, and reports that 67.7 per cent. were cured and 20.9 per cent. improved. Only 9.6 per cent. failed to derive benefit, aside from 1.6 per cent. who had died. In 42 reexamined recently after over a year or more, only 4.1 per cent. were not improved or cured, outside of 2.6 per cent. who had died. Those who were not improved had had their disturbances so long that complete restitution was out of the question, and only this or that symptom was mitigated. In 6 cases he fastened the liver in place at the same time. When spasm of the pylorus was part of the clinical picture, he slit the pylorus lengthwise and sutured the lips together again crosswise. In the 11 cases in which this was done it proved a complete success. In 6 cases there was a complicating ulcer, and in 2 he resected the ulcer before the gastropexy and in 4 others applied gastro-enterostomy. He warns most urgently that in doing gastro-enterostomy, if there is the slightest tendency to gastroptosis, the operation should conclude with gastropexy. Gastroptosis predisposes further to the arteriomesenteric occlusion so dreaded by surgeons. In 3 of his cases gallstones complicated conditions.

He somewhat modifies Rovsing's technic for gastropexy. Rovsing draws the stomach out through a median incision and makes an interrupted suture in the serosa, parallel to the lesser curvature, and reaching up close to the pylorus. Then, parallel to this, other rows of sutures are taken, at intervals of 2 cm. The ends of the suture threads are brought out through the abdominal wall to the left. The abdominal incision is then sutured and closed with collodion. The ends of the suture material are tied over a glass plate covered with gauze. He scarifies both stomach and wall before taking the sutures. Bircher's modification consists in carrying the suture material around the right costal arch or directly under it through the skin, and he does not carry the middle and lower lines of sutures quite so far to each side. The ends of the threads are brought out at a distance of 4 to 3 cm. from their entering points, and are tied over glass drains wrapped in gauze. By this modification, the stomach is fastened in its proper place and shortened in length at the same time. Rovsing has a record of 163 personal cases and has reported 93 by other Scandinavian surgeons, the outcome being a complete cure or improvement in all but about 12 per cent., except for 4.8 per cent. who have died since.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 1, XXXVIII, No. 17, pp. 257-272

44 *Primary Cancer of the Peritoneum. B. Quarella.—p. 257.

March 4, No. 18, pp. 273-288

45 *Infectious Spirochete Jaundice. G. B. Bonini.—p. 273.
46 Vaccine Therapy of Recurring Staphylococcus Pustular Affection. (Sulla cosidetta malattia di Colles, Graves, Jaccoud.) P. F. Arullani.—p. 278.

March 8, No. 19, pp. 289-304

47 Symptoms from Foreign Body in Pleura. S. Gangi.—p. 299.
48 Necessity for Examining the Throat of Every Sick Child. A. De Blasi.—p. 301.

44. **Cancer of the Peritoneum.**—The two cases reported by Quarella were typical examples of diffuse malignant peritoneal epitheliomas. One patient was a man of 49 and the symptoms were those of abdominal cancer in general, with death a month after the first symptoms had attracted attention. The second patient was a young man, healthy until 1903 when digestive disturbances and enlargement of the abdomen with other symptoms suggested tuberculous peritonitis. He was tapped several times, and under medical treatment left the hospital much improved. He returned two years later with ascites and a pleural effusion, and again was transiently improved by paracentesis. On recurrence of trouble, laparotomy was done and the peritoneum found studded with nodules which seemed to form a primary miliary carcinosis. A course of Roentgen treatment was given and, contrary to expectations, great improvement followed and persisted for six years, with earning capacity restored. Then there was further trouble, and again benefit followed a laparotomy, the man returning to work for another year. A third laparotomy the following year showed the neoplastic nodules somewhat increased in size. After a period of improvement, severe abdominal pains and profuse ascites

followed. The young man died in 1916, thirteen years after the first symptoms. He had had seven laparotomies done, and his earning capacity had been maintained nearly to the last. Quarella says that he is unable to explain the long survival of over twelve years after the malignant disease had been diagnosed beyond question. The necropsy findings in both cases are described and are compared with those from similar cases in the literature.

45. **Infectious Jaundice.**—In Bonini's experience with what he calls icterohemorrhagic spirochetosis, he obtained little benefit from treatment with mercury or arsenic. Better results were noted with serum from convalescents and immunized goats, but only before the jaundice had appeared. After this stage the patients are able to produce their own protecting or immunizing substances. Hence treatment then is merely symptomatic, stimulating the elimination of bile and waste by drinking freely of alkaline waters and eating food that has not had the vitamins destroyed by boiling.

Pediatria, Naples

April, XXV, No. 4, pp. 193-256

49 *Vaccine Therapy of Diphtheric Paralysis. S. Maggiore.—p. 193.
50 *Vaccine Therapy of Malta or Undulating Fever. G. Caronia.—p. 199.
51 *Hydrocele in Infants. R. Vaglio.—p. 212.
52 Monosymptomatic Form of Scurvy in Infant. S. de Stefano.—p. 227.

49. **Vaccine Therapy of Diphtheric Paralysis.**—Maggiore describes the encouraging improvement in a boy of 6 with paralysis of both legs and one arm, coming on about a month after recovery from diphtheria under antitoxin. The movements of the neck were also restricted, and the head drooped forward, but there was no pain. He was treated with electricity, massage and nux vomica, and was given injections of a vaccine made with an emulsion of diphtheria bacilli in diphtheria antitoxin inactivated at 55 C. The dose was 2 c.c. at a time, a total of 6 c.c. at intervals of a few days. The paralysis began to improve at once, and there were no symptoms of intolerance or anaphylaxis. The factors involved in the effect of this serovaccine must be those on which active immunity is based, as nothing else seems able to explain it.

50. **Vaccine Therapy in Malta Fever.**—In the eight cases in adults and children the benefit from the vaccine made by Caronia's method was marked, and no by-effects were noted on intramuscular injection. In two of the cases the vaccine was given intravenously; it then induced a moderate febrile reaction.

51. **Hydrocele in Infants.**—Vaglio calls attention to the frequency of hydrocele in infants with inherited syphilis, saying that it often seems to be the only manifestation of the inherited taint. In eighteen of the fifty-five cases summarized there was a history of syphilis in the family and in eleven it was probable, but in twenty-six cases there was nothing to suggest syphilis. The hydrocele in the scrotum causes no disturbance and usually subsides spontaneously.

Policlinico, Rome

April 1, XXIV, No. 14, pp. 437-471

53 Thoracentesis for Hemothorax after War Wound of the Lung. L. Longo.—p. 437.
54 Importance of Laryngostomy for the Sequels of Wounds of the Larynx and Trachea. G. Ferreri.—p. 441.
55 False Teeth for the Soldiers. (Gli sdentati nell-esercito.) A. Perna.—p. 445.
56 Salvarsan and Its Substitutes in Abortive Treatment of Syphilis. G. Piccardi.—p. 448.

March, Surgical Section No. 3, pp. 97-144

57 *Mycosis of the Throat. (Studio clinico-sperimentale sulla cosidetta blastomicosi.) G. Basile.—p. 97. Commenced in No. 2, p. 88.
58 *Invagination of Movable Cecum and Appendicitis. O. Cignozzi.—p. 120.
59 *Operative Treatment of Primary Echinococcus Disease of the Lung. G. Mariotti.—p. 129.
60 Traumatic Hernia of the Brain. O. Tenani.—p. 142. To be continued.

57. **Blastomycosis of the Throat.**—Basile here concludes his long study of a case of blastomycosis of the throat in which he was able to cultivate from the lesion a fungus previously unknown in Italy. It resembles that of the oropharyngeal zymonematosis that has been described in Brazil.

58. **Ileus from Invagination of Movable Cecum.**—Cignozzi describes a case of ileus in a child of 12 for which chronic appendicitis seemed to be indirectly responsible. It maintained irritation which led to the invagination of the cecum in the colon. After appendicectomy, he took up folds in both cecum and colon to reduce them to normal dimensions and fastened the cecum to prevent its moving about.

59. **Primary Echinococcus Disease of the Lung.**—Mariotti reports a case in which he operated on the lung of a soldier for echinococcus disease. He emphasizes the advantages of his method of operating at two sittings. The lesion was in the lower lobe of the right lung. The man had had a great deal to do with dogs, and the radiogram confirmed conclusively the diagnosis. The contrast between the good general condition and the severe pulmonary affection aided in excluding tuberculosis. Spontaneous cure is exceptional, and local injection of drugs is contraindicated for various reasons. He obtained access to the lesion by resecting the seventh, eighth and ninth ribs, suturing the lung and pleura with a crown of stitches to the wall to prevent the retraction of the lung, and also outline the field of operation. It was tamponed and the skin sutured over this. The second operation followed two days later. No attempt was made to remove the cyst membrane in the lung as it was adherent and fragile.

Riforma Medica, Naples

March 17, XXXIII, No. 11, pp. 281-308

61 *Italy in the Progress of Science. (Rivendicazioni italiche: tubercolosi.) A. Ferrannini.—p. 281.
62 Successful Anastomosis between Median and Brachial Nerves after Resection of Sarcoma. R. Minervini.—p. 284.
63 Factitious Affections Induced to Simulate or Aggravate the Results of War Wounds. A. Mori.—p. 288. To be continued.
64 *Traumatic Paralysis of Reflex Origin. P. Boveri.—p. 294.
65 Extrameningeal Manifestations of Meningococcus Infection. A. Ferrannini.—p. 295.
66 Ictero-Albuminuric Spirochetosis and Relapsing Fever. U. Gabbi.—p. 297.

61. **Italian Contributions to Progress of Science.**—Thumbnail sketches with portraits are given here of Italians who have advanced materially our knowledge of tuberculosis. The list includes Fracastoro, in the sixteenth century, who preached that tuberculosis was spread from man to man; Maffucci whose determination of the endotoxins of bacteria was the basis for production of tuberculin; Grocco and Bozzolo in 1893 and 1900 who preceded Poncet in describing tuberculous rheumatism and tuberculous stenosis of the pylorus; Forlanini, with artificial pneumothorax; Maragliano, with serotherapy of tuberculosis, and F. Durante who has been extolling since 1876 the value of iodin in treatment of tuberculosis. Barellai in 1853 and Castaldi five years later appealed to the authorities to found seashore and mountain sanatoriums for the tuberculous.

64. **Traumatic Paralysis of Reflex Origin.**—Boveri remarks that cases of paralysis and contracture of traumatic reflex origin are now encountered in every military hospital that cares for nervous affections. The diagnosis is easy but the pathogenesis is obscure. Prolonged disuse of the limb after the trauma is unmistakably one of the factors, interfering with the nutrition and elasticity of the muscles. This entails in time the trophic and vasomotor disturbances and the changes in the response to the electric current. These phenomena are comparatively transient and subside under proper treatment. But when the vascular apparatus is injured, the resulting lesions are practically permanent.

Revista de la Asociacion Medica Argentina, Buenos Aires

March, XXVI, No. 148, pp. 143-278

67 *Echinococcus Disease of the Liver. (Le kyste hydatique multivésiculaire du foie.) F. Dévé.—p. 145.
68 *Injection of Phenol in Treatment of Hemorrhoids. E. Escomel.—p. 167.
69 *Varicocele in the Female. C. A. Castaño.—p. 179. Commenced in No. 147, p. 76.
70 *Gastric and Duodenal Ulcers. R. Finochietto.—p. 210.
71 *History of Bubonic Plague. A. M. del Pont.—p. 242. To be continued.
72 Mercury Cyanid Intravenously in Treatment of Dysentery. Varsi.—p. 277.

67. **Echinococcus Disease.**—Dévé affirms that, in the young, hydatid cysts, even very large ones, have no daughter cysts in from 90 to 100 per cent. of the cases. This is because the echinococcus disease is of comparatively recent date, and the cyst has not been subjected to as many vicissitudes as is the rule in older persons whose affection is of longer standing. For this reason the echinococcus cyst in the young is round and elastic, and cholemia is rare. Spontaneous suppuration is exceptional, but the cyst in the liver may rupture into the peritoneum. The immediate results are mild, but the echinococcus disease develops secondarily in the abdomen. A hydatid cyst should never be punctured but should be operated on without any delay. Physicians should strive to diagnose these cysts in children and young people, especially in countries where they are rare. It is more than probable that many cases of echinococcus disease in adults date from childhood. The liver is involved in about 75 per cent. of all cases, and the lung in 9 or 10 per cent. The gravity of the disease left to its natural evolution and the relative mildness with an early operation should be impressed on the public, and parents instructed to watch for any bulging of the abdominal wall.

68. **Treatment of Hemorrhoids.**—Injection of a 20 per cent. solution of phenol in equal parts glycerin and distilled water cauterizes and obliterates the hemorrhoid. The phenol acts as an anesthetic, so no other anesthetic is required. From two to six drops is the capacity of each hemorrhoid, as a rule, and the procedure is within the reach of any physician. Much inflammation contraindicates this method of treatment as it would prove too painful. The patient can return to his business in a few hours afterward. This method is by all means the best nonsurgical measure at our command, Escomel reiterates. He gives an illustration of the speculum, small clamps, and bent syringe with straight or bent tips he uses for the purpose.

69. **Pelvic Varicocele.**—The first part of Castaño's article was reviewed in these columns, April 14, p. 1151. He appeals for causal treatment of disturbances which are too often labeled hysteria and disregarded, when correct treatment would relieve the women from years of discomfort, pain and secondary nervous disturbances. The predisposed are those with slightly deficient thyroid functioning and a tendency to congestions in general. The four main symptoms are dysmenorrhea of the ovarian type, menorrhagia, dyspareunia and serous or watery vaginal discharge. The pain is mostly a sense of oppression in the abdomen, a dragging down sensation, increased by standing, walking, dancing, and relieved by reclining. The pains grow worse as menstruation approaches while the vaginal discharge becomes profuse. As menstruation sets in the pains are relieved. Dyspareunia is also pronounced, the pain during coitus being probably due to varicose periphlebitis involving the nerves. There is also liable to be bladder and rectum tenesmus, with chronic constipation. The varicose enlargement of the veins can be palpated better as the patient stands. Those in the broad ligament are most often affected, especially on the left side. Symptoms from deficient thyroid functioning form part of the clinical picture. Women with this tendency to congestion in the pelvis are often multiparas. The varicocele may be mistaken for chronic appendicitis and metritis; although the discharge with the latter should differentiate it. Left untreated, the repeated congestions and the compression from the varicocele are liable to injure the ovaries and set up inflammation in the pelvis. Treatment should aim to reduce the tendency to congestion, and for this he gives thyroid treatment, preparing the patient for it with a course of alkalines, 10 or 20 gm. a day of sodium bicarbonate, taken with the meals, for three or four days, with some alkaline mineral water. He gives thyroid tablets one every other day for a week at bedtime, then one every day and then two every day for the third week, and then rests a week. If this treatment brings the expected benefit, he continues with larger doses, regulating the habits to ensure a tranquil hygienic life, avoiding meat, as this, he says, "attacks the thyroid." A supporting abdominal band is often useful.

70. **Gastric and Duodenal Ulcers.**—Eighteen illustrations accompany this analysis of forty-six cases of gastric or duodenal ulcer given operative treatment in Finochietto's service within the last two years. The past history seemed to be more instructive than the naked eye or microscopic aspect of the lesions in the ulcer and cancer cases; none of the cancer cases had the long pathologic past of the ulcer cases. A cholecystogastrostomy was done in one case of duodenal ulcer, and the outcome was as good as after simple gastro-enterostomy. Necropsy in one case several months after a gastro-enterostomy showed that the mucosa of the stomach had evidently been injured by the clamps, the marks left by them being still visible, with loss of substance.

71. **History of Bubonic Plague.**—Del Pont remarks that the ancient writers on the plague, wishing to make their descriptions more moving, exaggerated greatly, certain chronicles giving the numbers of the dead in figures double or triple the total number of inhabitants of the place at the time. Others copied into their descriptions accounts from other epidemics which had little if anything in common with them. In this installment of his study of the plague through the ages, he brings it down to the eighth century.

Semana Medica, Buenos Aires

XXIV, No. 3, pp. 57-84

73 Bimalleolar Fracture from Traumatic Adduction. M. Jorge, Jr. —p. 57.
74 Phlegmon of the Larynx; Four Cases. A. Quadri.—p. 67.
75 Lymphocytosis in Syphilis. C. P. Mayer and A. C. Gourdy.—p. 79. Continuation.

No. 4, pp. 85-120

76 *Surgery of the Pituitary Body. E. V. Segura.—p. 85.
77 Lymphocytosis in Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 113. Continuation.

76. **Surgery of the Pituitary Body.**—Segura's long study of this subject is illustrated. He urges prompt removal of a tumor in the pituitary body as soon as it is diagnosed, and reports his experience in five operative cases. The preferable mode of access is the inferior nasal, and the only difficulty is the possibility of anomalies in the sphenoidal sinus which make it hard to locate the point where the dura mater over the sella turcica should be opened. The results were highly satisfactory in his five patients. In one the operation revealed syphilitic lesions in the sphenoidal sinus and the operation was interrupted and specific treatment applied, with complete subsidence of all disturbances in time. Two of the patients who were nearly blind recovered practically normal vision after removal of the pituitary tumor. Menstruation had been suspended for two years in one case but reappeared after the operation, the dates corresponding with the date of the latter during the six months since. These seem to be the first operations on the pituitary body in South America.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

February, XVI, No. 3, pp. 445-605. In German

78 *Hypertrophy of Right Ventricle as Consequence of Paralysis of the Diaphragm. (Hat die Zwerchfelllähmung die Hypertrophie der rechten Herzkammer zur Folge?) K. Kure and T. Hiramatsu.—p. 445.
79 *The Tonicity of the Diaphragm and the Splanchnic Nerves. (Zwerchfelltonus und Nervi splanchnici.) K. Kure, T. Hiramatsu and H. Naito.—p. 483.
80 *Physiologic Importance of the Pericardium. M. Yamada.—p. 527.
81 *Functions of the Thymus. (Ueber die Funktionen der Thymusdrüse vom Standpunkte ihrer Ausfallserscheinungen.) Y. Tongu. —p. 539.

78-79. **Paralysis of the Diaphragm and Its Effect on the Heart.**—Kure and Hiramatsu conclude from the experimental research reported and their clinical experience that the hypertrophy of the right ventricle observed so often in beriberi, along with paralysis of the diaphragm, is secondary to the latter. They emphasize that the movements of the diaphragm are regulated by the phrenic nerve, while its tonicity is determined by the sympathetic nervous system, and consequently in studying the functioning of the diaphragm the excursions and the tonicity should be investigated separately.

80. **The Pericardium.**—Yamada removed more or less of the pericardium from the hearts of dogs but the heart seemed to adapt itself to this and no apparent injury resulted.

81. **The Thymus.**—Tongu has done considerable work in experimental transplantation of the thymus, and now reports

research on the disturbances which followed thymectomy in forty dogs from ten litters. Four plates accompany the article, and the details of the various experiments are tabulated. He warns that suppuration of the wound and intercurrent pneumonia, etc., may induce disturbances liable to be mistaken for thymus deficit symptoms. He was unable to detect any influence from the thymus on the weight of the body nor on the production and destruction of blood corpuscles. After thymectomy the alexin action seems to be lacking. But it is a question whether the thymus shares in the production of alexins or merely produces some substance which promotes the alexin action of the blood serum. No influence from the thymus on the blood pressure was apparent, and no difference in callus production between the normal and the thymectomized dogs.

Russkiy Vrach, Petrograd

XVI, No. 1, pp. 1-24

82 Semicentennial of Medical Mutual Aid Society. N. Y. Chistovich.—p. 1.
83 *Reflex Pain after War Wounds of Peripheral Nerves. (Causalgia Weir-Mitchell'a.) A. E. Yanishevsky.—p. 8.

No. 2, pp. 25-48

84 Suggestions for Improving Surgical Work on the Firing Line. N. N. Petroff.—p. 25.
85 Treatment of War Fractures of the Humerus. A. P. V. Syanozhentsky.—p. 31. Commenced in No. 1, p. 13.
86 *Resection for Cancer of the Stomach. B. K. Finkelstein.—p. 35.
87 Case of Milky Ascites with Leukemia. V. V. Trophimoff.—p. 41.
88 *Alcohol as Disinfectant and Insecticide. X. D. Arkhipiants.—p. 43.

83. **Reflex Pain from War Wounds.**—Yanishevsky says that causalgia must be treated by removal of the cause, of course, but that this has to be followed usually by other measures, and chief among these is hydrotherapy, wet packs or compresses. Galvanic baths may also prove useful, and massage with passive exercises are indispensable if there is danger of ankylosis of the joint. Psychotherapy is a valuable adjuvant, not in the form of ignoring the patient's complaints, but in isolating him from everything liable to annoy or worry him, and impressing on him confidence in a complete cure in time if he will be patient under his puzzling affection. Four cases are described in detail; in one a number of operations had been done, but the causalgia constantly returned after a transient period of improvement. Even injection of alcohol to block the nerve gave only transient benefit. Cestan and Descomps have reported excellent results from Roentgen exposures in recent cases. Leriche has also cured cases by peripheral sympathectomy, that is, denuding the corresponding artery over a certain stretch by removing its sheath of network of sympathetic fibers. But even this is not always successful. Massary applied it in a case with only partial success and this only transient.

86. **Cancer of the Stomach.**—Finkelstein advocates resection of the stomach, and reports twenty-three cases of clinical recovery after resection of the malignant growth, but in only two of the cases are the patients known to be living five and eight years later. Eight others were in good health at last accounts after intervals of from one to three years. Eleven have succumbed to recurrence since, the survival being from six months to three years. The outcome in the other cases is not known. Seventeen patients succumbed to postoperative peritonitis or other complications. Less than a third of all his gastric cancer cases were in an operable condition when first seen. He compares the clinical data in his cases with those published by Ochsner, Mayo and others, totals of 1,290 and 2,063 cases. It seems from the figures cited that in 28 per cent. of all the fatal cases of cancer the malignant disease is located in the stomach. In about 50 per cent. of the cases the cancer is at the pylorus, and in about 10 per cent. on the site of an ulcer. In about two thirds of the cases the tumor can be palpated. In about 2 per cent. of the cases of gastric cancer the patients are under 30, but in only one of his forty operative cases was the patient under 30, namely 28. She had had symptoms for seven months, and died from peritonitis. He advises Billroth's second method as the preferable technic, but even with this the operative mortality ranges from 9 to 67 per cent. and the permanent recoveries from 0 to 25 per cent.

88. **Alcohol as Disinfectant and Insecticide.**—Arkhipiants comments on the contradictory statements in regard to the sterilizing power of alcohol. Koch denied that it had any sterilizing power as it did not kill anthrax spores left in it for 110 days. On the other hand, Fürbringer, Frank and others extol its sterilizing power, but differ widely in the concentration deemed most effectual. Arkhipiants applied it in sterilizing articles in the so-called Japanese sterilizers, and found that, when used instead of solution of formaldehyd, and in quantities four or five times larger than the usual amount of solution of formaldehyd, germs were killed as effectually. He found alcohol of 70 or 80 per cent. strength best adapted for the purpose. The germs used in the tests were cholera vibrios, typhoid and colon bacilli and staphylococci, all on silk threads. They were all killed with the alcohol fumes exactly as in parallel tests with solution of formaldehyd. He does not give any further details of his tests in this preliminary communication, but says he will publish them in another article in the near future.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

February 17, I, No. 7, pp. 433-512

89 *Gritting the Teeth as Sign of Adenoids. (Tandenknarsen.) C. E. Benjamins.—p. 444.
90 Favus not due to Achorion Schönleini. D. Muijs.—p. 449.
91 Influence of a Localized Focus in Brain on Conception of Figures, Space and Time. W. van Woerkom.—p. 455.
92 Alcohol and Tuberculosis. D. van D. B. Andreae.—p. 462.
93 Spontaneous Healing of Ruptured Spleen. H. Jonker, Jr.—p. 467.
94 Acute Ileus: Two Cases. (Acute darmafsluiting.) W. A. Weisfelt.—p. 469.

February 24, No. 8, pp. 513-592

95 *Simple Means to Make Graduated Pipets for Serologic Reactions. M. Van Riemsdijk.—p. 517.
96 *Classification of Goiters. O. Lanz.—p. 533.
97 Taenia Nana. C. L. de Jongh.—p. 541.
98 Improved Olfactometer. C. van Dam.—p. 547.

March 3, No. 9, pp. 593-688

99 The Percentage of Accidents and the Factory Physician. J. A. Korteweg.—p. 597.
100 Isolated Dislocation of the Cuneiform Bone of Wrist. (Afzonderlijke ontwrichting van het os triquetrum.) N. Voorhoeve.—p. 615.
101 Tumor in the Spine. (Gezwel van de wervelkolom.) H. Bolten.—p. 619.

89. **Gritting of the Teeth in Connection with Adenoid Vegetations.**—Benjamins states that in his experience with 250 cases of adenoids in India and 526 at Utrecht, as also in the experiences of others, comprising a total of 1,544 adenoid cases, a tendency to grit the teeth was manifest in from 25 to over 40 per cent., an average of 34.1 per cent. In his own experience the average was 37.2 and 34.6 per cent. In his 776 cases there was snoring in over 60 per cent.; enuresis in 29 per cent.; aprosexia in 34.6 per cent., and disturbances in hearing in 42.7 per cent. In 153 operative cases of adenoids, the gritting of the teeth stopped after the removal of the adenoids, and in fourteen it became much less, but it persisted unmodified in fourteen. Examination of 1,654 schoolchildren showed gritting of the teeth in 13.6 per cent. The number of adenoid cases among them was not known, but he is confident that the majority of the teeth gritters will be found to have adenoids. In a series of 115 teeth gritters examined for affections other than adenoids, all but two were found to have adenoids. In 10 of the children the teeth gritting was the only anomaly to attract attention, but a large adenoid was discovered in four.

95. **To Make and Graduate Pipets.**—Riemsdijk gives minute directions for making pipets from a glass tube, filing it into the desired lengths with a three-cornered file, roughening the surface with fine sandstone, and marking off the intervals with a ruler and blacklead pencil, touching over each mark afterward with spirit varnish which makes them practically indelible. She slips the top of each pipet into a segment of rubber tubing to render it easier to handle. By oiling the file it works better on the glass. She also describes ways and means to make and calculate dilutions, suspensions, etc., as she has found most convenient in her work as assistant at the Hygienic-Bacteriologic Institute of the University of Amsterdam.

96. **Classification of Goiters.**—Lanz has had experience with goiters both in Switzerland and Holland, and emphasizes that classification based on the pathologic anatomy is the guide to treatment. In Holland they seem to be of two main types, the atoxic and the toxic. The atoxic group includes the diffuse parenchymatous, diffuse colloid and the circumscribed, nodular, colloid or cystic forms. The toxic type includes the diffuse thyreotoxic, and primary Basedow, and the circumscribed thyreotoxic and secondary Basedow. He describes each type in its clinical manifestations to aid in diagnosis, and warns against abuse of iodin in treatment. It seems strange, he remarks, that nodular goiter has such a toxic action. Possibly the circumscribed nodule serves as a constant irritant for the thyroid. In course of time it may induce a secondary hyperthyroidism. The toxic symptoms do not come from the nodule itself but from its irritated environment. This may set up a vicious circle, but there is no exophthalmos, as a rule, although the cardiotoxic and neurotoxic symptoms are pronounced. The only effectual treatment is the operative, and it need not be extensive; amputation of one side is enough. Bleeding inside the goiter is rare in Holland, but not rare in Switzerland where he had several times to do an emergency thyroidectomy on account of the rapid enlargement of the thyroid from hemorrhage.

He says of the diffuse toxic goiter that it is practically a rudimentary exophthalmic goiter, usually of a vascular type. This is the form observed in telephone girls and teachers, and he has noticed it particularly frequent in doctors' wives, especially country doctors. The country doctor's wife, he remarks, helps in his work, shares his cares and his irregular, hurried mode of life. The thyroid in men is much less sensitive to psychic trauma than in women and girls. In treatment of this form, rest is the first and last word. Worry and emotional stress must be warded off. Sometimes a change of environment is necessary. Phosphorus preparations and arsenic, with bromids are the drugs called for.

Iodin in the cardiotoxic form may have a favorable action in minute doses, but it must not be forgotten that it is a two-edged sword. The dangers from it with all toxic goiters are greater than any eventual benefit. By operative treatment, usually amputation of the most vascular lobe, much time will be gained. Actual pronounced exophthalmic goiter occurs almost exclusively in women, but when it does affect a man the prognosis is much graver. Iodin, thyroid and roentgenotherapy have done more harm than good in true exophthalmic goiter, but resection of the thyroid gives brilliant results. To be safe, we must not let ourselves be tempted to resect too much. Only the lobe most intensely vascularized should be resected or the superior thyroid arteries ligated, as the first step. Iodin triumphs in the cases of diffuse parenchymatous atoxic goiter, either by the mouth or rubbed into the gland in a salve with one part iodin to ten parts potassium iodin and 100 parts petrolatum, but always very cautiously, and under medical supervision. The goiter may increase a little under the influence of the iodin, and it should be suspended then. But these are the cases that respond favorably to iodin. Iodin may help also in the atoxic, knobby, diffuse colloid form, but if no benefit is apparent in four or six weeks it had better be dropped. The operation for this type is unilateral resection, leaving a good amputation stump to be sure to spare the recurrent nerve and parathyroids. The atoxic nodular colloid goiter is the endemic type, and to give iodin with this form, he declares, is malpractice. It does not act on the diseased tissue but only on the still sound tissues. The only treatment here is operative, enucleation or resection or a combination of both.

Ugeskrift for Læger, Copenhagen

March 8, LXXIX, No. 10, pp. 349-408

102 *Eye Disease and Other Disturbances in Infants from Deficiency in Fat in the Food. (Lidelser hos Smaabørn opstaaet paa Grund af Fedtmangel: Xerophthalmia et Dystrophia alipogenetica.) C. E. Bloch.—p. 349. Commenced in No. 9, p. 309.

103 *Case of Veronal Poisoning. F. Fog.—p. 370.

102. **Fat Deficiency Disturbances in Infants.**—Bloch mentions that although xerophthalmia is regarded as a very rare affection, yet he has had forty cases in the last five years at Copenhagen. In five cases there was xerosis alone, in twenty-seven bilateral keratomalacia, and in seven only in one eye. In many of the cases the necrosis of both corneas was total. There was ulceration in the cornea in nearly every case, prolapse of the iris in a number, and displacement of the lens in a few. The little patients were all from a few months to over a year old. Some died from their atrophy and its consequences, some from extension of gangrene from the ulcerating cornea; others recovered. The children presented marked atrophy or dystrophy, the tissues feeling abnormally soft and doughy, edema masking the emaciation, or they showed merely weakness and pallor, but all were backward in development and the skin was dry and dull, scaling off in fine scales. The children all lay quiet and apathetic, and did not like to be disturbed even to be fed, but did not complain if left in peace. The hemoglobin was down to 30 per cent. in some, and was never above 80 per cent. A peculiar susceptibility to infectious processes was evident in the common rhinitis, otitis, furuncles, gangrene or pneumonia. Diarrhea of alimentary origin was frequent.

By exclusion of syphilis, myxedema and other constitutional diseases, Bloch traced this entire set of symptoms to the food the children had been getting; through all the different kinds of artificial feeding ran the evidence of lack of fat. Lack of vitamins may have cooperated, but the exceptionally fat-poor food explains alone the disturbances noted. In nine other cases of xerophthalmia that have been published in Denmark, the preceding artificial feeding had been of this same character, lacking in fat or albumin or both. The majority of Bloch's cases date from the years the war has been in progress; thirty-eight came from rural districts and only eleven from the city. The severe rural cases had all been fed on centrifuged (separator) milk, and this class is the one that has increased so materially in the last year. The parents give the cheapest food, and the cheapest contains the least fat. The disease appeared toward spring, like rachitis, showing the influence of lack of fresh air and sunshine. Treatment consisted in putting the children on breast milk, with local treatment of the eyes. The older children were given milk mixtures besides, and all got teaspoonful doses of cod liver oil. If the children improved under this treatment, he paid no attention to the diarrheic stools, increasing to two or three teaspoonfuls a day. Only a few failed to tolerate the cod liver oil.

He gives details of several cases, with illustrations, many of the children being left blind in one or both eyes. Mori has described in Japan a similar eye affection which may occur in epidemic form in times of famine, and which yields to cod liver oil. Chicken livers and eel fat have long been used as domestic measures against it. Mori calls it "hikan," and states that children from 2 to 5 are affected with this xerosis of the conjunctiva and keratomalacia, terminating often in blindness. He had 714 cases in 1899; 313 in 1900, and 400 in 1901. The disease subsides in two or three weeks under cod liver oil without other change in the food. Other fish oils are equally effectual, and the affection is not encountered among fisher families. His communication was published in the *Jahrbuch für Kinderheilkunde,* 1904. It confirms the view that a deficiency in fat is responsible for the whole set of symptoms. Bloch adds that it seems to be some special lipoid or lipoids which are involved and which are supplied in cod liver oil, but not in vegetable fats. In conclusion he warns that the true eye trouble is frequently masked by conjunctivitis, and that possibly many instances of blindness and leukoma in adults are due to unrecognized xerosis in infancy. The whole trouble is easily cured if taken in time by feeding with breast milk and cod liver oil, or the latter and sweet whole milk.

103. **Cure of Veronal Addiction.**—Fog had a patient who was much debilitated from her constant use of veronal. He gradually substituted antipyrin salicylate for the veronal in the powders she was taking, until she was getting no veronal at all. By this means she was weaned completely from the drug without her knowledge and without discomfort.

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HYPERTROPHIC STENOSIS IN INFANTS*

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NEW YORK

The data which form the basis of this paper have been derived from a study of 133 cases of pyloric stenosis in infants who have been treated in the wards and private rooms of the Babies' Hospital in my own practice and that of my colleagues, and eight cases which I have seen with physicians outside the hospital, making 141 in all. Of the fatal cases, the stomach has been examined at necropsy in thirty-five. Microscopic examinations of the stomach have been made in twelve cases by Dr. Wollstein, pathologist to the hospital. Of the infants who recovered, three have been lost sight of; ten died subsequently from other conditions; the remaining sixty-four have been followed almost up to the date of writing, twelve of them for a period of four years or over.

Pyloric stenosis of infancy has been regarded by some writers as essentially a condition of tonic muscular spasm, hypertrophy when present being secondary. Others have considered the essential lesion to be a congenital hypertrophy with spasm superadded. Still others have argued that there are two distinct types of cases — one purely spasmodic, the other hypertrophic.

The clinical course and the uniform pathologic findings have convinced my colleagues as well as myself that a division of cases of pyloric stenosis of infants into spasmodic and hypertrophic types is not admissible. There are seen in early infancy a variety of gastric disturbances which may present some of the symptoms of hypertrophic stenosis, but careful observation shows that they are quite distinct from them. Cases of true hypertrophic stenosis, however, differ much in degree; in very few is the obstruction complete, but hypertrophy, undoubtedly congenital, is the essential lesion in all, spasm being added as a secondary condition. Dent[1] found the hypertrophy in a 7 months' fetus. It is inconceivable that the hypertrophy such as has been found by operation to exist two or three weeks after birth could have developed as a result of spasm. Furthermore, I hold that persistent spasm of the pylorus without hypertrophy has not yet been established.

Assuming that the hypertrophy is congenital, it might be expected that symptoms would begin to show themselves soon after birth. But this is almost never the case. Seldom (in only 4 per cent. of our cases) do they begin before the end of the first week, and more often not for two, three or four weeks, during which time the infant appears in every way normal. It does not appear that hypertrophy alone often produces sufficient narrowing to cause symptoms, at least not in infancy. Not until spasm is added do symptoms usually begin. What is it, then, which excites the muscular spasm on which the symptoms so largely depend? Regarding this we know as yet very little.

The great majority of the cases are among infants entirely breast fed, and comparatively few have shown previous evidence of any gastric disorder. But the stomach in early infancy is a highly sensitive organ, and just as disordered innervation of the intestine a few months later may excite intussusception, so now some trivial irritation may be sufficient to excite spasm of the pylorus. We have seen relapses or a recurrence of forcible vomiting and active peristalsis excited by disturbances of digestion after these symptoms had been absent for some weeks.

It is our firm belief from our observation of these patients in the early weeks that in all cases hypertrophy precedes the tonic spasm. That the hypertrophy continues long after the spasm has subsided we have absolute proof. We have repeatedly observed cases in which an unmistakable tumor could be felt for weeks after vomiting had subsided, the stools had been quite normal and peristalsis had entirely ceased.

The number of cases is now considerable in which the tumor has been found still present at necropsy in children who have died from other causes some time after operation or recovery without operation.

In Morse's[7] case the tumor was still present at necropsy in a child who died of acute disease six and a half months after a successful gastro-enterostomy.

In Howland's[8] case the tumor was present in a child who died four months after recovery without operation.

In Lewis and Grulee's[9] patient, operated on by gastro-enterostomy at 2 months and dying eight and a half months later, the tumor was approximately of the same size and consistency as that found at operation.

In Walton's[10] case, a child dying seven months after a gastro-enterostomy, the tumor was still hard and thick, and the pylorus impervious.

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

* Frederick A. Packard Lecture, delivered at Philadelphia, Feb. 13, 1917.

1. Dent, C. T., quoted by Cautley: Diseases of Children, 1910, p. 265.

7. Morse: Boston Med. and Surg. Jour., 1908, **158**, 480.

8. Howland: Personal communication to the author.

9. Lewis, Dean, and Grulee, C. G.: The Pylorus After Gastro-Enterostomy for Congenital Pyloric Stenosis, THE JOURNAL A. M. A., Jan. 30, 1915, p. 410.

10. Walton: Ann. Surg., 1914, **60**, 342.

We are able to add four cases of our own in which late examinations have shown the persistence of the tumor. One child died of diphtheria six months after a gastro-enterostomy; a second died by accident two years and two months after a gastro-enterostomy, and a third of pneumonia twenty-one months after a gastro-enterostomy. In all these the tumor was still present at necropsy, and its condition was similar to that present at the time of the original operation. In the fourth case, a child returned to the hospital four years and seven months after a gastro-enterostomy for an operation on a ventral hernia, a sequel of the early laparotomy; the examination of the stomach in this case also showed the pyloric tumor to be still present.

CLINICAL PICTURE

An infant, usually breast fed, who has nursed well, gained normally in weight, has had sufficient and well digested stools and, in fact, has shown few or no signs of disturbance, begins to vomit persistently and forcibly. These symptoms have their most frequent beginning in the third or fourth week of life, and in most cases their onset is abrupt and without assignable cause. To the forcible vomiting are added marked constipation, steady loss in weight, and all the symptoms belonging to failing nutrition. Careful examination reveals definite gastric peristaltic waves, and in most cases a palpable tumor in the pyloric region.

So characteristic is the vomiting in these cases, as to the time of its occurrence, the manner in which it takes place and the matter vomited, that one can often make the diagnosis from this symptom alone. It differs markedly from the usual vomiting seen in young babies, in that it occurs soon after nursing, often while the child is still at the breast. It is forcible and projectile; the food is fairly shot out of the mouth, sometimes for a distance of 3 or 4 feet. It is in large amounts, usually the entire contents of the stomach, and generally it is repeated after each feeding. If the vomiting is infrequent, and does not occur after every feeding, the amount ejected at one time is often much larger than the amount taken at the last feeding. The frequent regurgitation of small amounts of food is seldom seen. The vomiting is unaccompanied by fever or pain, and in the beginning and usually for some time there is no impairment of appetite. Immediately after emptying the stomach the child may seem so hungry as to take a full feeding. Finally, the vomiting is persistent. Nearly every change of food has a surprising effect in temporarily lessening the vomiting, but in a day or two it returns and is as severe as ever.

The waves of gastric peristalsis have been so often described that a repetition is hardly necessary. Intestinal peristalsis may be mistaken for them, though rarely, indeed. Visible gastric peristalsis is, I believe, a constant symptom of these cases. In the great majority of cases the waves are typical and unmistakable, though in some they may not be observed unless the patient can be frequently seen and closely watched under the most favorable conditions, the most important one being that observations are made immediately after filling the stomach, and that the child is quiet. Slight atypical waves may be seen in a variety of conditions other than hypertrophic stenosis. But the deep, regularly recurring waves passing from left to right and frequently followed by vomiting are a conspicuous feature of nearly every case.

While a palpable tumor cannot be considered essential to the diagnosis, it will usually be found by a careful observer under favorable conditions. In fully three fourths of the cases it is unmistakable; but I have seen men of much experience unable to feel a tumor when one was afterward shown to be present, and I have known men to be quite sure that they felt a tumor when none could be demonstrated at necropsy or operation. The tumor is more distinct in the most severe cases. It may persist for months in cases in which recovery occurs without operation. The tumor is felt as a small movable mass about 2 cm. in diameter and 3 cm. long. It is most frequently found about 3 cm. to the right of the navel and a little above it, but there is liable to be considerable variation in position.

Abnormal gastric retention is easily estimated by emptying the stomach two, three or four hours after a test meal by means of a simple suction apparatus composed of a rubber catheter, a small laboratory wash bottle and a suction tube. The test meal which we have usually employed consists of 2 or 3 ounces of breast milk; diluted condensed milk answers the purpose; but one should not employ mixtures of unboiled cow's milk, as the coagulated milk in the stomach may block the tube. Simply passing the stomach tube is not enough; considerable suction must be employed to empty the stomach completely. In doubtful cases, several observations should be made or the retention determined even after each feeding. In few of these cases is the pyloric opening completely closed; but the determination of the amount of retention gives perfectly definite evidence to the extent of its occlusion, quite as reliable as the Roentgen ray after bismuth.

The secondary symptoms, constipation, wasting, scanty urine, etc., are simply a result of the vomiting. In the most severe cases the closure of the pylorus may be complete and the stools contain no fecal matter, resembling meconium. In most cases some food passes the pylorus, and the stools contain some solid fecal material.

Wasting is a constant symptom, and its rapidity is the best guide to the seriousness of the case. In the more marked types, the loss in weight frequently amounts to 2 or 3 ounces a day.

In the milder type of cases, though gastric peristalsis is marked, the vomiting may occur only two or three times a day, and occasionally there may be none for days together. The bowels move without medicine, and the stools are fecal, and often in normal amount. The weight may be stationary, or at times there may even be a slight gain. Gradually, in the course of from six weeks, but sometimes not till four or five months, the vomiting ceases altogether, the peristaltic waves are no longer seen, and the patient to all appearance has recovered. Even in these cases the typical tumor is often to be felt for several weeks, and in three of my patients it was noted as late as the sixth month.

In the severe cases the course is progressively from bad to worse. The vomiting is constant, little or nothing being retained; the bowels move only from enemas or medicine. The loss of weight may amount to a pound or more a week; the infants waste to skeletons, and when untreated usually die of inanition in from two to four weeks from the onset of symptoms. Between these extremes, cases of all degrees of severity are seen.

DIAGNOSIS

Enumerated in the order of their diagnostic importance I should place the points in this order:

1. The history, if obtained from a reliable mother or nurse.
2. Abnormal gastric retention, observations being repeated four or five times at least.
3. Peristaltic waves, not of diagnostic value unless typical.
4. The presence of a palpable tumor.
5. Wasting, constipation, scanty urine, etc.

I have placed tumor fourth in importance. Many would put it second. Though a palpable tumor is readily found in the great majority of the cases, there is in quite a considerable number a degree of uncertainty regarding it, and I have seen equally good observers differ often on this point. In any case, the diagnosis should not rest on the presence of a tumor, and, most of all, a decision regarding operation should not depend on it.

Stress has been laid by some writers on the value of the Roentgen ray in diagnosis. It does show whether the bismuth meal is passing through the pylorus, and the rapidity of its passage, and also whether or not the stomach is able to empty itself completely. In few of the cases is there complete obstruction at the pylorus. It is doubtful whether the Roentgen ray tells more than can be learned from careful observations of the gastric retention as described above. Furthermore, it must be remembered that these patients are very young, most of them in bad condition, and that they bear the manipulation incident to successive investigations with the bismuth meal badly. I have known one instance in which, after a series of such observations which occupied nearly twenty-four hours, the diagnosis was finally reached and the surgeon summoned, but the child was dead when the surgeon reached the bedside. While in some early cases, with the infants in good condition, useful information may be obtained by a series of Roentgen observations with the vast majority of infants it is extremely doubtful whether the results are commensurate with the risks incurred.

The principal difficulty in differential diagnosis is to distinguish cases of gastric indigestion with protracted vomiting from those of hypertrophic stenosis. This is especially difficult, as in the former gastric contraction and even small peristaltic waves may sometimes be observed; but these are usually slight and atypical, and are only occasionally seen even with the closest observation. The diagnosis is to be made by the absence of the other characteristic features of hypertrophic stenosis—the history, tumor and retention. The point should be emphasized that slight gastric peristalsis, even when accompanied by frequent vomiting, which at times may be forcible, does not warrant the diagnosis of hypertrophic stenosis.

There are certainly a number of conditions other than hypertrophic stenosis in which pyloric spasm is present. Pyloric spasm with gastric peristalsis has been repeatedly observed in infants with ulcer of the duodenum. Distinct gastric peristalsis was recently observed in the Babies' Hospital in an infant 4 days old with a congenital atresia of the esophagus. The introduction of food or water was followed in this patient by distinct gastric peristalsis, though the necropsy showed that the fluid never passed beyond the middle of the esophagus. The pylorus was normal. We have seen one instance in which pressure on the upper part of the duodenum by a congenital band gave rise to persistent, forcible vomiting and marked gastric peristalsis, suggesting hypertrophic stenosis; but the vomiting began from the first days of life and was bilious in character. In another recent case, which an exploratory operation revealed to be one of tuberculous peritonitis with a normal pylorus, there had been frequent vomiting, at times forcible, and definite gastric peristalsis. There was a general matting together of the intestines from the tuberculous inflammation, but no definite pressure on the upper intestine.

It is evident, then, that there are quite a large number of different pathologic conditions in which gastric peristalsis and presumably pyloric spasm may be occasionally seen. To confuse these cases with hypertrophic stenosis, or to consider them as closely allied pathologic conditions just because they have one or two symptoms in common does not seem justifiable. It has greatly obscured the discussion of the subject. Hypertrophic stenosis should be regarded as a pathologic entity, though its symptoms vary greatly, according as the lesion is mild or severe.

MEDICAL TREATMENT

The medical treatment of hypertrophic stenosis consists in careful feeding and stomach washing. The gastric lavage should be practiced at first twice a day, and later at longer intervals; it serves the purpose of emptying the stomach thoroughly of mucus and fermented food; the water should be used warmer than usual, that is, up to 112 F. If it can be secured, breast milk is the preferable food, but one not rich in fat is desirable. The common practice of weaning as soon as symptoms develop is most unwise. In default of breast milk, a modified milk mixture low in fat should be employed.

With respect to quantities and intervals of feeding, cases respond differently. We have usually depended on from 1 to 3 ounces at three or four hour intervals, or small quantities and shorter intervals, especially if the food is breast milk. With the longer intervals, water should be given between feedings. In greatly prostrated patients, hypodermoclysis should be used daily; from 150 to 250 c.c. of 4 per cent. dextrose may be given in a saline solution at one time. Rectal feeding is of little assistance. The bowels are usually best moved by enema. I believe that drugs and local applications of heat over the epigastrium for the purpose of allaying the spasm are of little value. The weight should be carefully watched and taken daily, as it is the best guide to the patient's condition and progress.

SURGICAL TREATMENT

The first recorded operation for hypertrophic stenosis in infancy of which I can find record was that by Cordua[11] in 1893. The operation was a jejunostomy; the patient did not recover. I have found no more operations reported until 1898, when two done by Willy Meyer[12] of New York were reported, and a few weeks later one by Stern[13] in Germany, the operation, however, having been done some months before. These three were all gastro-enterostomies, and in none did the patient recover. After the year 1900 the number of patients operated on steadily increases, though Shaw and Elting,[14] writing in 1904, could find recorded up to that time, including their own case, but thirty-nine operations, with seventeen

11. Cordua, referred to by Grisson: Deutsch. Ztschr. f. Chir., 1904, **75**, 111.
12. Meltzer and Meyer: Med. Rec., New York, Aug. 20, 1898.
13. Stern: Deutsch. med. Wchnschr., 1898, **24**, 601-604.
14. Shaw and Elting: Arch. Pediat., 1904, p. 893.

recoveries. Only five of these operations had been done in this country.

In 1908, Dufour and Fredet[17] collected published results in 135 operations which included the foregoing, and showed a mortality of 50 per cent.

This certainly was not a very encouraging showing, and the results led Heubner and Pfaundler and others in Germany, and Hutchinson in London to inveigh against operation altogether, and to take the position that the great majority of the cases could be cured by medical means alone and that surgery was seldom if ever to be invoked.

With experience and improved technic during the next few years, surgeons in this country, particularly Scudder,[18] Downes[19] and Richter,[20] obtained much better results than those reported above; but still the general mortality attending operation was so high that physicians were loath to refer patients for operation, particularly when medical treatment was advocated by such high authorities as those mentioned.

In 1913, Rammstedt[21] of Münster reported a successful case in which he simply divided the circular muscular layer of the pylorus by external incision. In his case, a typical one, the patient made an excellent recovery. He advocated this procedure as a substitute for the older operations—gastro-enterostomy, divulsion and pylorplasty—then in vogue. The great advantages he claimed were that the stomach was not opened and the duration of the operation was much shortened. In his case it required only fifteen minutes,

TABLE 1.—RESULTS IN ONE HUNDRED AND THIRTY-FIVE OPERATIONS

Groups	Cases	Recoveries
Gastro-enterostomy	52	22
Divulsion	36	21
Pyloroplasty	22	13
Various modifications and combinations	25	12
Total	135	68

as compared with from thirty to fifty minutes needed for most of the other operations.

So far as I have been able to learn, this single case was the only one he has ever reported. But the operation was taken up by the surgeons of the Babies' Hospital, first by Dr. Alfred S. Taylor and then by Dr. William A. Downes, and now for over two years has been the only operation done in that institution.

In Table 2 are given the results obtained by medical treatment and by the older and the more recent surgical treatment in the patients who have come under my observation in private practice and those admitted to the Babies' Hospital in my own practice and that of my colleagues, Drs. Downes, Taylor, Kerley and Bartlett.

Rammstedt's operation of external muscle division has been done in the hospital up to January, 1917, in sixty-seven cases, all but one of these by Dr. Downes. Up to January, 1915, it was done occasionally, in all, on six patients. Since that date it has been done exclusively in the institution. In nineteen of the first twenty cases, in order to make sure that the constriction had been completely divided, the stomach was opened and a sound passed through the pylorus. This was then decided by the surgeon to be quite unnecessary, and hence discontinued in the last forty-seven operations. It certainly adds to the operative risk.

The comparison of statistics of different men in different cities with different types of cases is not such conclusive evidence of the value of any plan of treatment as is a comparison of results in a single institution where the general run of cases is much the same, where all the operations have been done by the same surgeon and where the after-treatment followed was identical.

Including my private cases and the patients operated on at the Babies' Hospital, there were forty-one gastro-enterostomies with a mortality of 51 per cent.; of the twenty-eight cases in which operation was performed by Dr. Downes, the mortality was 43 per cent. Of the sixty-seven cases in which the Rammstedt operation was performed, the mortality was but 24 per cent.

The advantages of this operation are evident to one who has had experience with the other operations proposed. First in importance may be mentioned the time required. Seldom does the entire operation consume over fifteen minutes, and it is often completed in ten. The stomach is not opened, and the risks of nonunion, leakage and peritonitis from this cause are eliminated. Hemorrhage is seldom troublesome; no suturing is required, and a minimum handling of the viscera. So much for the surgical aspects. Our experience has shown that the shock is much less severe; the temperature reaction is less marked; food can be pushed more rapidly, and disturbances of digestion, particularly diarrhea, which has been so troublesome a symptom after gastro-enterostomy in more than half our cases, are much less frequent and less severe. This is undoubtedly due to the fact that the food passes normally into the duodenum instead of directly into the jejunum.[22]

Experience has shown that there are some special dangers connected with this operation. The most important are the wounding of the mucous membrane, incomplete division of the constricting muscle, and hemorrhage. Wounding the mucous membrane occurred in but three cases in our series, two of them being among the first operations done. Both of these patients recovered. In one other this accident was followed by leakage, peritonitis and death. The incomplete division of the constriction happened but once in our series of sixty-seven consecutive operations. In one child, however, a previous operation in another hospital had not relieved the obstruction, and the symptoms continued; although the obstruction was relieved by the second operation and the vomiting ceased, the patient died of marasmus two weeks later. Both of the accidents mentioned will occur seldom in the hands of an experienced surgeon. The risk of hemorrhage is a slight one, but it should be kept in mind as a possible danger from the operation wound which is left. It has happened but once in the hospital series, and that the patient was a bleeder.

An analysis of the sixteen deaths in the Rammstedt cases is interesting. Six infants died from shock within a few hours after operation, but all of them were in extremely bad condition at the time of operation, and two of them almost moribund. In none had symptoms lasted for less than four and a half weeks, and in two they had lasted over ten weeks. One infant

17. Dufour and Fredet: Rev. de Chir., 1908, p. 208.
18. Scudder: Boston Med. and Surg. Jour., August, 1908; Surg., Gynec. and Obst., 1911, **10**, 275; Ann. Surg., February, 1914.
19. Downes, W. A.: Pyloric Obstruction in Infants, THE JOURNAL A. M. A., June 27, 1914, p. 2019; Surg., Gynec. and Obst., March, 1916, p. 251.
20. Richter, H. M.: Congenital Pyloric Stenosis, THE JOURNAL A. M. A., Jan. 31, 1914, p. 353.
21. Rammstedt: Med. Klin., 1912, **8**, 1702-1705; Zentralbl. f. Chir., 1913, **11**, 3.

22. For details regarding surgical technic, I would refer to the publications of Dr. Downes (Footnote 19).

had whooping cough when operated on, and died from bronchopneumonia on the sixth day. There remain nine deaths connected with the operation or due to the original condition which the operation did not relieve. Three were from peritonitis; one from hemorrhage; one from continued wasting; one from continuance of vomiting, the constriction not being entirely relieved, and in three, death occurred suddenly on the first, second and seventh day, respectively, no cause being discoverable.

Excluding the seven operations which were done under conditions which make it impossible to estimate the value of any operation, there remain sixty cases with nine deaths, a mortality of 15 per cent. This I believe, is the approximate mortality in these cases, taking them as they come. In a hospital like the Babies', where so many long-neglected cases are brought, it will be nearer 25 per cent. It should be remembered that these are chiefly hospital ward patients, and that they represent consecutive admissions. In only a single case in the last five years was operation refused on account of the child's condition. This patient when admitted was 3 months old and weighed, after eight weeks' medical treatment, but 3 pounds, 14 ounces; she lived only a few hours.

AFTER-TREATMENT

The success of operative measures in this condition is dependent in no small degree on the after-treatment. For a number of days after the operation the lives of these little patients often hang by a slender thread, and errors in judgment, especially with regard to feeding, often have the most disastrous consequences. It is, then, of the highest importance not only that the operation be done by a skilled surgeon, but also that the infant after the wound is closed be under the care of one equally skilled in the postoperative management.

From January, 1910, to January, 1917, there were 101 operations done at the Babies' Hospital. The postoperative management which has gradually been evolved as a result of the experience of the surgeons, the attending physicians and the resident medical staff has been fully detailed in a recent publication by Dr. Edward Morgan,[23] former resident physician. It will be given here only in outline.

It is to be borne in mind that practically all these infants are between 4 and 8 weeks old at the time of operation, and that they all have become much reduced in vitality as a result of loss in weight (often amounting to 3 or 4 pounds) and several weeks of protracted vomiting. It is of the first importance, therefore, that everything be done to conserve every particle of strength which the infant possesses. Exposure during operation should be the smallest possible. The room should be warm and the patient protected still further by artificial heat. Before the anesthetic is given, the stomach is emptied of food, gas and mucus. Stimulants during the operation are rarely called for. After removal from the table, the infant is wrapped in hot blankets and placed in a bed surrounded by hot water bags. The head of the bed is kept lowered until the effect of the anesthetic has passed off. As a means of introducing fluids into the tissues of these infants, often completely dehydrated as a result of the previous vomiting, nothing compares with hypodermoclysis. From 120 to 240 c.c. of a physiologic sodium chlorid solution are given, usually between the scapulae, and it is surprising how rapidly this is absorbed, even in some of the worst cases. Of stimulants given hypodermically, epinephrin has given us the most satisfactory results in doses of from 3 to 5 minims of the 1:1,000 solution. With the precautions mentioned, the small amount of shock to these patients from laparotomy is often amazing.

Feeding is usually begun as soon as the child has entirely recovered from the anesthetic. The position now used is with the head raised, sometimes to the semierect posture, so as to facilitate the expulsion of gas. Breast milk is indispensable, but it must be given at regular intervals and in carefully measured quantities, or serious disturbances of digestion may ensue, sometimes with fatal results, when everything previously has gone exceptionally well. The amount of food should be at first small, not over 2 or 3 teaspoonfuls of breast milk diluted with 1 or 2 teaspoonfuls of water. This is given with a medicine dropper and repeated in gradually increasing amounts every three hours. Water is given between the feedings in similar quantities. At the end of twenty-four hours, the infant is usually taking 4 or 5 teaspoonfuls of breast milk undiluted, and at the end of two days 1 ounce every three hours. These quantities are gradually increased to about 2 ounces by the fifth or sixth day, and at a week or ten days, but not before, the infant may be put to the breast. At first this should be for only two or three minutes. For the first month or two, artificial feeding presents unusual difficulties, and can seldom be successfully carried on except by one with much experience.

The administration of a teaspoonful of castor oil at the end of twenty-four hours is a routine practice whose beneficial results we seldom have had reason to doubt. It aids in the expulsion of gas and mucus, and seems to add much to the comfort of the patient. Often all disposition to vomit ceases as soon as the bowels have acted freely. Constipation after this is uncommon, but not infrequently diarrhea occurs. This was much more often seen when gastro-enterostomy was done than after the Rammstedt operation. In the former, particularly, it may be a most troublesome symptom for several weeks. The most successful measures for controlling this have been the substitution of protein milk (*Eiweissmilch*) for part of the breast milk, and the administration of moderate doses of bismuth and opium, since in the majority of the patients the chief factor in the diarrhea seems to be excessive peristalsis.

Some vomiting is to be expected during the first twelve to twenty-four hours. It is most frequently due to accumulation of gas in the stomach, and is relieved by posture or by passage of the stomach tube. It may be due to a too rapid increase in the food or sometimes apparently only from a persistence of the hyperesthesia of the gastric mucous membrane. Defects in the operation itself, when the obstruction has not been entirely relieved, may lead also to a continuance of the vomiting; finally, vomiting occurring after the third or fourth day may be due to peritonitis.

MEDICAL VERSUS SURGICAL TREATMENT

On the whole, is medical or surgical treatment of hypertrophic stenosis in infancy to be advised? It must be admitted that there appears to be considerable difference of opinion among those with some experience in this disease. To what is this difference of

23. Morgan, E. A.: The Postoperative Management of Pyloric Stenosis, Am. Jour. Dis. Child., April, 1916, pp. 245-256.

opinion due? Are the physician and the surgeon talking about the same clinical and pathologic conditions? I do not believe that they always are. There are, I believe, a number of pathologic conditions in early infancy associated with vomiting which have many of the symptoms seen in hypertrophic stenosis, but which on close study are seen to be quite different. There are also different conditions in which there is visible gastric peristalsis. Even this symptom does not put the case in the same class with those we have been discussing. A large proportion of such patients recover with medical treatment only, as do also many of those of hypertrophic stenosis of the milder type, although probably in many of them the correct diagnosis is not made.

Let us drop these two groups of cases from our discussion and consider only the patients with hypertrophic stenosis as they are admitted to hospitals or as the pediatrician sees them. Such patients have usually been first in the hands of the general practitioner. Few of these cases have been recognized or received proper early treatment. They have generally been looked on as difficult feeding cases. In most of them the first thing done is to wean the baby, on the supposition that the mother's milk is at fault—usually the worst possible advice. Every conceivable change in food formula is made with the expectation of controlling the vomiting, but with no result, or at most only a temporary benefit. The average duration of the symptoms before the child is brought to the consultant or admitted to the hospital has been in our experience four weeks. Seldom are any but the most severe types seen as early as the second week.

The problem, then, of the infant with hypertrophic stenosis as the surgeon and the hospital physician sees it is that of a baby 7 weeks old, weighing 7 pounds, who has been vomiting for four weeks; such at least are our average figures. In some there is a history of continuous vomiting for two weeks or more and rapid loss in weight amounting to 2 or 3 ounces a day. In other cases, alternations of improvement and relapse have perhaps continued for two or three months.

The principal medical risk is of acute inanition, which may come on quite rapidly; and in the most severe type of disease, the infant may quickly sink to so low a point that it is impossible to save him by any means. In the less severe types there is the danger from slow marasmus, especially in hospitals and with patients in poor surroundings. In some of these cases the vomiting may be insignificant and the stools fecal, yet the child may slowly lose weight till his condition is hopeless, or he may die quite suddenly when apparently as well as for several days before. This is particularly apt to be the case unless the weight is closely watched and the actual amount of food retained is carefully recorded. In hospitals, risks of intercurrent disease are not to be ignored in patients with such feeble resistance as these infants. Finally, there must be considered the possibility of trouble in later life from these cases not treated surgically.

Certain surgical risks are unavoidable and belong to any operation as serious as a laparotomy. The chief one with these patients is shock, which in most cases is surprisingly little, considering the gravity of the operation and the tender age of the patients. Few infants who are in even a reasonably good condition die from shock; though with those in whom the disease has not been recognized or has been long neglected, this is important. All the surgical dangers — shock, leakage, sepsis, hemorrhage — are greatly lessened by the substitution of the ten or fifteen minute operation proposed by Rammstedt for a gastro-enterostomy, which takes three or four times as long. After the Rammstedt operation also not only these grave dangers, but all the complications and sequelae are much less frequent and less severe. The reactionary temperature is not so high, and vomiting and diarrhea, both often troublesome after gastro-enterostomy, are relatively seldom seen; the food can be begun earlier and increased more rapidly, convalescence is altogether much shorter, and gain in weight in most cases begins by the end of the second week and thereafter proceeds as in normal infants.

If the child is seen in private practice with the possibilities of the best care and most intelligent feeding—particularly breast feeding—if the weight is stationary or the loss in weight is not great and the child still in good condition, if the vomiting is only two or three times a day, if the stools are fecal, waiting is to be advised.

On the contrary, if the weight has fallen to 6 pounds or below and the loss is still going on, if the vomiting is continuous, if there is marked gastric retention, if the stools contain no fecal matter, no time should be lost, but immediate operation advised, particularly in a hospital.

My early personal experience led me strongly to favor the medical treatment of these cases. I was greatly influenced by a few conspicuous successes in a few patients treated without operation, and also by the results of the first seven cases in which I saw operation done, five of the seven having been fatal. Increased experience has shown that the average case medically treated, unless it shows improvement in a few days, is liable to run a very prolonged course, even though the child may ultimately recover.

No better argument can be adduced for operative treatment than a comparison of our results at the Babies' Hospital in the three periods into which I have divided our experience (Table 2). During the first period, up to the end of 1911, our policy was operation only after a prolonged trial had been made of medical treatment, surgery being looked on as a last resort.

In the second period, comprising the years 1912, 1913 and 1914, operation was done in nearly every case within forty-eight hours, and the larger number within twenty-four hours, after admission.

During the third period, comprising the years 1915 and 1916, sixty-three cases were treated; sixty-one by operation, all Rammstedts, by Dr. Downes, with a mortality of 23 per cent.

These results have convinced not only myself but all my colleagues in the hospital that with the average infant admitted with hypertrophic stenosis, the immediate performance of the Rammstedt operation offers a better chance of life than any other method of treatment yet proposed.

FINAL RESULTS

It would seem rather remarkable if so marked a pathologic condition as exists in these cases should disappear in a few weeks. The symptoms, it is true, subside completely and, so far as one can positively say, permanently. At least none are seen for years. It is this fact that has led many to regard the essential condition as merely a pyloric spasm; believing that when this has disappeared the patient is well. To this view we cannot subscribe. We believe not only

that hypertrophy precedes the spasm but also that it continues long after the spasm has ceased. Proof of the latter point has already been cited. Most observations on this disease are still recent, and we cannot be quite certain yet in any case that symptoms may not appear later in life. It is true that they have rarely been noted in early childhood. But in the classical case of Beardsley (1788), marked symptoms were noted in the first week of life. They continued more or less severely, and at 2 years were described in language showing that they were typical. The child continued to suffer until his death at 5 years, the necropsy showing marked hypertrophy of the pylorus, considered by the author "scirrhus." The pyloric obstruction was so tight that only the "finest fluid" passed into the duodenum. More and more reports are constantly appearing of hypertrophic pyloric stenosis in older children and early adult life, which are ascribed to a congenial condition.

That hypertrophic stenosis may exist for years before it gives symptoms is shown by the case of Rosenheim,[25] in which a boy had no gastric symptoms until he was over 5 years old. An operation at 6½ years disclosed a hypertrophic stenosis. I have seen but one case of pyloric stenosis in an older child, a girl of 4½ years. In this the diagnosis was established by operation; but there was no history of protracted vomiting in infancy, and definite gastric symptoms did not begin until the patient was 3 years old.

In my own series of cases I have been able to follow for any length of time only seven patients who recovered without operation—one for eleven years, one for seven, three for six, one for five, and one for four years. All were in excellent health and only one had vomiting attacks after his initial recovery, and these ceased entirely at the age of 8 months. None who had been observed for shorter periods had shown any symptoms after the first year.

Turning now to the final results in the operative cases, I shall first consider those after gastro-enterostomy. Of the twenty patients who recovered, one died two weeks and one four weeks after operation, of enterocolitis; one died after four months, of diphtheria; one after two years from accident; one, twenty-one months after from pneumonia, and one was lost sight of. The remaining fourteen patients have been followed up to the last few weeks. One seen after eleven and a half years is a well grown, normal boy. Four were followed for from four to five and a half years; all were then quite well, but one had suffered from occasional attacks of vomiting up to his third year. Of eight followed for from two to two and three quarter years, all were strong and healthy; but one suffered from vomiting attacks for nearly a year after operation. Roentgen observations in cases two or three years after gastro-enterostomy showed that the food was still passing through the operative wound. Judging from the histories of these patients, the operation of gastro-enterostomy in no wise interferes with the normal growth and development of children.

The Rammstedt cases (Table 3) have necessarily been observed for a much shorter time, but long enough to establish the fact that this operation does relieve the obstruction at once and completely. Of the fifty-one infants who recovered, five died subsequently.

TABLE 2.—RESULTS OF MEDICAL TREATMENT AND THE OLDER AND THE MORE RECENT SURGICAL TREATMENT *

	Cases, No.	Recovered, No.	Died, No.	Mortality, Per Cent.	Average Age, Weeks	Average Weight Pounds
First Period, 1901-1911:						
Without operation	24	10	14	58	...	...
Operation (Gastro-enterostomy)	17	7	10	58	...	...
Total	41	17	24	58	7.3	7.6
Second Period, 1912-1914:						
Without operation	7	3	4	57	...	...
Operation (Gastro-enterostomy, 24; Rammstedt, 6)	30	17	13	43	...	...
Total	37	20	17	45.9	6.6	7.7
Third Period, 1915-1916:						
Without operation	2	1	1	50	...	...
Operation (Rammstedt)	61	47	14	23	...	...
Total	63	48	15	23.8	7.0	6.8

* In the first period, operation was performed generally after medical treatment; in the second period, usually soon after admission, and in the third period, always soon after admission. The average duration of symptoms on admission in each group was 4.2 weeks.

The remaining forty-six infants have been followed up to the last few weeks. The time elapsing from the operation to the date of last report was:

In four cases, between 2 years, 2 months, and 3 years.
In fourteen cases, between 1 year, 6 months, and 2 years.
In twelve cases, between 10 months and 15 months.
In eleven cases, between 5 months and 8 months.
In five cases, between 1 month and 4 months.

When seen, these children were almost without exception in the best of health; they were plump and rosy-cheeked, nearly all above average weight, and as fine a group as one would care to see.

TABLE 3.—RAMMSTEDT'S OPERATION AT BABIES' HOSPITAL *

	Cases, No.	Deaths, No.	Mortality, Per Cent.
Prior to 1915	6	2	33
1915	35	10	28.5
1916	26	4	15.3
	67	16	24

* Three patients died from gastro-intestinal conditions subsequently (4 weeks, 6 weeks, 7 weeks); one patient died from empyema (3 months) and one from pneumonia (4 months); forty-six have been followed and are well to date.

Our experience, I think, warrants the conclusion that the Rammstedt operation meets the indications in this condition. If this simple procedure does this, then there is no longer any justification for the other more serious surgical procedures which have been employed in the past.

CONCLUSIONS

1. Hypertrophic stenosis of the pylorus in infancy is a pathologic entity. It should not be confused with other pathologic conditions which may be accompanied by vomiting and occasional gastric peristalsis.

2. In many of the milder forms, the patients recover with only medical treatment.

3. All those who do not improve under such treatment in the course of two or three weeks should be

25. Rosenheim: Berl. klin. Wchnschr., 1899, **32**, 703.

treated surgically; with the more severe types only a short delay is permissible.

4. The symptoms which indicate surgical intervention are rapid loss in weight, persistent, forcible vomiting, and active gastric peristalsis; the presence of a palpable tumor and abnormal gastric retention aids much in diagnosis.

5. The Roentgen ray reveals nothing of importance which cannot be discovered by a study of gastric retention, and without its dangers.

6. The patients who come under observation after four or five weeks of vomiting and marked loss in weight are best treated by operation as soon as the diagnosis is established.

7. The earlier operations of gastro-enterostomy, divulsion, pylorplasty, etc., were unduly severe and prolonged; they should be abandoned for the simple external division of the circular muscular fibers proposed by Rammstedt.

8. Results by the same operator, on the same class of patients in the same institution and with the same after-treatment, show the great superiority of the Rammstedt operation to gastro-enterostomy and to medical treatment.

9. Skilled after-treatment is quite as essential to good results as good surgical technic.

10. Cases of gastro-enterostomy followed from four to eleven years indicate that growth and development are not impaired by the operation.

11. Cases followed two and three years after the Rammstedt operation show no interference with health and progress.

12. Patients not operated on usually show no symptoms after the first year. Yet the possibility that this condition may be the basis of pyloric obstruction in later life undoubtedly exists.

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ANAPHYLATOXIN AND ANAPHYLAXIS*

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It is our purpose to summarize the results of investigations which are published concurrently, under the same general heading, as a series of ten articles in the May and June numbers of the *Journal of Infectious Diseases*. For details, the reader must consult the experimental work there given. Although the problem primarily concerns a laboratory research, it nevertheless touches on matters of great importance in medicine. It will be realized that a new conception in physiology is inseparably bound up with problems in pathology and hence in disease. Thus, it is with the great questions of anaphylatoxin and anaphylaxis which, beginning with the observations of the French physiologist Richet, have claimed the attention of many workers, in many countries, during the past fifteen years. Many explanations have been brought forth to account for these reactions, and it would seem as if all possible interpretations had already been presented. Yet, as the result of an intensive study extending over a period of three years, we have arrived at an entirely different view, one which reveals these phenomena in a new light.

We were led to take up this investigation through a series of observations made in the course of a study of certain tropical diseases of animals, namely, the trypanosomiases, known as surra and nagana. In endeavoring to immunize against these diseases by injecting dead cultures of the trypanosomes, it was found frequently that severe toxic effects with marked hypothermia followed such injections. When these were repeated, chronic intoxication resulted which usually terminated fatally. For this reason it was not possible to secure a high degree of immunity, and it was clear that no progress could be made until a better understanding of this intoxication was reached. Laveran had encountered the same effects, and ascribed them to a "trypanotoxin." Similar effects have been known for a long time in connection with bacteria and led to the conception of "endotoxins."

PRODUCTION OF ANAPHYLATOXIN BY TRYPANOSOMES

The resemblance of the action of trypanotoxin to that of anaphylatoxin led us first to study the trypanosomes in their relation to anaphylatoxin production. Several investigators had already touched on this question. They found that if the *Trypanosoma brucei* was incubated with guinea-pig serum for two hours, and this mixture was then iced for from twelve to twenty hours, the serum thus treated was toxic in a dose of 3 c.c., because of the formation of something which is called anaphylatoxin. In our investigation, five different species of trypanosomes were employed, and it was possible to show that they all behaved in exactly the same way. Whether living or dead, on contact with serum they rendered it poisonous. Two fundamental facts were learned: first, that the rat serum was a most excellent reagent, better than any other serum hitherto used, and second, that the toxification occurred at great speed. Instead of incubating for hours, it was possible to render a serum fatally toxic in two or three minutes. Indeed, with rat serum it was possible to make this so toxic that in a dose of 0.25 c.c. it would kill guinea-pigs within three minutes after the injection. Never before had so powerful an anaphylatoxin been produced, or in so short a time.

A given mass of trypanosomes could be used to toxify different lots of serum, and in one experiment twenty consecutive tests were thus made without any apparent decrease in the ability of the organisms to make this poison. This study showed that the poison did not reside within the cells of the parasite, but that in some way it was produced out of a matrix present in the serum. The poison thus produced, when injected into animals, caused typical anaphylactic shock and death. It was shown that a ferment was not concerned in the production of this poison.

PRODUCTION OF ANAPHYLATOXIN BY AGAR

After it had been found that anaphylatoxin was produced by these organisms, it was in order to inquire as to what anaphylatoxin was, and how it was produced. This led us to study other agents which have been known to produce anaphylatoxin, and because of convenience we made use of agar. Bordet of Brussels had previously shown that when agar was incubated with guinea-pig serum for an hour or more, anaphylatoxin resulted. Accordingly, an extensive series of tests was made with agar. Various serums were employed, notably guinea-pig, rabbit and that of the rat. It was possible to show with all of these serums, that the reaction of poison production was

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one of great speed. The physical condition of the agar was very important to the speed of the reaction. With a fine comminution of the agar in a gel state, it was possible to toxify the serums in five minutes or less. In this way, the guinea-pig serum could be made so poisonous that it killed in a dose of 1 c.c., and with rat serum this dose was reduced to 0.25 c.c., and even less. It is noteworthy that an extremely minute amount of agar is capable of making the rat serum toxic; thus 1 part of dry agar can toxify 400,000 parts of serum. Per cubic centimeter of serum, this means 0.0025 mg. of dry agar, and when it is considered that the nitrogenous constituents of agar make up only a minute part of this amount, it will be seen that this result contraindicates Friedberger's theory that anaphylatoxin results from the cleavage of the nitrogenous substances present in the so-called antigen, in this case agar. It may be added that numerous attempts to demonstrate the presence of a ferment which supposedly is concerned with the poison production proved entirely negative.

Previous workers, employing anaphylatoxin which killed in a dosage of about 3 c.c., were unable to test the effect of multiple doses of the poison. With a method which regularly gave a toxic serum such that 0.25 c.c. was fatal, it was possible to test the effect of very large amounts of the poison. In the case of guinea-pigs it was found that the injection of from one to forty lethal doses always caused rapid death, and it was possible to obtain noncoagulable blood when large doses were used. When the poison was similarly tested on rats and rabbits, it was found that these were refractory. The white rat, for example, would tolerate a quantity of poison sufficient to kill seventy-five guinea-pigs; the rabbit tested with forty of such doses likewise showed no effects. These facts proved to be of great importance in the subsequent work.

As it had been shown that agar readily produced a poison when mixed with a serum, it was to be expected that the intravenous injection of agar would likewise lead to poison production in vivo and hence produce a nonspecific anaphylactic shock. The experiments made with this object in view led to remarkable results. With the agar in a suitable physical state it is possible to produce an absolutely typical anaphylactic shock. Moreover, this can be done with very minute amounts of agar. A dose representing 9 mg. of dry agar per kilogram of guinea-pig was found to be fatal. It is a remarkable fact that this dose is less than that of most pathogenic bacteria, and yet these are supposed to be toxic because of the endotoxin which they contain. Agar certainly does not contain an endotoxin, and, such being the case, one is forced to conclude that much of that which in the past has been designated as endotoxin is a myth. The finely divided agar produces the same effect as the pathogenic or nonpathogenic bacterium when injected into a guinea-pig, or when mixed with serum in the test tube; the poison that is produced in either case is anaphylatoxin, and it is not made out of the intracellular contents.

The rabbit and the white rat are less susceptible to the injection of agar, requiring from 20 to 30 mg. per kilogram of body weight. In these also the syndrome is that of typical anaphylactic shock. The fact that the agar kills by producing in vivo the same poison, anaphylatoxin, is demonstrable by making rapid transfusions of blood from the heart of the injected animal into the vein of a guinea-pig.

PRODUCTION OF ANAPHYLATOXIN BY PEPTONE

It having been shown that agar produced anaphylatoxin on contact with serum or plasma, it was next in order to ascertain the mode of action of Witte's peptone. As is well known, this peptone, or proteoses in general, when injected into the vein of a dog causes a rapid drop in blood pressure, and at the same time renders the blood incoagulable. Because of these effects it has been held that anaphylactic shock was due to the formation of peptone or other cleavage products. The injection of peptone into guinea-pigs does produce a typical anaphylactic shock, but it is noteworthy that per kilogram of guinea-pig, 300 mg. are required, or thirty times the amount of agar. The rat and the rabbit are considerably more resistant, the latter requiring 200 times more of peptone than of agar. In other words, peptone is considerably less toxic than agar. In all three species, the injection of peptone yields the syndrome of anaphylactic shock, namely, drop of blood pressure, incoagulability of the blood, distention of lungs, etc.

Of further importance is the fact that when peptone is mixed with rat serum in the test tube it is capable of producing within five minutes anaphylatoxin. And again, transfusion of the heart blood, after injection of peptone demonstrates that anaphylatoxin is formed in vivo as a result of the peptone injection. These facts have a significant bearing on the mechanism of the reaction; since a clear peptone on mixture with a clear serum yields anaphylatoxin, it is difficult to account for this poison production by the prevalent theories of adsorption.

PRODUCTION OF ANAPHYLATOXIN

In order to get an insight into the mechanism of anaphylatoxin production it was necessary to take up the question of the primary toxicity of serum. It is well known that transfusion of whole blood or the injection of large amounts of serum may lead to severe toxic effects. It has, indeed, been asserted that the effects produced are probably those of anaphylaxis. The blood of a normal rabbit when rapidly transfused into the vein of a guinea-pig is usually harmless in a dose of 3 c.c. If, however the blood is held in the syringe for three minutes before injection, it becomes fatally toxic. All bloods become highly toxic in the precoagulation stage, and the effects produced are those of anaphylatoxin. Furthermore, transfusion tests made from the guinea-pig which receives the toxic blood into a normal guinea-pig demonstrate the presence of anaphylatoxin.

These and similar experiments go to show that the reaction which leads to coagulation is accompanied by the formation of anaphylatoxin. When the blood is drawn, catalytic substances form which change (1) the fibrinogen into fibrin, and (2) the matrix of the poison into anaphylatoxin. After coagulation, some of this poison remains in the serum and renders it more or less toxic. The amount of poison present in a serum may be varied, at will, by allowing the clot to remain in contact with the serum, and especially by varying the method of defibrination. Thus, for example, when the blood of a rabbit is divided into two portions and each then defibrinated in a different way, one serum may kill in doses of 2 c.c., while the other will require 6 c.c. to produce the same result.

Normal serum is always more or less toxic, owing to a variable amount of the anaphylatoxin formed during the coagulation process, and alien substances such

as agar, peptone and bacteria, merely increase the amount of this poison. The fact that preclot blood, or defibrinated blood is more toxic than its serum is probably due to the presence of the catalyzer, formed in the precoagulation stage, which induces additional poison production when such blood is injected into the recipient. The further observation that a defibrinated blood, kept at 60 C., coagulates much more rapidly that the clear serum indicates the presence of such disturbing or catalyzing agent.

In the study of specific anaphylaxis, the rat was found to be an invaluable reagent. In line with its resistance to anaphylatoxin, agar and peptone, it was found to be refractory to the anaphylactic shock proper. It does not seem to be possible to produce a fatal anaphylactic shock in a rat which has been previously sensitized to a given antigen, such as horse serum or egg white. If, however, the antigen is diluted with distilled water it will produce a shock. And, furthermore, the mere injection of distilled water into a sensitized rat will cause a shock and even death. By means of the transfusion method it is possible to show that anaphylatoxin is produced in the circulation of the animal thus injected with distilled water. Further, the transfusion of blood from a guinea-pig which has been shocked likewise demonstrates the production in vivo of anaphylatoxin in specific shock.

Of equal importance is the further fact that if the serum of a sensitized guinea-pig or rat is mixed with the antigen in vitro, within two or three minutes thereafter it is possible to demonstrate the presence of anaphylatoxin. The speed of poison production in this case is the same as with trypanosomes, agar, peptone, inulin, etc. Particularly noteworthy is the fact that the addition of distilled water to the serum from a sensitized rat results in an almost instantaneous production of the poison. It should be added that the serum of a normal rat behaves in a similar manner when diluted with distilled water, but the reaction is not as rapid. It follows from these observations that the matrix of the poison is a very labile constituent of the plasma or serum. Its extreme lability is also indicated by the fact that heating of the serum to 50 C. for fifteen minutes diminishes or destroys the matrix, since serum thus heated cannot be toxified by the addition of distilled water.

When the dog is subjected to specific anaphylactic shock, or is injected with peptone, it gives as one of the characteristic responses a noncoagulable blood. Hitherto it has not been possible to produce this condition in the blood of guinea-pigs which have been subjected to specific anaphylactic shock. By drawing the blood from the heart of the shocked guinea-pig into a suitable pipet shortly after the second injection of the antigen, we have been able to obtain it in a perfectly incoagulable condition.

The foregoing facts demonstrate clearly that, in specific shock, anaphylatoxin is produced in vivo; and further, that this poison is produced at about equal speed when the sensitized serum is brought into contact with the antigen in the test tube. The experiments with distilled water, moreover, demonstrate, first, that the poison is not derived from the antigen since no antigen is used, and second, that the poison production is independent of any adsorption reactions since no suspended matter is present. It follows, therefore, that the adsorption theories of anaphylatoxin production, as well as the theory of Friedberger, in which the matrix of the poison is located in the nitrogenous constituents of the antigen, are definitively disproved.

These points having been established, it was of importance to ascertain whether or not the production of anaphylatoxin was associated with protein cleavage. A good indicator of the presence or absence of such cleavage is Van Slyke's method for the determination of aminonitrogen. If cleavage occurred, it was reasonable to expect an increase in aminonitrogen, indicating a liberation of amino-acids from the protein complex. An extensive series of tests with anaphylatoxin, obtained by the action of agar, inulin or of distilled water showed no increase in aminonitrogen; if anything a slight decrease was observed. The production of anaphylatoxin in such tests was very rapid, and apparently reached its maximum within fifteen minutes, after which it persisted in the tube, without increase or decrease, for twenty-four hours or more. Assuming that this method affords an indication of cleavage, it follows that no protein cleavage is demonstrable in connection with anaphylatoxin production.

EXPLANATION OF THE PRODUCTION OF ANAPHYLATOXIN

This brief presentation of the main facts developed in these investigations suffices to show that anaphylatoxin production and specific anaphylaxis rests on an entirely different basis than has hitherto been supposed. The matrix of the poison is always present in the circulating plasma and is also present in normal serum. This matrix must be looked on as being very labile, quite as much as if not more so than the fibrinogen of blood. In the same way that the labile fibrinogen is changed by a catalyzer, commonly called fibrin ferment, into fibrin, so the matrix is converted through the catalyzing action of substances of utmost diversity into anaphylatoxin. The two reactions — blood coagulation and blood toxification — are twin phenomena in which labile substances undergo intramolecular rearrangement resulting in tautomeric modifications; on the one hand, the insoluble fibrin, and on the other, the soluble anaphylatoxin is produced. There is no good reason to believe that fibrin results from a hydrolytic cleavage of fibrinogen; neither is there any evidence to indicate that anaphylatoxin is formed by the hydrolysis of a matrix.

The disturbance which brings about the transformation of the matrix into poison is readily effected by the addition of almost any alien substance to a serum. Thus, bacteria, trypanosomes, organ cells and organ extracts, peptone, agar, starch, inulin, kaolin, silicic acid, barium sulphate, diverse salts, and even distilled water act as inducers or accelerators of this reaction. As to the mode of action of these substances, nothing definite can be said; but it is probable that a dispersion of the matrix precedes the tautomeric change.

The identical reaction may be produced in vivo by the injection of these totally unlike substances into the circulation of an animal. The result is a nonspecific anaphylactic shock. In specific anaphylaxis, *the inducing substance is formed by the interaction of the antigen with its antibody*. It matters not whether this product forms a visible precipitate, as in the precipitin reaction, or whether it remains in solution. It is this formation of a new and alien substance which induces the intramolecular change in the matrix, transforming it into a poison. The specificity of the reaction concerns the production of this catalyzer, and not that of the poison.

To explain the incoagulability of shock blood, it must be assumed that this inducing agent also reacts with fibrinogen, which it transforms into an incoagulable tautomeric modification. Whether or not this new product corresponds to the fibrinoglobulin of Hammarsten cannot be stated. It is obvious, however, that the labile constituents of blood must be subjected to renewed scrutiny, and that the old problem of blood coagulation must be approached from a somewhat different standpoint than has been the case in the past. The theories of immunity are not a safe guide in the study of coagulation; they have certainly proved anything but useful in the study of anaphylaxis. The conception of the formation of an incoagulable tautomer of fibrinogen in anaphylactic shock is also applicable to the puzzling condition of hemophilia. The good effects of serum injection in this condition, though temporary, may be due to a reversive action of the serum, if not to that of the alkali present. It would be of interest to determine the effect of an alkali treatment in such cases.

It may happen in nonspecific shock, as when large doses of rabbit serum, or of distilled water are injected, that the fibrinogen change follows the usual path with thrombosis as a result. The fact that in one case the blood is incoagulable while in another it clots more rapidly than usual does not mean that the reactions are entirely different; the trend of tautomerization is merely varied by the conditions affecting the blood mass. It is perfectly reasonable to believe that fibrinogen is capable of yielding several tautomers, as fibrin, fibrinoglobulin, that coagulated by heat, and perhaps the incoagulable form mentioned. As stated above, the matrix of the poison is very labile, and this fact is suggestive of a possible relation to fibrinogen or to fibrinoglobulin. Like fibrinogen, the matrix is capable of existing in several modifications, the native or plasmic form, the highly toxic type or anaphylatoxin, the inactive or inert form resulting by heating at 50 C., and that which is fully coagulated by heat.

As regards the nature of anaphylatoxin, it is not possible to make any very definite statement. Investigations which are being conducted at present indicate beyond doubt that it is not a simple chemical substance; neither is it a partially hydrolyzed, soluble protein of the type of proteose. Rather, it appears to exist as a larger molecular complex than is that of serum albumin, and, moreover, it possesses certain globulin characteristics.

TARAXIGEN, TARAXIN AND TARAXY

It will be seen that the phenomenon of anaphylatoxin production, which includes anaphylaxis, is not connected with the problem of immunity except so far as it shows the ready response of a labile blood constituent to an alien substance; neither is it the antithesis of protection, as implied in the term "anaphylaxis." The latter and its offshoot anaphylatoxin are clearly misnomers when viewed in the light of these studies. These terms, however, have come into such general use that it is highly probable that they will continue to be employed. Nevertheless, the phenomenon is of such great practical importance that it seems to be worth while to suggest a terminology which will express concretely the results of these investigations. With the kinship to blood coagulation in mind, it is proposed to designate the matrix of the poison as "taraxigen," and its tautomeric poisonous form as "taraxin." The terms[1] recall the similarity in the reaction to that which occurs in coagulation, when fibrinogen is changed to fibrin. "Taraxy" is the disturbed state or condition caused by the poison.

It is important to realize from the medical standpoint that inducing substances may develop within the normal animal through some unrecognized cause which may lie in a peculiarity of diet, or in exposure, or in obscure infections, etc. As a result, the blood of such an animal will be abnormally toxic because of the presence of anaphylatoxin or taraxin. This condition has actually been observed in normal, untreated rabbits. A similar condition without doubt is of frequent occurrence in man, and while the amount of poison thus produced may not be sufficient to cause an acute anaphylactic or taraxic shock, it may lead to a subacute or chronic form of intoxication. The sudden formation of much anaphylatoxin or taraxin may bring on the explosive effects seen in eclampsia, and perhaps in surgical shock, not to mention other attacks with rapid onset. The gradual production and continued presence of such poison may result in the obscure effects noted in connection with some of the so-called autointoxications, and it may lead to anemia, cachexia, etc. Lastly, and not the least, it is also to be remembered that a considerable part of the toxic effects in infectious disease is in all probability due to the formation of anaphylatoxin or taraxin. In other words, infection leads to taraxy. The great and far-reaching importance attaching to this problem will be evident the moment it is realized that the circulating blood, through a variety of agents, may be changed from a beneficial and harmless to an injurious and poisonous state. The alien substance is merely the trigger which, so to speak, ignites or explodes the charge contained within the blood vessels. It will be seen that this point of view opens up a large field of inquiry.

The treatment of taraxy must aim to destroy the anaphylatoxin or taraxin present, and to prevent its further formation. It has been shown that alkali not only destroys but also prevents the formation of this poison in the test tube. This fact appears to furnish a rational basis for the employment of alkali or alkali-producing salts, in the treatment of such conditions. The beneficial effect of alkali administration in acidosis and in shock may consist in bringing about a reversion to the normal tautomeric state of the taraxin present. This may also explain the striking results following the injection of normal serum in hemophilia, and of alkalinized blood in acidosis (Gettler and Lindeman).[2]

The administration of sodium bicarbonate, or preferably sodium acetate in doses of from 3 to 5 gm., dissolved in about half a glass of water, and given at intervals of from half an hour to an hour during the day, has resulted in marked beneficial effect in three severe cases in which chronic taraxy or anaphylatoxic poisoning was believed to exist. These cases were: salvarsan poisoning (Dr. Wile); ascending paralysis (Dr. Camp), and multiple exudative erythema (Dr. Wile).

The immediate object in mind in this treatment was to raise the alkalinity of the blood to *a maximal level and to keep it there* for the duration of the tests. The study of the action of alkali under diverse laboratory

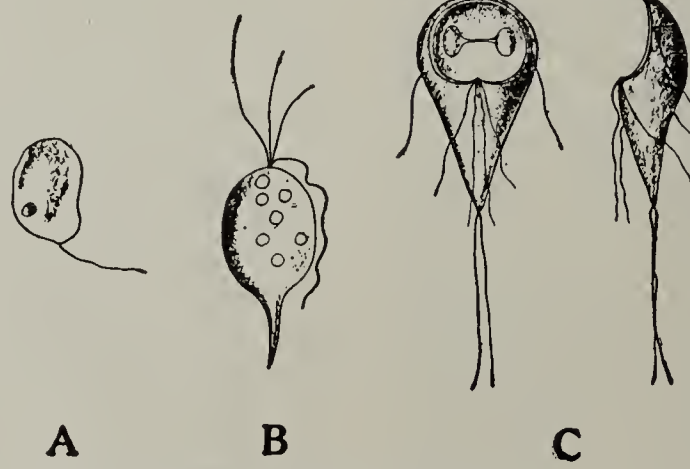
1. The derivation is from the Greek τάραξις, a disturbance.
2. Gettler, A. O., and Lindeman, Edward: A New Method of Acidosis Therapy, THE JOURNAL A. M. A., Feb. 24, 1917, p. 594.

conditions is being continued. It is desirable, however, that the treatment be given an extended trial, not only from the curative but also from the preventive standpoint; the latter is especially advisable, perhaps, in patients showing a tendency to eclampsia and to food poisoning. Furthermore, in special cases of susceptibility to antitoxin or salvarsan injections, the preventive administration of a large dose of alkali or acetate, shortly before such treatment, is advisable.

THE DIAGNOSIS AND TREATMENT OF THE FLAGELLATE DIARRHEAS

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The routine microscopic examination of feces to determine the presence or absence of endamebas and the ova of the various parasitic helminths not infrequently results in the discovery of the presence of certain flagellate protozoa. In many instances, especially in individuals who have been residents for a longer or shorter period of warm climates, these flagellates will be found to be not the only animals parasitic in the intestinal canal, and it follows, therefore, that in such cases the symptoms ordinarily produced by one species of parasite may be overshadowed partially or completely by those produced by another species. Now and then, however, there is encountered a specimen in which the flagellate organisms with which this paper deals are present, but in which no other living pathogenic agent, either protozoal, metazoal, or bacterial, can be discovered. In such cases an opportunity to study the pathologic effects resulting from the presence of these parasites alone is presented.



Flagellates: *A*, Cercomonas hominis Davaine; *B*, Trichomonas intestinalis; *C*, Lamblia intestinalis.

The flagellates concerned are three in number and may be briefly described as follows:

A. *Cercomonas hominis* Davaine.—In form this organism is irregularly round or pearshaped, with the longer diameter measuring in the great majority of individuals from 8 to 10 microns. From the more rounded end there projects a single flagellum, which is in general nearly twice the length of the body. No undulating membrane is present. The nucleus is difficult to distinguish. In preparations of freshly voided intestinal contents examined microscopically the parasite is seen to be actively motile.

B. *Trichomonas intestinalis* Leuckart.—This protozoon is probably identical with *T. vaginalis* Donne, which was originally thought to occur only in vaginal mucus of an acid reaction and to be not transmissible to the human male. It is, like *C. hominis,* somewhat pear shaped, but, unlike *C. hominis,* its smaller extremity is drawn out to a fairly definite and sharp point. It differs also from the previous organism in size, its longer diameter being from 15 to 25 microns, in the possession of an undulating membrane, and in showing at its rounded end three flagella instead of one. The nucleus is quite distinctly visible. In specimens of recently voided feces the parasite manifests active motility.

It may be said here that in the past much confusion in distinguishing these two species has existed and undoubtedly many mistakes in identification have been made.

It is very often the case that the presence of these organisms, if their number is not excessive, excites no symptoms worthy of note. But if the infection is intense, there will probably result a diarrhea of varying severity. In number the fecal evacuations range from three to six per diem. In a great majority of instances the specimens show nothing definitely abnormal except in the matter of consistency, which may be anything from liquid (watery) to semisolid. Only very rarely are cases met with in which the presence of mucus or blood in small amounts gives a dysenteric tint to the picture. So far as is known the parasites never penetrate into the substance of the intestinal wall and definite ulceration has not been observed.

C. *Lamblia intestinalis* R. Blanch.—This third flagellate is also irregularly pear shaped in outline. It is from 10 to 20 microns in length and its greatest breadth, which is near the anterior rounded extremity, is about one half of its length. The cytoplasm is seen to be finely granular and is surrounded by a thin cuticle, by means of which the organism is enabled to maintain a practically permanent form; that is to say, its outline varies by relatively slight changes only. The nucleus is of a dumb-bell shape and is situated in the anterior part of the body. On one side and near the anterior extremity is to be found a rounded excavation, which looks obliquely forward. This excavation is probably a sort of peristome and exercises the functions of a clinging organ. Four pairs of flagella serve to endow the parasite, as seen in freshly passed stools, with an active motility. The first pair of flagella arise from the anterior border of the excavation above described; the second and third pairs, from the posterior edge of the same organ; while the fourth pair take their origin from the posterior pointed extremity, or tail.

There has been in the past much discussion concerning the pathogenicity of *Lamblia intestinalis,* and this has finally resulted in the conviction that it may cause disease. The symptoms may be slight, moderate, or severe, depending on the number of organisms present. By far the most important symptom is diarrhea. In general, the evacuations number from four to eight daily; they are liquid (watery) in consistency and brown in color, and they may contain small amounts of mucus unmixed with fecal substance. Intestinal griping and rectal tenesmus are present only in those very rare cases in which accompanying an intense infection there are some of the signs of a true dysentery, namely, blood and mucus in the stools and a febrile reaction. These parasites are said not to cause definite ulceration of the intestinal mucosa. By means of their peristome-like organ they attach themselves to the superficial layer of epithelium and it is probable that the mechanical irritation resulting therefrom is responsible for the production of the diarrheal manifestations.

REPORTS OF CASES

Case 1.—M. B., a white woman, aged 51, married, occupied as a house servant, had a family history negative with reference to her present illness. Her history previous to the present illness was incompletely determined. The patient

stated only that she had had diarrhea with passage of some mucus during several months immediately preceding.

The present illness was first seen July 12, 1910, when the patient was admitted to the medical wards of the New York Post-Graduate Hospital. She made complaint of diarrhea and indigestion. The patient was having from two to five semisolid stools daily, in a certain number of which mucus in small amounts was to be found. Microscopic examination of the feces on July 15 revealed the presence of the vegetative forms of *L. intestinalis* in large numbers. The essential feature of the treatment which was at once entered on was high irrigation of the colon with a solution of methylthionin hydrochlorid of strength 1 to 3,000 (methylthionin hydrochlorid is methylene-blue). It is at present not possible to determine from the history of this case the results of the later microscopic examinations of the feces, but following the amelioration of the symptoms, including a return of the stools to a condition of normal consistency, the patient was discharged July 27.

This same patient was again admitted to hospital April 22, 1912, with complaint only of intestinal parasites. At this time she was having from one to three semisolid stools daily. Defecation was not accompanied by pain. No other symptoms were complained of. Microscopic examination of the feces on April 23 showed encysted *L. intestinalis* in large numbers. The treatment which was immediately instituted consisted of high colonic irrigations with normal saline solution and the daily administration by mouth of ipecac in massive but decreasing doses. Seventy grains were given at one dose the first day and each succeeding day's dose was diminished by ten grains. After two days of this treatment only a very few organisms could be found in the feces. The patient was discharged April 30 in an apparently normal condition.

CASE 2.—T. T., a white man, aged 51, married, occupied as a laborer, had a family history negative with reference to the present illness. At one period previous to the present illness he had practically constant pain in the lumbar region. This symptom had been absent for several months previous to admission. He suffered one attack of pronounced jaundice in early manhood. He received a blow on the head in 1898, which rendered him unconscious for a few minutes. He had gonorrhea twice as a young man, but he denied syphilis. He had been constipated for a few months previous to the present illness. Until two years previous to admission the patient had been accustomed to drink beer every day and whisky occasionally. But he had given up alcoholic beverages entirely. He used tobacco immoderately, and drank six cups of tea daily. During the year immediately preceding admission to hospital the patient had three seizures, which, judging from his own account, were probably epileptiform in character.

In his present illness the patient was first seen June 24, 1912. The complaint was of weakness and shortness of breath on exertion. The patient stated that he usually vomited once daily, generally after breakfast, but occasionally after supper. He was very nervous. He was having from two to five evacuations of the colon daily, the stools being liquid or semisolid. Microscopic examination of a specimen resulted in finding great numbers of *L. intestinalis*. The patient was given first a calomel purge followed by a saline. One week thereafter daily colonic irrigations with solution of quinin sulphate of strength 1 to 5,000 were instituted. At the end of another week the parasites were still very numerous. Two days later the parasites were reduced in number. At this time the general symptoms were much improved and the patient was discharged.

CASE 3.—S. M., white man, aged 22, unmarried, a soldier by occupation, with a negative family history with reference to present illness, had had the usual diseases of childhood. For the past year and a half the patient had suffered with mild digestive disturbances, such as continued gaseous fermentation and intermittent attacks of pyrosis and abdominal distress. The last-mentioned symptom manifested itself about one hour after eating. There was neither loss of appetite nor apparent decrease in weight. Defecation occurred quite regularly twice daily, exceptionally once or three times a day. The stools were described as being usually semisolid, but the act of defecation was never accompanied by pain. The patient stated that he indulged very rarely in alcoholic beverages, and never to excess.

In his present illness he was first seen Dec. 12, 1915. At that time he complained of moderate diffuse epigastric distress, which manifested itself about one hour after each meal, pyrosis, and a bloated condition of the abdomen. Physical examination showed a well-nourished and muscular youth, slightly below medium height. No abnormalities of the thorax and contained organs or of the abdomen and contained organs could be discovered by the ordinary methods of physical examination. The urine was normal. The feces were semisolid and contained *C. hominis* in large numbers, but were otherwise normal.

In treatment the patient was given methylthionin hydrochlorid (methylene-blue) in 2-grain doses four times daily by mouth, and in addition a daily enema, which was retained for ten minutes, of a 1 to 1,500 solution of the same drug. At the end of one week the organisms had disappeared from the feces and the subjective symptoms of which the patient originally complained were much ameliorated. The stools, however, were still semisolid. After another week of similar treatment a still more marked improvement in the symptoms was evident and the stools were manifesting a tendency to be formed. At this time the patient was lost sight of as a result of his being discharged from the army.

CASE 4.—C. M., a white man, aged 42, married, a lawyer by occupation, had a family history which was negative with reference to the present illness. He stated that he had incipient tuberculosis at left apex several years ago. This had been healed for at least fifteen years. He had typhoid fever in 1893. He says he had fever and diarrhea while in Panama in 1895. He had dysentery while in camp at Chickamauga in 1898, and a severe attack of bloody dysentery in 1907, during a residence in Brazil, since which illness the patient has suffered continuously from constipation and diarrhea in alternation. During the course of an appendectomy in 1912 a mass of adhesions about the gallbladder and duodenum was discovered. A diagnosis of gastric ulcer had been previously made, but was not confirmed at this operation. The patient had had digestive disturbances for ten years.

In his present illness he was first seen March 15, 1915. At that time the patient complained of gas in the stomach, flatulency and pyrosis. The administration of magnesia relieved these symptoms temporarily. Insomnia and nervous tension were distressing features of the condition, as stated by the patient. The appetite was good, but the patient refrained from satisfying it on account of the fear of epigastric distress, which always appeared about an hour after meals and persisted until the next time food was taken. The patient also awoke frequently at night suffering from a distressed sensation in the epigastrium. Physical examination showed a man 6 feet 1 inch in height, whose weight was considerably below normal, being only 130 pounds. Auscultation revealed the presence of a few crepitant râles at the left apex. Percussion showed the stomach to be moderately dilated and ptosed, the fundus reaching to a point 2 inches below the level of the umbilicus. Otherwise the physical examination of the thorax and abdomen was negative. An Ewald test breakfast yielded 110 c.c. of gastric contents, in which was much mucus. The free hydrochloric acid was 56, combined hydrochloric acid 20, total acidity 84. Indican was present in slight excess in the urine, which also contained a faint trace of albumin. The blood was negative for malarial parasites. The intestinal contents were semisolid; they contained *C. hominis* in enormous numbers and an excessive bacterial flora; otherwise they were normal.

At this time the patient was given methylthionin hydrochlorid (Merck's medicinal methylene-blue) in 2-grain doses every three hours by mouth. He was also given once daily an enema consisting of 500 c.c. of a 1 to 1,000 solution of the same drug, the enema being retained for fifteen minutes. The strength of this enema was gradually increased until

finally it contained the medicinal agent in the proportion of 1 to 250. This treatment was continued for sixteen days, at the end of which period examination of the feces showed a practically normal stool, in which were found neither animal parasites nor ova.

On June 17, 1915, the patient was seen again. At that time he had gained seventeen pounds in weight after treatment was first instituted. He still complained of gas in the stomach and intestines, especially in the evening. The bowels were regular in their activity.

On Sept. 10, 1915, the patient again presented himself, saying that for the past five days he had been suffering from digestive disturbance, excessive gas in the stomach, loss of appetite, restlessness, constant peristalsis, and diarrhea. Up to the day of the onset of these symptoms the general health had been excellent and a total gain in weight of thirty pounds had been recorded. Examination of a stool showed that it consisted largely of blood and mucus and contained *C. hominis* in enormous numbers. Treatment with methylthionin hydrochlorid was again instituted and at the end of five days the parasites had entirely disappeared. A great improvement in the gastro-intestinal symptoms was also manifest.

In May, 1916, the patient had a return of his gastric symptoms, due to several months of mental strain and improper food. Although he presented no symptoms referable to the intestines, a few of the *C. hominis* were found in the feces. They were not present in sufficient numbers to be pathogenic. After giving retaining enemas of 500 c.c. of 1 to 500 methylthionin hydrochlorid on four successive days, the stools were found to be free of parasites.

CASE 5.—A. T., white man, aged 23, unmarried, resident of Persia until he came to the United States thirty-three months ago, was seen in March, 1916, through the courtesy of Dr. Max Einhorn. For the preceding year the patient had symptoms of ulcer of the pylorus. This diagnosis was subsequently confirmed by an operation. For two weeks previous to his admission to the hospital he had had from three to six watery stools daily. The movements were accompanied by marked rectal pain. There had been no previous history of diarrhea. The feces were fluid, containing some mucus and large numbers of *C. hominis*. He was given 4 grains methylthionin hydrochlorid by mouth three times a day and a daily enema of 1 to 500 of the same substance. In May repeated examinations of the feces found them to be free of the parasites.

CASE 6.—G. H., white man, aged 42, married, shoe cutter by occupation, born in the United States, never having been out of the north eastern states, was admitted to the hospital suffering from advanced diabetes. He had never had any symptoms referable to the gastro-enteric tract. On May 24, 1916, his feces contained a moderate number of motile *L. intestinalis,* with several encysted lamblia. These parasites did not produce any symptoms. After four retaining enemas of 1 to 500 of methylthionin hydrochlorid given on consecutive days the feces were found to be free of intestinal parasites.

An accurate diagnosis of these conditions has as its only possible basis a microscopic examination of the intestinal contents. A drop of emulsified feces is placed on a warm slide, covered with a No. 1 cover glass, and examined under the high dry objective. The active movements of these organisms, which are entirely different in character from those of amebas, will quickly, easily and surely call attention to their presence. Specific determination can then be made by further study of individual specimens under the oil immersion objective, bearing in mind, of course, the morphologic characteristics hereinbefore described.

A careful and comparative study of the foregoing cases has led us to certain conclusions, which may well be emphasized. In view of the etiologic factors which we have described, it will without doubt be readily accepted that the ordinary methods of treatment which are employed in cases presenting similar symptoms, but which are of nonspecific causation, will be of little avail if made use of in the flagellate diarrheas. As a matter of fact, bismuth and opium and all similar combinations of astringents and opiates are well-nigh useless in the therapeusis of these conditions. On the other hand, however, it is a fact which should not be lost sight of that merely putting these patients at rest in bed is often followed by a disappearance of the parasites and an improvement in the character of the fecal discharges. This does not constitute a cure, for within a certain length of time after such a patient has resumed his normal activities he will almost surely suffer a relapse.

The best therapeutic measure available in the treatment of infection with any one of these parasites we believe to be the administration, both by mouth and in the form of high enemas, of Merck's medicinal methylene-blue, the chemical name of which is methylthionin hydrochlorid. It is essential that only the medicinally pure drug should be used, as the methylene-blue ordinarily employed in laboratory staining solutions contains traces of zinc. Patients in whose cases this treatment is instituted should be warned that during the process of elimination of the therapeutic agent the urine will be blue in color. It may be remembered that two of the earlier cases in this series were not cured by the use of methylene-blue. In our opinion this was due to the fact that by no means enough of the drug was exhibited. It is now our custom to give 2 grains every three hours by mouth and to administer at least once and preferably twice a day a high enema, which should be retained for fifteen minutes, consisting of 500 c.c. of an aqueous solution of the drug, the strength of which is to be between 1 to 500 and 1 to 200. The excellent results which are thus attainable, even in the severest and most persistent cases, are well illustrated by our Case 4. In this connection, however, it must be said that methylene-blue seems to have much less of a specific action on trichomonas and lamblia than it exerts on cercomonas, which was the causative organism in Case 4. On the other hand methylene-blue is, as far as we know, the only drug which manifests any appreciable effect at all on either trichomonas or lamblia. Ipecac and its alkaloids, if of any value whatever, certainly do not possess the same parasiticidal effect that they exhibit in their action on amebas.

The fact that these organisms are probably transmitted through the medium of drinking water and of fresh vegetables which are eaten uncooked after being previously fertilized with human excrement suggests the available methods of prophylaxis. All drinking water which is not entirely above suspicion of fecal contamination should be efficiently sterilized before use. The same of course applies to all water which is taken into the mouth in cleansing the teeth or for other purposes. Similarly, the use of vegetables, tubers, and fruits usually eaten uncooked which come from truck gardens where it is customary to use human fecal material as fertilizer should be discontinued, or if such articles of food are used at all, they should be thoroughly cooked.

In conclusion it is desired to call attention to the increasing frequency with which infection of the alimentary tract with protozoal parasites (of other genera in addition to those with which this paper deals) is being encountered in the temperate portions of the United States. This probably results in large part

from the increasing intimacy of communication between this country and those tropical localities where the parasites referred to and the pathologic conditions which they produce have been long prevalent. It is probably not generally known, for example, that amebic dysentery has been reported from some thirty-five of the states which compose this country.

Balantidic dysentery is also encountered at intervals. These diseases in temperate climates do not in most cases present the severe symptoms which characterize them when met with in the tropics. Thus, amebic dysentery rarely manifests itself as a true acute dysentery, but rather as a chronic and painless, but persistent diarrhea, in which the stools may at times contain small amounts of blood and mucus. In some sense this chronicity, which we observe in so large a proportion of these cases in this country, is a distinctly unfavorable factor, in that patients often do not seek medical attention until, following the slowly progressive decline in general health which results from the protozoal infection, they fall victims to acute intercurrent diseases, which not infrequently in such instances result at least in needless sacrifices of life. Under these circumstances the symptoms resulting from the superadded acute infection overshadow completely or in part those of the preexisting chronic infection, and the latter is never diagnosed.

That any cases similar to those described should ever be allowed to progress as far as they often do without receiving proper treatment is a pity, but until the microscopic examination of the stools of all patients from whom even the vaguest history of gastrointestinal disturbances can be obtained becomes as much a matter of routine as the chemical examination of the urine, no decrease in the number of such cases can be expected, at least in those localities in which failure to accord proper treatment to the water supply prior to its distribution makes it impossible to guarantee its purity and in which the unsanitary system of fertilizing growing vegetables with human feces is in vogue. Those cases which we have here reported and those of amebic dysentery which we have encountered in increasing numbers during the last two years have served to deepen in us the conviction that it is nothing short of a duty on the part of our medical schools to give more attention than most of them at present do to the protozoal infections with which this paper concerns itself, to the end that, isolated and relatively infrequent though the cases may be in the northern and western states, they may yet be recognized and efficiently treated when they do occur, before there has been brought about so great a decrease in the general vitality as to render destruction of life the probable outcome of an acute bacterial infection from which the individual might otherwise be reasonably expected to recover.

525 Park Avenue.

False Teeth Five Years in Alimentary Canal.—The *Gazeta Medica da Bahia* relates that the Roentgen rays showed the set of false teeth in the esophagus soon after they had been swallowed. Attempts to extract the foreign body failed and the patient refused to permit an operation, but the foreign body was inspected from time to time with the screen. After two years in the esophagus it passed into the stomach where it remained three years. It caused no appreciable disturbance at any time except slight discomfort as the food passed the foreign body in the esophagus, and later when the stomach was empty. At the end of the fifth year it passed on into the bowel and was then soon expelled. The man ate the usual diet throughout.

AN ANTIPOLIOMYELITIS HORSE SERUM

PRELIMINARY REPORT *

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The question of the production of a horse serum that will have protective and curative properties against the virus of poliomyelitis has occupied the attention of many investigators. So far as we can discover no one has reported the discovery of a horse serum that will either neutralize the virus in vitro or protect an animal against the virus of poliomyelitis. Flexner,[1] who was the first to attempt to produce an immune horse serum, reports:

> It has, for instance, been found that the horse does not readily respond even to large injections of filtrates carrying the active virus with the development of immunity principles within the blood. It is true that our experiments are restricted for the present to a single horse, the blood serum of which, after many months of treatment, had no restraining effect on the virus either in vitro or within the body.

From all the experimental and clinical data at hand it seems to be fairly probable that the exotoxin of the germ is of a negligible quantity and intensiveness. The destructive action of the virus seems to be due to the virulence of the germ and its ability to multiply rapidly. It seemed feasible to us, therefore, to inoculate a horse with the poliomyelitis endotoxin, if recoverable, on the theory that it might potentially immunize the animal, and then continue with injections of filtrates containing the germ.

Since cultural methods so far devised by Flexner and Noguchi are impracticable to obtain any exotoxin or endotoxin, we have attempted to obtain the endotoxin by digesting the germ in the filtrate of a brain and cord emulsion with a proteolytic ferment. For this purpose we have used trypsin made for us by Fairchild Brothers and Foster in 10 per cent. glycerin solution. Although we had no demonstrable evidence that the endotoxin was obtained, we nevertheless proceeded to prepare, in a manner indicated below, the filtrates of emulsions of cords and brains of children who had died of poliomyelitis, and injected our horse as follows:

> Aug. 31, 1916, a sterile filtrate—through a Heim filter—of a 10 per cent. emulsion of human brain and cord was obtained, and 60 c.c. were mixed with 2 c.c. of the Fairchild trypsin solution and incubated for three hours at 36 C., and 0.4 per cent. tricresol added after the three hours' incubation, so as to stop the further action of the trypsin. Previous to the addition of trypsin we found the filtrate to be slightly alkaline to litmus paper. Some of the trypsin solution used was always inoculated into ascitic broth and ascitic agar, and found sterile after several days' incubation.
>
> September 5, 5 c.c. of the trypsinized filtrate were diluted to 50 c.c. with physiologic sodium chlorid solution and injected into the horse in five different places (lower neck and shoulder blade), 10 c.c. to each place. September 8, 8 c.c. diluted as above, were injected in five places; September 11, 15 c.c., and September 14, 20 c.c.
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> A second lot of filtrate of 100 c.c. was treated as the first, and injections continued as before: September 17, 25 c.c.; September 20, 30 c.c., and September 23, 40 c.c.

* From the Research Laboratories, Department of Health, City of New York, Dr. William H. Park, director.

1. Flexner, Simon: The Contribution of Experimental to Human Poliomyelitis, THE JOURNAL A. M. A., Sept. 24, 1910, p. 1112.

A third lot of 500 c.c. was prepared with trypsin in the proportion of 1 trypsin to 50 filtrate and incubated for one hour at 36 C., and then 0.4 per cent. tricresol added. Of this we injected, September 26, 50 c.c., without diluting any further; September 29, 60 c.c.; October 2, 75 c.c.; October 5, 85 c.c., and October 8, 100 c.c.

A fourth lot of 1,300 c.c. of filtrate was prepared with trypsin in the proportion of 1:100 and incubated for one hour at 36 C. and 0.4 per cent. tricresol added. Through unavoidable delay in its preparation we were not able to inject the horse for about two weeks after the last injection. Of this lot we injected: October 21, 125 c.c.; October 24, 150 c.c.; October 27, 175 c.c.; October 30, 200 c.c.; November 2, 225 c.c., and November 5, 250 c.c.

A fifth lot of 1,200 c.c. of filtrate of a 20 per cent. emulsion was treated as the fourth lot with trypsin and tricresol, and injected as follows: November 8, 175 c.c.; November 11, 200 c.c.; November 14, 225 c.c., and November 17, 225 c.c.

Injections were now discontinued for a trial bleeding. Nov. 23, 1916, the horse was bled, and we received 1,200 c.c. of serum. This we passed through a Berkefeld filter, inoculated some of it into ascitic broth and ascitic agar, and, after finding it sterile after several days' incubation, added to it chloroform as a preservative and used it for our experiments. We might mention that the condition of the horse throughout the treatment was apparently normal.

Jan. 10, 1917, we prepared a 5 per cent. emulsion of the cord and brain of monkeys infected and brought down with a very potent virus of poliomyelitis, which we obtained from the Rockefeller institute through the courtesy of Dr. Amoss. This suspension we filtered through sterile paper pulp and added to it 0.4 per cent. tricresol, and without adding any trypsin, we continued to inject the horse as follows: January 18, 50 c.c.; January 20, 75 c.c.; January 22, 100 c.c.; January 24, 125 c.c.; January 26, 150 c.c.; January 28, 175 c.c.; January 30, 200 c.c.; February 1, 225 c.c.; February 3, 250 c.c.; February 5, 275 c.c., and February 7, 300 c.c.

January 22, after the third injection with the filtered suspension of the monkey virus, the temperature of the horse rose to 103.4 F. seven hours after the injection, and subsided within twenty-four hours. After each injection thereafter the temperature would rise and subside within twenty-four or thirty-six hours. February 9, the horse was unable to stand up, and his temperature was subnormal. No further injection was attempted. He then received a saline infusion of a temperature of 105 F., February 10, in the forenoon, and after he had recovered somewhat, about 4 liters of blood were withdrawn.

The horse died on the afternoon of the same day. The necropsy revealed some congestion of the lungs, the other viscera being normal. Microscopically there were no cord changes.

PROTOCOL OF EXPERIMENTS WITH THE SERUM

Experiment 1.—Dec. 6, 1916, Monkey 3 (mangabey) was injected intracerebrally with 0.5 c.c. of a 5 per cent. suspension of an eighth generation monkey virus, and at the same time 20 c.c. of the serum intramuscularly. Twenty-four hours afterward, daily injections were begun of 3 c.c. of the serum intraspinally and 17 c.c. intramuscularly. These were given for seven days, when it was considered wise to cease treatment. The animal remained well up to December 17, four days after the last treatment, when it seemed ill at ease. December 18, the right extensor cruris was weak. On this day he received 3 c.c. of the serum intraspinally and 17 c.c. intramuscularly. December 19, he seemed to favor the left leg also. On this day and the following he received 3 c.c. of the serum intraspinally and 17 c.c. subcutaneously. The animal began to improve in the afternoon of December 19, and on January 7 was completely well and continues well today, four months after the inoculation.

Control.—On the same day Monkey 2 (*Macacus rhesus*) was injected intracerebrally with 0.5 c.c. of the same suspension of the same virus. This animal died in convulsions within six days and six hours. Histopathologic lesions were characteristic of poliomyelitis.

Experiment 2.—Monkey 4 (mangabey), baby of Monkey 3, was injected intracerebrally, Dec. 31, 1916, with 0.9 c.c. of a mixture prepared as follows: Through the courtesy of Dr. Amoss we received from the Rockefeller Institute the cord of a monkey that died, Dec. 29, 1916, infected with a very potent virus, of which 0.2 c.c. of a 5 per cent. suspension proved a fatal dose. Three-tenths c.c. of a 5 per cent. suspension of this cord was mixed with 0.6 c.c. of the serum and incubated for two hours at 37 C. and left in the refrigerator for twenty-two hours. This entire mixture was injected into the small animal. It has remained well ever since.

Experiment 3.—Monkey 6 (rhesus) was injected, Jan. 4, 1917, intracerebrally with 0.5 c.c. of a 5 per cent. suspension of the Rockefeller virus. Forty-eight hours after the injection, the left forepaw was paretic. On this day, January 6, it received 3 c.c. of the serum intraspinally and 15 c.c. intramuscularly; January 7, 3 c.c. intraspinally and 15 c.c. intramuscularly; January 8, 4 c.c. intraspinally and 27 c.c. intramuscularly, and January 9, 2 c.c. intraspinally. The animal was very ill, January 8, refused food, and was lying on the floor of the cage; occasionally it sat up, with the right foreleg paralyzed; later in the day both forelegs became completely paralyzed, the muscles of the neck were involved, and the animal was unable to swallow. Both hind legs were in good condition. January 9, all four limbs were paralyzed, and the animal was unable to take food. The animal died, January 10, at 4 a. m. Macroscopic and microscopic findings were characteristic of poliomyelitis.

Normal Horse Serum Control for Monkeys 4 and 6.—Monkey 5 (rhesus) was injected, January 4, intracerebrally with 0.5 c.c. of the same suspension of the Rockefeller virus. Forty-eight hours after the inoculation, we began treating it with normal horse serum in the same manner as Monkey 6, with daily injections of 3 c.c. intraspinally and 17 c.c. intramuscularly. It became weak in the hind limbs two days after the virus inoculation, and was totally paralyzed in the legs on the fifth day. It was killed, and the macroscopic and microscopic findings were characteristic of poliomyelitis.

Experiment 4.—Monkey 7 (rhesus), Jan. 12, 1917, was injected intracerebrally with 0.9 c.c. of the following mixture: Three-tenths c.c. of a 5 per cent. suspension of the cord and brain of Monkey 5 was mixed with 0.6 c.c. of the serum and incubated for two hours at 37 C. and then left in the refrigerator for twenty-two hours. The animal remained well till January 18 at 4 p. m., when it seemed rather ill, preferring to lie on the floor of the cage. The following day it seemed to have improved generally, but was totally blind. The left pupil near the site of the injection was markedly dilated, and neither of the pupils responded to the stimulus of light. From the wound and also from the right nostril oozed a mucopurulent discharge. The animal ate and drank heartily, but was very warm. January 21, it was entirely well and walked about, but carefully searched its place like a blind animal; it was entirely comfortable and ate well, but remained blind. The high temperature was gone. The examination of the fundi oculi revealed a double postneuritic optic atrophy. The monkey was chloroformed, January 22, and examined at necropsy. Microscopically there was a purulent meningitis of the entire cerebrospinal axis. A streptococcus was isolated from all parts of the brain and cord. There was no evidence of a poliomyelitis lesion anywhere.

Experiment 5.—Monkey 8 (*Macacus rhesus*) was injected intracerebrally, Jan. 19, 1917, with 0.15 c.c. of a 5 per cent. suspension of the brain and cord of Monkey 6, and fifty minutes later it received 3 c.c. of the serum intraspinally and 17 c.c. intramuscularly, and a like treatment daily up to and including January 25, which makes a total of seven injections. The animal being perfectly well, January 26, we concluded to cease treatment. January 27, however, it appeared restless, so we gave it 3 c.c. of the serum intraspinally and 15 c.c. intramuscularly. The monkey was perfectly well on the evening of that day and also on the morning of the following day. In the afternoon it suddenly became paralyzed in all extremities and was unable even to swallow water. It was at once chloroformed and examined. Lesions in the cord and brain stem were characteristic of poliomyelitis.

Control for Monkey 8.—Monkey 14 (rhesus), Jan. 19, 1917, was injected intracerebrally with 0.15 c.c. of the same suspension as Monkey 8. This animal had received injections of an emulsion of cord and brain of a child that died of poliomyelitis, but remained well. January 24, five days after our inoculation, it became paralyzed in the left forearm and favored the right leg. January 26, it was paralyzed in the left forearm and weak in the left leg. January 28, it was paralyzed all over and in a dying condition. The necropsy showed characteristic lesions of poliomyelitis.

EXPERIMENT 6.—Monkey 9 (*Macacus rhesus*) was injected intracerebrally, March 3, 1917, with the following mixture: Two-tenths c.c. of a 5 per cent. suspension of a very potent Rockefeller virus No. 88, which we passed through ten generations, was mixed with 0.8 c.c. of the serum of the second bleeding, and incubated at 37 C. for two hours and left in the refrigerator for twenty-two hours. The animal never showed any ill effects, and is perfectly well today, four weeks after inoculation.

EXPERIMENT 7.—Monkey 93 (rhesus) was injected intracerebrally, April 13, 1917, with 0.4 c.c. of the following mixture: Equal parts of the serum of the second lot and a 5 per cent. suspension of the Rockefeller virus were mixed and incubated at 37 C. for two hours, and then left in the refrigerator for twenty-two hours. The animal was not ill at any time, and is perfectly well now, four weeks after the injection.

EXPERIMENT 8.—Monkey 100 (rhesus) was injected intracerebrally, April 25, 1917, with 0.3 c.c. of the following mixture: One part of the serum of the second lot and two parts of a 5 per cent. suspension of the Rockefeller virus were incubated at 37 C. for two hours, and then kept in a refrigerator for twenty-two hours. The animal was well up to May 2, when it appeared ill, sitting in the corner of the cage with its head down. On being approached, it would stand up and be quite active. It continued in this mood until May 5, but on that day it refused food. At no time was it paralyzed or even weak in any limb. The wound at the site of injection never healed. May 6, eleven days after the injection, it was found dead. The necropsy revealed a marked congestion of the vessels of the brain; the other viscera were normal. Microscopically there was no evidence of any lesion of poliomyelitis. The cord was found perfectly normal.

Control for Monkeys 9, 93 and 100.—Monkey 11 (rhesus) was injected intracerebrally, May 5, with 0.3 c.c. of the same suspension of the Rockefeller virus. May 9, the animal was ill. May 11, the hind legs were paralyzed.

SUMMARY

The five neutralization experiments were positive without exception. The serum protected one monkey completely against a rather slowly acting virus, of the eighth generation, originally recovered from a human patient. The experiment in Monkey 6 was rather severe, to use Dr. Park's phrase, since two and one half fatal doses of a most virulent virus were injected and the treatment with the serum was begun forty-eight hours after inoculation, when a paresis was already evident, and the case terminated as a bulbar one. The experiment in Monkey 8 was perhaps less severe, but although the time of the paralysis was delayed by two days over the control, which was somewhat immunized some months previously, the experiment was a negative one.

On account of the scarcity of monkeys we could not make as many experiments as we would wish to, so we report the facts without drawing any conclusions. We feel, however, that we are justified in using the serum in human cases especially when human serum is unobtainable, and shall report when a sufficient number have been treated.

1215 Park Avenue—Foot of East Sixteenth Street.

ACTION OF BACTERIA AND DRESSING SOLUTIONS ON CATGUT LIGATURES

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Director, Robert Walton Goelet Research Fund, American Red Cross Hospital of Paris

PARIS

The durability of catgut in suppurating wounds is of importance chiefly in connection with the use of ligatures for hemostasis. Secondary hemorrhage is a frequent complication of shell and rifle ball wounds, and is a cause of a considerable portion of the deaths and amputations among these patients in many base hospitals. When not caused by a low clotting index of the blood (which is of rare occurrence), hemorrhages of this character are generally due to one of the following factors:

1. Loosening of the fibrin plug in the injured vessel.
2. Erosin or softening of the vessel wall by mechanical means, such as drainage tubes or fragments of bone, by the digestive action of infective organisms, such as the gas bacillus, or by the dressing solution employed in the treatment of the wound.
3. Breaking or slipping of the ligature which closes some important vessel.

It is my intention in this paper to deal only with the failure of the ligature.

There are two things to be investigated in this connection: first, the effect of certain infective organisms, which, in the process of their growth, may attack and erode the catgut; second, the effect of various dressing solutions which might weaken the catgut or cause the slipping of the knot.

ACTION OF BACTERIA

To obtain some information on this point, Mr. H. Larcher of this laboratory has carried out the following experiments:

Chromic catgut No. 0 and No. 1, and plain catgut No. 0 and No 1 were used throughout.[1] A number of pieces of each, of approximately the same length, were dropped into forty-eight hour meat cultures of the *B. aerogenes-capsulatus,* the *B. malignans-oedematis,* the Hibler bacillus, *Streptococcus pyogenes, Staphylococcus aureus,* the *B. pyocyaneus,* the *B. proteus,* and the *B. lactis-aerogenes.* Each culture was incubated, and the condition and tensile strength of the catgut examined from time to time and compared with controls.

The results showed no material alteration in the strength or elasticity of the catgut after seventy-two hours of incubation in any of the cultures with the exception of that of the gas bacillus. In this case a very active digestion of the catgut consistently occurred — noticeable after forty-eight hours and progressing rapidly from that time on. After seventy-two hours' incubation, the strength of both No. 0 chromic and plain catgut was greatly diminished, and within four days they were frequently eroded through. All four sizes were almost completely digested by the seventh day, only a few fragments remaining. As may be expected, the small sized catgut was eroded more quickly than the large. The chromic catgut appeared to be eroded, if anything, more rapidly than the plain. The accompanying illustration shows the condition of the catgut from one tube incubated with the gas bacillus as compared with controls of the same sizes.

1. The plain gut was that made by Messrs. Johnson & Johnson, the chromic that made by Triollet.

EFFECT OF VARIOUS ANTISEPTICS

Pieces of the same sizes and qualities of catgut as used in the previous experiment were tied together by a double surgical knot and incubated in one of the following solutions: neutral solution of chlorinated soda, Carrel-Dakin; betanaphthol, 0.5 per cent. solution in 0.1 per cent. sodium hydroxid; sodium hydroxid solution, 1 per cent.; mercuric chlorid, 1:10,000; phenol (carbolic acid), 1 per cent.; sodium chlorid, 5 per cent.; sodium chlorid, 0.87 per cent.; acetic acid, 1 per cent.; sodium perborate, 1 per cent., and distilled water. After three days the pieces of catgut were removed from each tube, examined and measured. The percentage of shrinkage was noted and the tensile strength then tested by adding weights to a hook attached by a loop to the lower end of the ligature. Half a minute was allowed between the addition of each pound weight in order to measure the stretching of the catgut before the break occurred. It was expected that considerable alteration in the tensile strength and the elasticity of the catgut might result from treatment with some of the solutions. Both, however, remained consistently within a slight limit of variation, as did also the shrinkage of the catgut and the stretching which it would bear before breaking. In both controls and treated specimens:

No. 0 chromic catgut withstood a weight of 4 to 5 pounds.

No. 0 plain catgut withstood a weight of 2 to 3 pounds.

No. 1 chromic catgut withstood a weight of 6 to 8 pounds.

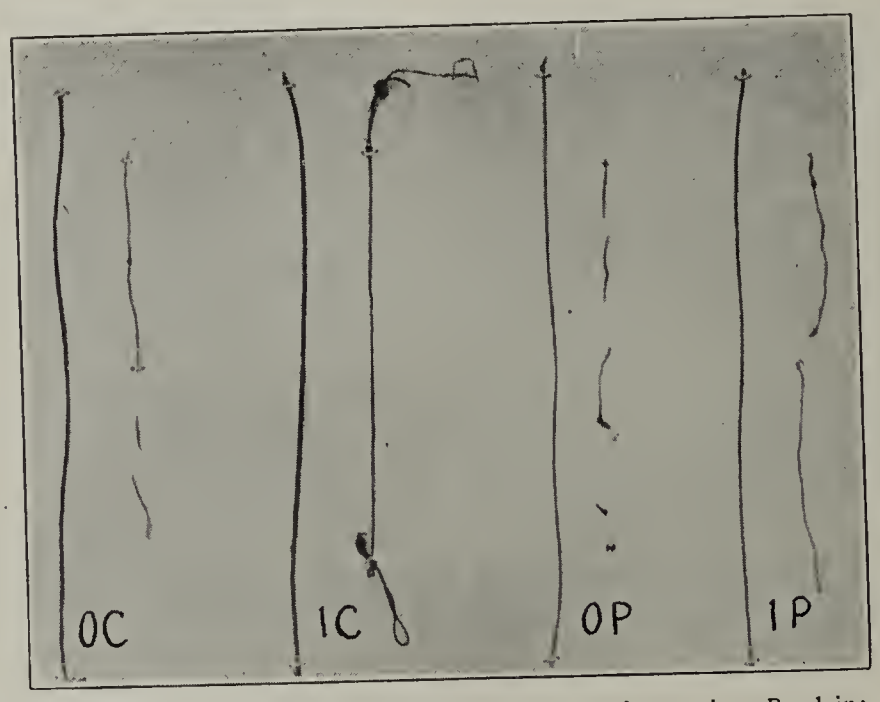
No. 1 plain catgut withstood a weight of 4 to 5 pounds.

The chromic catgut, both sizes, showed a shrinkage of about 4 per cent. of its original length as a result of treatment, the plain catgut an average of from 2 to 3 per cent. As is to be expected from its greater strength, the chromic catgut allowed of a greater degree of stretching before breaking, averaging from 20 to 25 per cent. of its length before treatment, while the plain catgut averaged from 15 to 18 per cent., the small sizes of each being usually represented by the lower figure.

One very important point was observed. It was found impossible to test the tensile strength of the pieces of catgut containing a surgical knot which were in the neutral solution of chlorinated soda, because in every case the knot slipped on the addition of a weight below 2½ ounces. A treble and quadruple knot failed to prevent this result, and the tensile strength and stretching were therefore estimated on pieces of catgut without knots. This slipping of the surgical knot was also noticed occasionally in the case of the acetic dressing and the sodium perborate dressing. With both the latter solutions about one in ten showed slipping of the knot before the catgut broke, but usually after the addition of a weight of several pounds. This slipping of the knot in the case of the neutral solution of chlorinated soda was evidently due to a slimy deposit which invariably occurred, and catgut bathed in the solution for even so short a time as fifteen minutes usually failed to hold a weight of 1 pound.

It is possible that this effect of the neutral solution of chlorinated soda on ligatures (of catgut) may be responsible for the frequency of secondary hemorrhages occurring under this treatment, as well as the loosening of the fibrin plugs thrombosing the injured vessels and the softening of the arterial wall to which it is usually ascribed. That the slipping of the surgical knot is due to the hypochlorite present in the solution, and not to the fact that it is a strongly alkaline solution, is suggested by the fact that the solution of sodium hydroxid and the betanaphthol dressing (the latter of which is approximately of the same alkalinity as the neutral solution of chlorinated soda) did not produce this effect.

The other factor in the failure of ligatures which was observed in these experiments was the erosive action of the gas bacillus on them. This bacillus is also a frequent cause of hemorrhage, through its digestive action on the muscle of the arterial walls. The neutral solution of chlorinated soda possesses a very low bactericidal value against the gas bacillus, and favors in addition the other chief causes of arterial escape, namely, the loosening of fibrin plugs and the softening of the vessel walls. Thus, in a wound infected by the gas bacillus and treated with hypochlorite solutions, all the factors combine to favor hemorrhage.



Action of the gas bacillus on catgut: *0* and *1* refer to size; *P*, plain; *C*, chromic.

SUMMARY

Among the species of bacteria considered in these experiments, only one, the *B. aerogenes-capsulatus* of Welch, attacked and eroded catgut ligatures.

None of the dressing solutions tested altered the tensile strength or elasticity of the catgut. One solution, the neutral solution of chlorinated soda, invariably caused slipping of the surgical knot.

The neutral solution of chlorinated soda would appear, from the experimental evidence, to be contraindicated in cases in which important blood vessels are exposed in the wound, and especially if such a wound shows an active infection by the gas bacillus.

6, rue Piccini, Paris (XVIe).

Tell the Patient.—Before the discovery of the fact that tuberculosis is a communicable disease there was greater reason for keeping the diagnosis secret. Before its curability was established it was a serious thing to tell an individual that he had tuberculosis, for it meant the pronouncing of his death sentence. Today the withholding of this information pronounces the death sentence, not only on the afflicted, but also on some of his friends and dear ones.—S. J. Deehan, M.D., *Monthly Bulletin,* Philadelphia Department of Public Health and Charities.

POLIOMYELITIS

SOME FEATURES IN CITY PREVALENCE

CHARLES V. CRASTER, M.D., D.P.H.
Health Officer
NEWARK, N. J.

HISTORY

The wave of infantile paralysis of 1916 appears to have been the crest of a prevalence curve which has been increasing in height since 1907, in which year the city of New York experienced an epidemic of 2,500 cases. This was the first large visitation of poliomyelitis in the United States.

TABLE 1.—DISTRIBUTION OF CASES

Month	Cases	Deaths
July	327	97
August	883	226
September	150	40
Total	1,360	363

It is probable that a fresh impetus was given to the disease in America from that date as a result of direct infection brought from Europe, for the reason that the unusual prevalence of poliomyelitis in Norway and Sweden in 1904 and 1905 spread rapidly to the contiguous countries.

It is certain that prior to 1907 poliomyelitis had not shown the same disposition to spread widely among exposed populations, and that the rural population suffered more than that of the cities. The cases in Louisiana in 1841, recorded by Colmer,[1] were few in number. The only epidemic of large size on record previous to 1907 was that of Rutland, Vt.,[2] in 1894, in which there were 132 cases and eighteen deaths. The increase in the spreading power of the disease within recent years may be explained on the assumption that a new and powerful virus has been at work among a susceptible population.

It is unlikely that any modern living conditions are factors which are producing a hypersusceptibility. Be that as it may, it is evident that since 1907 the disease has established itself throughout the United States. In 1910 it was reported as being present in thirty-six states of the Union; in that year there were 5,093 cases and 825 deaths.[3]

For the reason that the epidemiology of poliomyelitis is sufficiently known to establish its status as a contagious disease, it was natural to expect that Newark would not escape infection when the disease became epidemic in New York during the last week of June, 1916.

The two cities are separated by less than thirty minutes' journey by rail, and there are many similarities to New York in the make-up of Newark's mixed population of 400,000.

This conjecture was verified by subsequent events, and there is every reason to suppose that the invasion of Newark by the disease was encouraged by the ready and accessible transit facilities between the two cities.

Statistics show that poliomyelitis is constantly present in cities as well as in rural communities in small foci of prevalence. This endemic type, however, is of low virulence, there is little inclination to spread unduly among the population, and the mortality is low. In the six years previous to 1916 there were ninety-five cases of infantile paralysis reported in Newark with four deaths, a case mortality of a little more than 4 per cent.

The monthly incidence of poliomyelitis in Newark in 1916 corresponded to the observations of Lovett and Richardson in Massachusetts in 1909 and 1910.

In the three months of July, August and September, 1916, there were 1,360 cases of the disease reported in Newark, with 363 deaths, a case mortality of 26.3 per cent.

The incidence curve was highest during the week ending August 12, when 260 cases were reported. The highest case mortality was in the third week of July when 37.5 per cent. of the cases had a fatal termination. After this date the decline in incidence and mortality was consistent, so that in the last week of September there were but twelve cases and one death.

The highest weekly prevalence of poliomyelitis—August 12—was accompanied by a mean temperature of 76 F., the highest but one of all the summer, and a mean humidity of 69 per cent.; the total rainfall for the week was also low. During the week previous to the highest incidence, the highest mean temperature and the least rainfall of the whole summer occurred, and the mean humidity at the same time was low.

TABLE 2.—POLIOMYELITIS CASES AND DEATHS BY SEX AND AGE AT NEWARK, N. J., JULY 3 TO SEPT. 30, 1916, INCLUSIVE

Ages	Males		Females		Total		Case Mortality
	Cases	Deaths	Cases	Deaths	Cases	Deaths	
1 month	2	2	1	1	3	3	100.0
2 months	7	3	5	1	12	4	33.3
3 months	4	1	3	0	7	1	14.3
4 months	9	4	4	0	13	4	30.8
5 months	5	3	3	1	8	4	50.0
6 months	12	7	12	3	24	10	41.7
7 months	12	5	9	5	21	10	47.6
8 months	11	4	9	0	20	4	20.0
9 months	12	1	10	1	22	2	9.1
10 months	13	4	13	6	26	10	38.5
11 months	15	4	11	1	26	5	19.2
Under 1 year	102	38	80	19	182	57	31.3
1 year	187	50	128	43	315	93	29.5
2 years	169	56	125	26	294	82	27.9
3 years	137	30	83	15	220	45	20.5
4 years	79	19	50	14	129	33	25.6
Under 5 years	674	193	466	117	1140	310	27.2
5 years	39	9	31	7	70	16	22.9
6 years	22	7	24	6	46	13	28.3
7 years	11	1	15	1	26	2	7.7
8 years	11	0	3	0	14	0	0.0
9 years	4	2	7	1	11	3	27.3
From 5-9 yrs.	87	19	80	15	167	34	20.4
10-14 years	14	6	13	6	27	12	44.4
15-19 years	2	1	5	0	7	1	14.3
20-24 years	3	1	4	3	7	4	57.1
25-29 years	1	1	3	0	4	1	25.0
30-34 years	1	0	1	0	2	0	0.0
35-39 years	5	1	0	0	5	1	20.0
40-44 years	1	0	0	0	1	0	0.0
Total, all ages	788	222	572	141	1360	363	26.7

The case mortality throughout the epidemic, indicating perhaps a fluctuation in the virulence of the infecting germ, varied considerably during the three months in question. Apparently there was an initial high mortality for the week ending July 22, 37.5 per cent. of the cases. A high mark was reached again in the week ending September 9, 35.5 per cent. of the cases, and again for the week ending September

1. Colmer: Jour. Med. Sc., January, 1843.
2. Caverly: Med. Rec., New York, 1894.
3. Annual Report of U. S. Public Health and Marine-Hospital Service, 1911, p. 236.

23, when 33.3 per cent. of the cases had a fatal termination.

WARD DISTRIBUTION

The first case of epidemic poliomyelitis appeared, July 3, in the Tenth Ward (Fig. 1). By July 8, the end of the first week of the epidemic, there were ten cases reported from this ward as well as two from the Thirteenth Ward, and one each from the Fourth and Fourteenth Wards. The Fourth Ward is contiguous to the Tenth. The Thirteenth and Fourteenth Wards are separated from the Tenth by three city wards.

From this it would seem that the infection was of a multiple nature and arose from more than the one focus in the Tenth Ward. The appearance of the pin map of the first hundred cases (Fig. 1) suggested the existence of two areas of prevalence. A primary

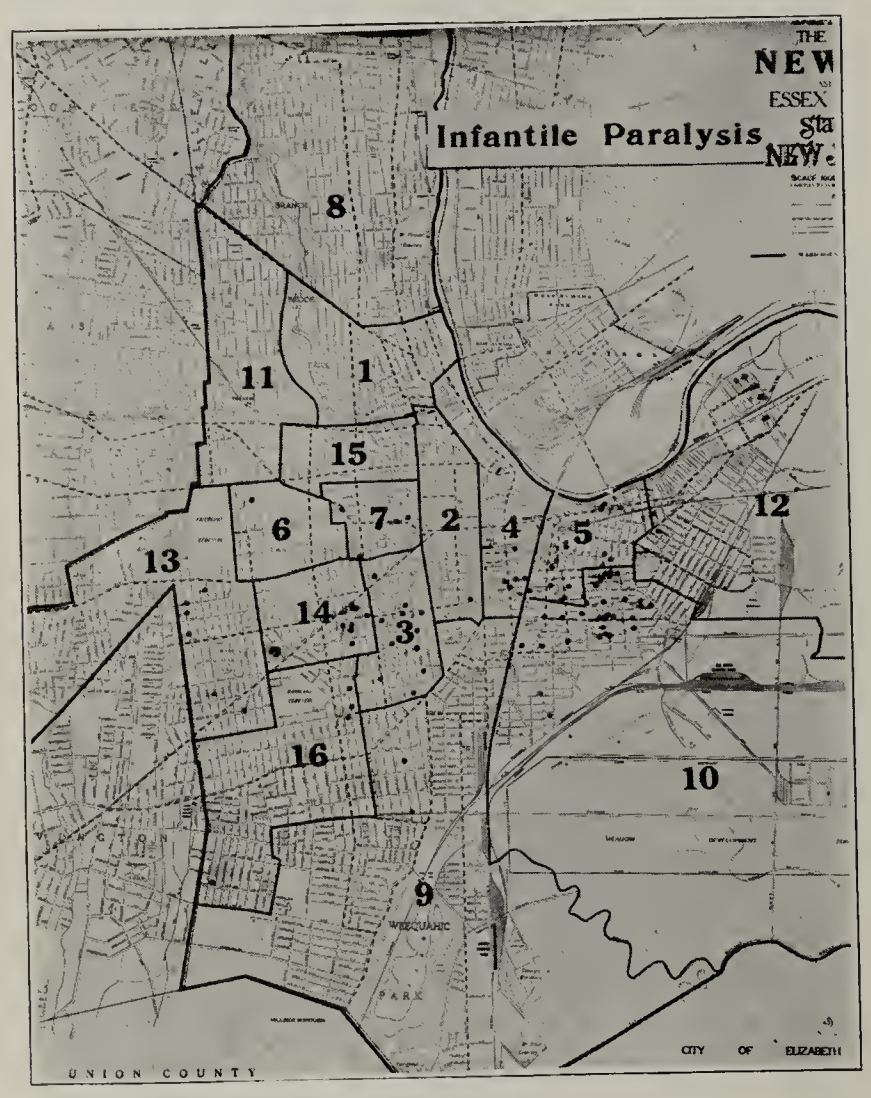


Fig. 1.—The first hundred cases at Newark, N. J.

area with the tenth ward as a starting point, which eventually embraced the Fifth and Twelfth Wards, and a secondary area, sharply defined, which included a very congested and thickly populated neighborhood, comprised the Third, Fourteenth, Thirteenth, Sixth, Seventh, Fifteenth and Sixteenth Wards (Fig. 2).

Some areas especially noticeable in the second pin map indicate a division into even smaller groups, notably one of seventeen cases sharply circumscribed in the Twelfth Ward (northeast corner, Fig. 2), one of fifteen cases at the outer boundary of the Eighth Ward (north part, Fig. 2), and another one of twenty-three cases in the eastern side of the Thirteenth Ward.

In the primary area, the first to become infected, the Tenth Ward, has a population consisting of Italians, Russians, Poles and Polish Jews. These people are junk dealers, rag pedlers, laborers and keepers of small stores; there are also a few factories in this area. The secondary area is made up of a population comprising Russian and Polish Jews, with some Italians and Germans. Every kind of small family industry is carried on in the homes in this section, which is probably the most congested part of the city. There are many tenement houses, the sanitary conditions of which are not of the best.

The Tenth Ward, infected first, attained its maximum of cases in the week ending July 15, after which the prevalence rapidly declined, showing a deficiency of suitable epidemic material. The case mortality, however, was high, 37.5 per cent., the second highest of all the wards. The picture presented in the ward map shows how the cases rose gradually to a pinnacle and then slowly declined, each ward reaching its highest incidence in different weeks of the epidemic.

By the end of the second week of July, ten city wards out of sixteen had been invaded by epidemic poliomyelitis.

Cases from all sixteen wards were not reported until August 5, the fifth week of the epidemic.

POSSIBLE FACTORS OF SPREAD

The first case of epidemic poliomyelitis was reported, July 3, 1916, in a nursing baby in the family of an express driver, whose business daily took him to Brooklyn and New York, where he delivered and

TABLE 3.—PERCENTAGE DISTRIBUTION

Ages	Males		Females		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Under 1 year.....	12.9	17.1	14.0	13.5	13.4	15.7
1 year.....	23.7	22.5	22.4	30.5	23.2	25.6
2 years.....	21.4	25.2	21.9	18.4	21.6	22.6
3 years.....	17.4	13.5	14.5	10.6	16.2	12.4
4 years.....	10.0	8.6	8.7	9.9	9.5	9.1
Under 5 years..	85.5	86.9	81.5	83.0	83.8	85.4
5 to 9 years.....	11.0	8.6	14.0	10.6	12.3	9.4
10 to 14 years.....	1.8	2.7	2.3	4.3	2.0	3.3
15 years and over	1.6	1.8	2.3	2.1	1.9	1.9
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

collected express packages between the two cities. There was no history of exposure to infection other than this; no member of the family had been out of Newark in many months.

In the total number of 1,360 cases during the three months of July, August and September, a direct history of exposure to a previous case was obtained in seventy-nine instances. In none of these cases could any infection be traced to schools or to any one common point of origin.

In sixty-six instances more than one case appeared in the family, and in two instances three cases arose in the same family. When more than one case occurred in the same house, the interval between the times of onset was brief. In twenty families the second case occurred the same day; in seven, within twenty-four hours; in nine, within forty-eight hours; in six, within three days, and in eight families, within four days. In two families in which three cases were reported, the interval between the second and third cases was four and five days, respectively.

The milk supply showed that 267 families used raw milk; 533, pasteurized milk; 442, condensed milk, and 148 families used no milk.

No definite relationship could be established in the number of rooms occupied by families, and the cases of poliomyelitis developing in these families.

In view of the fact that from 50 to 60 per cent. of all the cases reported were treated in hospitals, there must have been occasions when infection might have been spread from sick children to the well in the hospital wards, and yet not a single instance of this nature was reported during the period of the epidemic.

The history of the cases reported during the first week in July did not appear to suggest any definite common origin of infection. Briefly, the occurrence of these cases was as follows:

CASE 1.—In the Tenth Ward, in the family of an express driver to Brooklyn. The baby was breast fed. There was no history of exposure.

CASE 2.—In the Fourth Ward, eleven blocks from the first case. The physician and the milk and food supply were different. There was no history of exposure.

CASE 3.—In the Tenth Ward, one and one-half blocks from the first case, in the family of a junk dealer. There was no history of exposure.

CASE 4.—In the Tenth Ward, four and one-half blocks from the nearest case, in an Italian family. The patient was a nursing baby. There was no exposure.

CASE 5.—In the Thirteenth Ward, 1¼ miles from the nearest case, in the family of an Italian, the driver of a milk wagon. There was no exposure.

TABLE 4.—CASE FATALITY (DEATHS IN EVERY HUNDRED CASES)

Ages	Cases	Deaths	Percentage
Under 4 months	22	8	36.4
4 months to 1 year	160	49	30.6
Under 1 year	182	57	31.3
1 year	315	93	29.5
2 years	294	82	27.9
3 years	220	45	20.5
4 years	129	33	25.6
Under 5 years	1,140	310	27.2
5 to 9 years	167	34	20.4
10 to 14 years	27	12	44.4
15 years and over	26	7	26.9
Total, all ages	1,360	363	26.7
Total males	788	222	28.2
Total females	572	141	24.7

CASE 6.—In the Tenth Ward, in an Italian family. The patient was a breast-fed baby, a cousin of the fourth patient. There was history of exposure.

CASE 7.—In the Tenth Ward, four blocks from the nearest case, in an American family. There was no exposure.

CASE 8.—In the Tenth Ward, half a block from the nearest case, in a Polish family. There was probable exposure.

CASE 9.—In the Tenth Ward, two blocks from the nearest case. There was no evidence of exposure.

CASE 10.—In the Tenth Ward, six and one-half blocks from the nearest case, in an American family. There was no exposure.

CASE 11.—In the Tenth Ward, two blocks from the nearest case, in an American family. There was no exposure.

CASE 12.—In the Fourteenth Ward, a mile from the nearest case, in a Jewish family. There was no exposure.

CASE 13.—In the Thirteenth Ward, in the family of a German, a chauffeur for the City Hospital ambulance. There was no exposure. The nearest case was at a distance of five blocks.

CASE 14.—In the Tenth Ward, in an Italian family. The father of the patient was a street cleaner. There was no exposure. The nearest case was half a block away.

DISTRIBUTION AND MORTALITY

Males appeared to be more susceptible than females to poliomyelitis, the number being 788 males and 572 females. The type of disease in males would also appear to be severe, the case mortality for males being 28.3 per cent. of recorded cases as compared with a case mortality of 24.7 per cent. for females.

Of all the patients, 83.8 per cent. were under 5 years of age, and 85.4 per cent. of the deaths were at this age. Under the age of 5 years the greatest incidence was at the 1 year period, 23.2 per cent., as was also the percentage of mortality to all deaths, 25.6.

The case mortality for all ages was 26.7 per cent.; at 1 month of age the case mortality was 100 per cent.

Under 1 year, 31.3 per cent. of the cases were fatal, under 5 years, 27.2 per cent., and between 5 and 9 years, 20.4 per cent.

Between 20 and 24 years the disease appeared to manifest unusual virulence, a case mortality of 57.1 per cent. being recorded. Similarly, between 10 and 14 years the fatality was 44.4 per cent. All the monthly age periods under 1 year showed the fatality to be also unusually high.

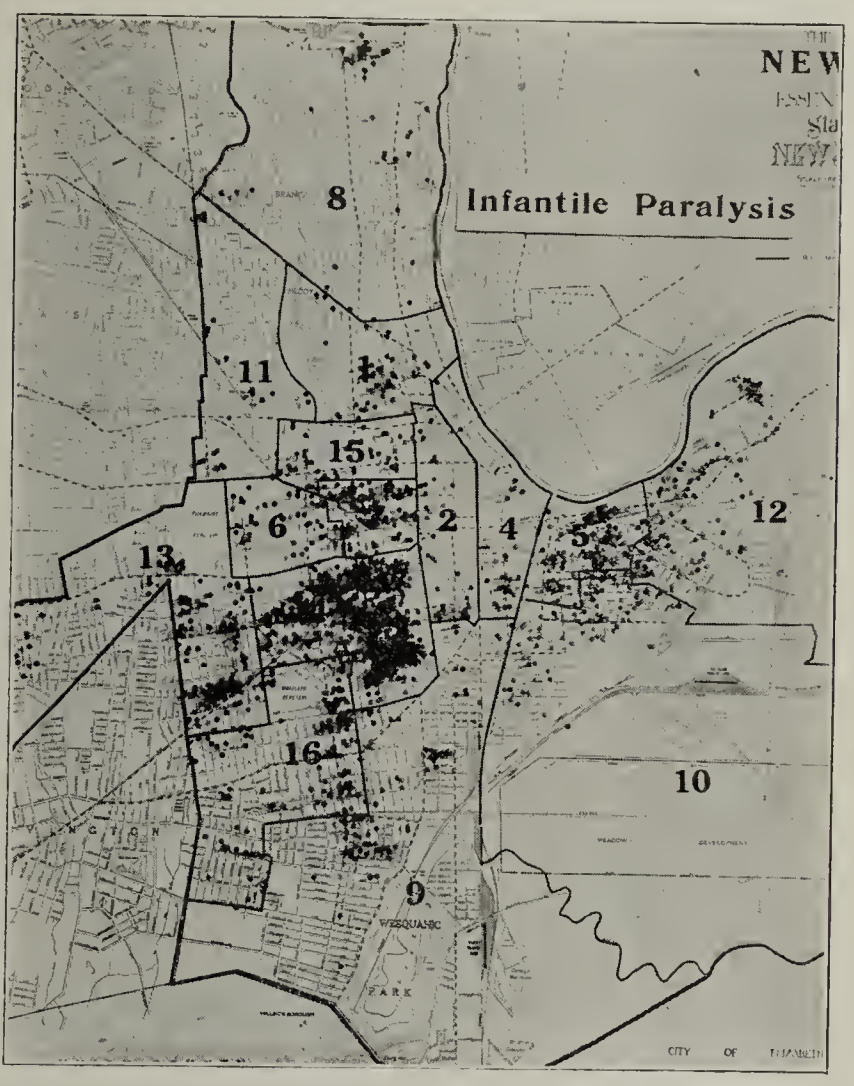


Fig. 2.—Complete cases, July, August and September, 1916.

The incidence rate in Newark, 3.3 per thousand population, was considerably higher than in New York City, 1.8, and in Hoboken and Jersey City, each of which had a rate of about 1 per thousand population.

CLINICAL TYPES AND DIAGNOSIS

Of the clinical types of poliomyelitis, so exhaustively described by Wickman, Frauenthal and others, the spinal predominated. In this class of cases, few symptoms of gravity were present. The onset was usually of such mildness that the lameness resulting from paralyzed muscles or groups of muscles was frequently the only complaint by children to parents or guardians.

This frequently brought about stories of falls and minor accidents as the cause of the inability to use a limb. The explanation by physicians of the true nature of the disease was frequently received with

incredulity. At the beginning of the epidemic, during the third week many fatal cases of the medullary and pontile types were observed, with respiratory involvement. Our experience in this line tended to confirm the observations of Wickman and Frauenthal that this type furnished by far the greater number of fatalities.

The laryngeal distress and other throat symptoms at times brought about a diagnosis of diphtheria, further observation showing it to be infantile paralysis. The case mortality in the third week was 37.5 per cent., and indicated the presence of a virulent infection.

Report of sudden deaths of infants were frequent at this time. When subsequent necropsy was possible, a diagnosis of poliomyelitis frequently resulted. Gastro-intestinal symptoms, diarrhea and colic did not attend the initial symptoms. Constipation was present in the majority of cases, in this way confirming the observations of other investigators on the onset of the disease.

Of the meningeal types observed, some difficulties may have arisen in differential diagnosis from cerebrospinal fever. The rapid onset of paralysis, however, usually cleared up the diagnosis.

Patients who recovered from poliomyelitis with meningeal symptoms did not usually have any permanent paralysis, the reason for which is no doubt anatomic.

In the diagnosis of doubtful cases, the cardinal tests relied on were a positive Kernig's sign; stiff neck, spinal rigidity, as shown by inability to flex the spine by gentle pressure in the cervical and sacral regions, the body being held elevated at these points and spinal tenderness or even actual pain in attempting to rotate or bend the spinal column. Impaired reflexes were constant in nearly all situations. It was remarkable how frequently a cursory examination without the knowledge of the tests necessary for giving a correct judgment was made the basis of a negative report by physicians.

A careful examination made by one fully conversant with the knowledge that an attack of poliomyelitis leaves behind it lowered reflexes and lessened muscle tone seldom failed to demonstrate convincing signs of spinal tenderness or a paralysis of muscles previously overlooked.

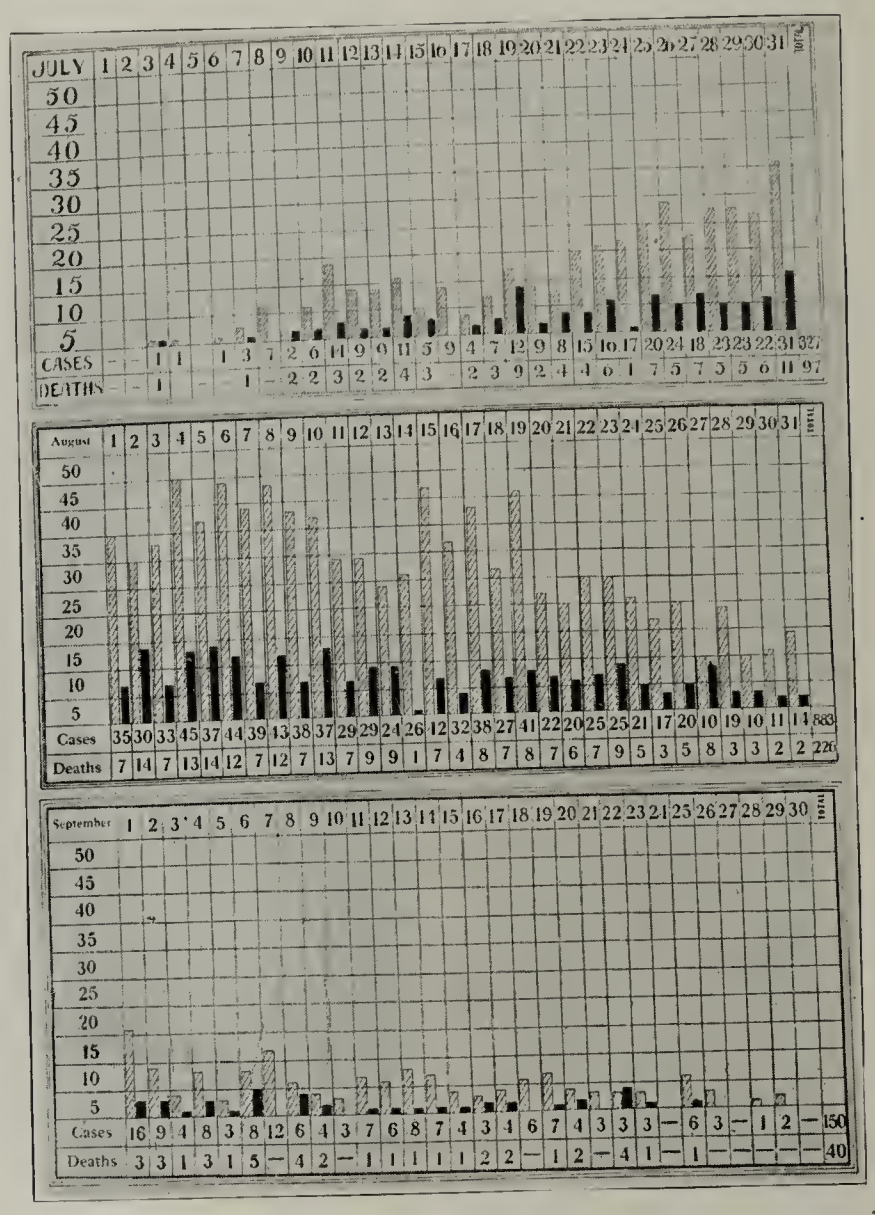


Fig. 3.—Incidence and mortality, July, August and September.

PATHOLOGIC NOTES

Dr. Harrison Martland, the city pathologist, was enabled to carry out thirty necropsies in fatal cases of poliomyelitis.

The following are Dr. Martland's observations:

Gross Pathology of Poliomyelitis.—Usually the child is from 1 to 5 years of age, and well nourished; very few are emaciated. There is a peculiar pallor to the body.

Lesions Showing the Brunt of the Attack is on the Central Nervous System.—In the brain there is intense acute encephalitis, the gray matter having a characteristic color ranging from a pinkish gray to a scarlet, copper, purplish hue. This color I have not seen in any other conditions with the possible exception of tetanus, rabies or some cases of acute traumatic encephalitis. It never occurs in most of the common meningitides. The color does not seem to be mentioned in the literature, although I know that several well known pathologists have observed it. I have been able to diagnose poliomyelitis cases from this color, having substantiated it by other findings. The meninges are quite free and clear to the naked eye, and even in the meningitic type of case nothing is seen with the naked eye, although the section may show a considerable lymphocytic infiltration of the pia-arachnoid. I have seen internal hydrocephalus only once, and then it was very moderate in extent.

The cord shows little from the meningeal surface, except active hyperemia. The meninges of the cord in some cases are distinctly edematous. I have never seen the softening of the cord described by some observers. The superficial vessels are injected. On cut section, through areas showing typical lesions a rather characteristic picture is seen. The gray matter of the cord shows as a distinctly prominent gray H. In this gray matter and usually in the anterior horns one or more bright red spots can be seen. These spots are not, however, always confined to the anterior horns, but may appear in the posterior horns, particularly in Clark's column. There is sometimes a pinkish color to the white matter of the cord, especially in the anterior columns.

The medulla and pons show little but active hyperemia. Under the microscope there are extensive lymphocytic foci, perivascular and diffuse through the vital centers, with edema and chromatolysis in the neurons.

The nervous system bears the brunt of the attack. The patients always die of medullary involvement, with respiratory paralysis. The process is a diffuse interstitial inflammation of the central nervous system, which can be localized more severely in certain patches throughout the nervous system, thus giving rise to any symptom occurring in nervous diseases, similar in some respect to multiple sclerosis. For the present the name of Heine-Medin disease is perhaps preferable, as it is impracticable to give it any anatomic name.

Lesions Caused by Mode of Death.—As death occurs from respiratory paralysis in over 99 per cent. of cases and this is due to the inflammatory process invading the medulla and respiratory centers, the following lesions as seen in cases of asphyxia are more or less present: Lungs: Pleural ecchymoses; parietal and visceral. Acute interstitial emphysema, with blebs under the visceral pleura. Heart: Right heart

dilatation with dark blood. Pericardial and sometimes endocardial ecchymoses.

Lesions Due to Bacterial Nature of Disease—Toxic.—Heart: Cloudy swelling. Liver: Cloudy swelling. Kidneys: Cloudy swelling to a toxic and degenerative tubular nephritis.

Lesions Which Whould Suggest Portals of Entry of Germ.—Intestines: Small, pinkish hyperplasia of Peyer's patches and solitary follicle with pinkish hyperplasia of mesenteric glands. Colon: Follicular colitis with hyperplasia of solitary follicles. Mucosa: Nasal and tonsils in cases examined were quite free and clear; also throat mucosa.

COINCIDENT PARALYSIS IN DOMESTIC ANIMALS

From the beginning, poliomyelitis was looked on as a contagious disease, much attention being paid to the paralysis occurring in domestic animals on the supposition that animals were responsible for the spread of the infection. During July, August and September, 1916, cases of paralysis in animals were brought to the attention of the board of health.

Considerable interest was aroused as to the possible relationship between such pathologic conditions among animals and the existence of poliomyelitis cases in children.

Dr. Harrison Martland investigated four of these paralysis cases and submitted the following conclusions as the result of his investigations on one horse, two dogs, and one cat.

ANIMAL 1.—Fox terrier dog had paralysis of the hind limbs extending to the fore legs, and died with convulsions. Acute encephalitis was found. The gray matter was pinkish. There was active hyperemia of the cord, with a suggestion of punctate red spots near the anterior horns. Microscopic examination of the brain and cord revealed suggestive round cell infiltration in the cord but no typical lesions of human poliomyelitis. Examination of the lungs revealed bronchopneumonia. There was cloudy swelling in the heart muscles, kidneys and liver, and acute splenitis.

Three fox terrier puppies inoculated in the subdural space with emulsion of this dog's brain and cord in 50 per cent. glycerin gave negative results. Several attempts were also made to inoculate dogs by an intracranial route with emulsion of brain and cord from human poliomyelitis patients but with negative results in all cases.

ANIMAL 2.—Small fox terrier puppy had supposed well marked paralysis of the hind limbs. Moderate encephalitis was found. The cord showed a few red spots in the gray matter near the anterior horns. Microscopic examination revealed an active hyperemia in the lower cord with diffuse lymphocytosis. Later examination of the cord from normal dogs revealed a considerable number of small round cells, and as the lesion in this case was not at all perivascular, it may be assumed that the numerous small round cells are not abnormal. The main pathologic condition did not indicate poliomyelitis. The cause of death appeared to be a distinct encephalitis with hemorrhage in and near the anterior horns of lower cord.

ANIMAL 3.—Cat had respiratory difficulty, and paralysis of the hind limbs. A diphtheritic membrane in the larynx was found, covering the vocal cords. Smears revealed the presence of bacilli resembling the Klebs-Loeffler bacillus with cultures negative. The brain and the cord were negative for poliomyelitis.

ANIMAL 4.—Horse with symptoms of hindleg paralysis was shot. Thrombosis of the mesenteric veins, and acute nephritis were found. The brain and the cord were normal.

COMMENT

There is a considerable and variable number of diseases in domestic animals presenting clinical symptoms of paralysis of sudden onset resembling human poliomyelitis. Gross and microscopic anatomic examination have failed, however, to reveal any resemblance to the lesions found in human or experimental monkey paralysis.

Paralytic diseases in the lower animals appear not to be at all uncommon, and their recorded prevalence during epidemic times is due to the increased attention paid to such conditions in man.

There is no reason to suppose that the lower animals play any part in the spread of human poliomyelitis, and it is extremely doubtful if poliomyelitis exists among them.

TABLE 5.—WEEKLY WARD DISTRIBUTION OF POLIOMYELITIS CASES AND DEATHS

Date	Wards																Total Cases	Total Deaths	Case Mortality	Temperature Mean	Humidity Mean	Total Rainfall
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16						
July 8	...	...	...	1	...	...	...	...	...	9	...	...	2	1	...	...	13	2	15.4	73.6	64.1	0.16
July 15	...	...	5	1	6	2	2	...	...	17	...	4	3	9	...	7	56	18	32.1	74.6	68.6	0.89
July 22	1	2	11	4	15	...	3	...	2	9	...	7	4	3	...	3	64	24	37.5	75.0	77.6	0.44
July 29	1	15	32	2	25	1	5	2	2	14	...	8	11	12	3	8	141	36	25.5	75.3	76.4	2.37
August 5	4	3	46	6	27	5	11	2	13	12	4	33	15	17	4	31	233	72	30.9	77.1	56.7	Trace
August 12	6	11	51	5	12	12	25	2	13	16	4	18	19	37	4	24	259	67	25.9	76.0	69.0	0.24
August 19	17	6	36	2	6	9	16	2	22	4	6	20	31	26	6	21	230	44	19.1	71.6	58.0	0.47
August 26	3	2	9	3	6	8	11	4	16	4	2	10	25	30	10	7	150	42	28.0	77.0	54.6	Trace
September 2	5	2	7	2	1	8	4	5	12	2	1	9	15	9	4	3	89	24	27.0	70.7	58.8	0.03
September 9	2	1	2	...	3	3	2	4	3	1	3	1	5	5	4	6	45	16	35.6	71.7	69.7	0.37
September 16	3	3	3	1	1	1	1	5	1	...	2	3	6	2	5	1	38	7	18.4	67.7	56.7	1.79
September 23	2	...	1	...	...	1	...	8	1	...	1	2	9	3	1	1	30	10	33.3	60.8	59.7	1.12
September 30	1	...	...	1	...	...	...	2	2	...	...	...	1	2	2	1	12	1	8.3	60.9	59.1	0.38
Total cases	45	45	203	28	102	50	80	36	87	88	23	115	146	156	43	113	1360	363	26.7			
Total deaths	18	11	49	5	31	15	24	11	21	33	3	28	36	42	14	22						
Case mortality	40.0	24.4	24.1	17.9	30.4	30.0	30.0	30.6	24.1	37.5	13.0	24.3	24.7	26.9	32.6	19.5						

SUMMARY

There is every reason to suppose that the infection of poliomyelitis was carried from the original focus in Brooklyn to Newark in July, 1916.

The first case occurring in the family of an express driver who went daily to Brooklyn suggests an adult means of infection.

Proximity to New York and Brooklyn undoubtedly was the factor in the undue prevalence of poliomyelitis in Newark. Direct exposure to previous patients was known in seventy-nine instances among 1.360 cases.

No nationality or condition of social life was exempt from infection.

Two cases in one family were reported sixty-six times.

Infection by food was not suggested, nor could any sanitary condition other than that existing in congested areas be shown to have any bearing on disease incidence.

No definite focus of disease was traced to schools.

There was no case of contact infection in hospitals.

The endemic type of poliomyelitis has a case mortality of 4 per cent., and an epidemic case mortality of 26.3 per cent.

Seasonable prevalence is highest in August, associated with a high mean temperature and a low mean humidity and rainfall.

Cases of poliomyelitis in Newark appear to have begun from multiple foci and not from a single focus of infection from which the whole community was attacked.

Small areas of incidence indicate the spread of infection from one exceptionally virulent case.

Of all those attacked, 83.8 per cent. were under 5 years of age.

Of all those who died, 85.4 per cent. were under this age.

Males were more susceptible to the disease than females.

Spinal types of the disease predominated, and many mild cases were observed suggesting a much wider prevalence of these in epidemic times.

Respiratory fatal cases may be mistaken for diphtheria or croup.

At necropsy a characteristic color of the gray matter was observed ranging from pinkish gray to scarlet.

No softening of cord as mentioned by other observers was encountered.

The nervous system bears the brunt of the attack, death being due to respiratory paralysis in 99 per cent. of all fatal cases.

Lesions in the intestine suggest a portal of entry of infecting organisms.

The nasal and tonsillar mucosae were found normal.

Paralyzed domestic animals found during the epidemic did not show at necropsy any pathologic lesions resembling human or monkey poliomyelitis.

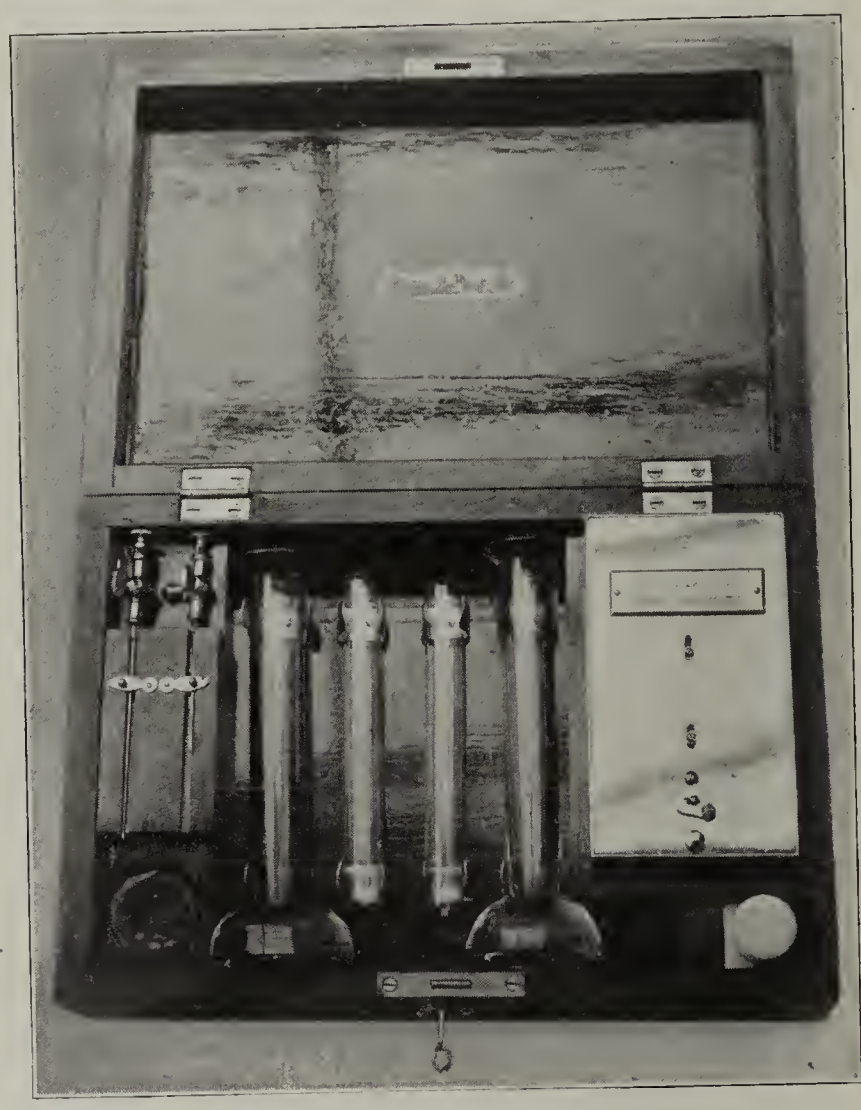


Fig. 1.—Author's spinal pressure outfit, containing manometer, spinal needles, novocain solution, 5 per cent., glass graduates with weighted bases, and test tubes.

There is no reason to suppose that the lower animals play any part in the spread of poliomyelitis, and it is extremely doubtful if poliomyelitis exists among them.

CONCLUSIONS

Epidemic poliomyelitis appears to be a disease carried directly from place to place by some human carrier not yet possible of identification.

Infection by direct contact, although possible, is not probably the commonest way of infection.

The predisposing causes of the disease seem to be age (under 5 years) and season (high temperature and low rainfall).

Studies.—Histories make men wise; poets, witty; the mathematics, subtle; natural philosophy, deep; moral, grave; logic and rhetoric, able to contend.—Bacon.

THE ABSOLUTE DETERMINATION OF INTRACRANIAL PRESSURE

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PITTSBURGH

It is more than thirty years since Corning performed the first lumbar puncture for therapeutic purposes. This diagnostic aid has now become of almost routine frequency, and yet but little effort has been made, except by the experimentalist or the occasional specialist, to emphasize the importance and value of a real scientific estimation of cerebrospinal fluid pressure.

To the thoughtful observer, the slipshod methods usually employed for this purpose are unsupportable. The estimation of the pressure by the rapidity of flow from the lumbar puncture needle, the height to which the fluid may ascend in an attached tube, or other crude methods, is as justifiable as would be the introduction of a cannula into an artery or a vein to estimate the blood pressure from the distance of the spurt or its rise in a column. Under constant pressure, the rapidity of flow from a lumbar puncture is dependent on many factors: the caliber of the needle; the accuracy of its introduction; the possible partial occlusion of its tip by membranes or nerves; the position of the patient, and the individual judgment of the observer. Hydrostatic pressure, however, if the patient remains in a constant position, will remain the same under all these circumstances. The accurate estimation of this pressure is possible only with some form of manometer. I am well aware that certain manometers have been proposed and used for this purpose, but they have been either of too delicate construction or too cumbersome for common use. Furthermore, the lack of formulated and standardized rules for their employment has led to widely varying statements as to the normal pressure, and so much confusion has resulted that they have been practically discarded as useless. The normal pressure has been stated by Adamkiewicz to be from 80 to 100 mm. of water; by Key and Retzius, from 160 to 200 mm.; by Quincke, from 40 to 60 mm.; by Koenig, from 125 to 150 mm. There is a variation in these statements of from 40 to 160 mm. of water as a minimum to from 60 to 200 as a maximum. It is inconceivable that, under normal conditions, such latitudes of pressure are possible; at least, they form no basis for comparison in judging abnormal conditions.

To overcome these difficulties and to secure a reliable and simple instrument which could become of com-

mon and practical use, I devised and have used for the past two years the needle and manometer illustrated herewith. It is hoped that this instrument, or one equally as good, may be accepted as standard, and that attention will be paid to the details of its use, to the end that the estimation of intracranial pressure may be rescued from the realm of guesswork to that of scientific certainty, and that from the accumulation of large numbers of individual observations we may be able to

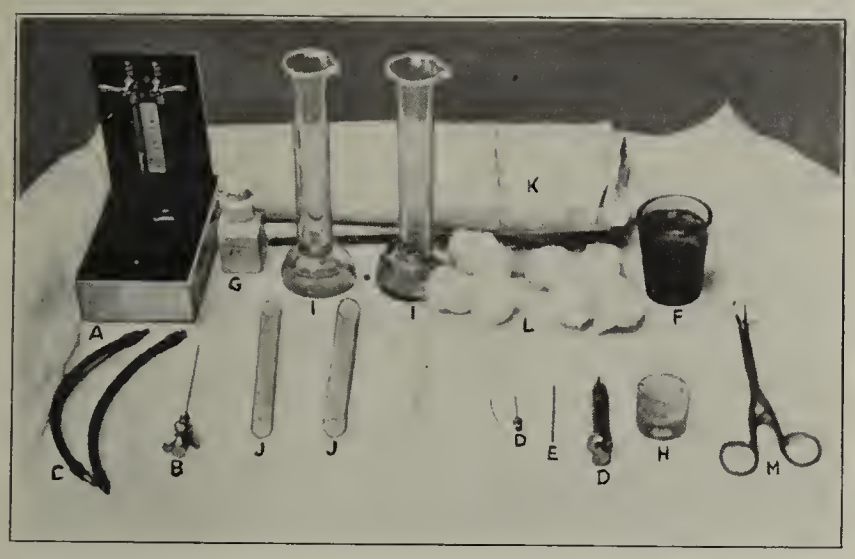


Fig. 2.—Properly equipped lumbar puncture tray; *A*, manometer; *B*, spinal needle; *C*, connecting tube; *D, D*, hypodermic syringe and needle; *E*, Hagedorn needle; *F*, iodin, 3.5 per cent.; *G*, novocain, 0.5 per cent.; *H*, glass for novocain; *I, I*, glass graduates with weighted base; *J, J*, test tubes; *K*, sterile covers; *L*, small sponges; *M*, sponge forceps.

establish the normal and to interpret and utilize the findings of abnormal spinal pressure.

The instrument consists of a small mercury manometer with a corrected scale, graduated in millimeters up to 70, attached between the arms. The scale can be adjusted so that the zero mark can be placed at the mercury level. At the top of each arm is a cut-off valve to prevent loss of mercury when the manometer is not in use. The openings for attachment to the needle are ground to standard record gage to admit a tip on the rubber tube connecting the needle and monometer. This permits of quick and easy connection.

The special needle of No. 12 wire gage is constructed of iridioplatinum. This metal will bend or kink, but is not easily broken. The shank or outer end of the needle has a Y outlet with a two-way cut-off cock valve. This permits of opening either outlet while the other is closed, or both may be closed at the same time so that no fluid can escape until the first reading is made. The tips of these outlets are of record pattern. The tube leading to the manometer is attached to the straight outlet; through the lateral outlet, the fluid when desired, is permitted to flow from the needle. The manometer and needle, and the connecting attachment, together with a 1 c.c. record syringe and needle for local anesthesia, are contained in a small metal case of pocket size. For private use, outside the hospital, I have found useful the proper graduates and test tubes for collecting and carrying the fluid and a small bottle and glass for the local anesthetic which renders lumbar puncture painless. These additions, together with the manometer, are carried in a small wooden cabinet with compartments for each. Provision is also made for carrying two extra needles, one of short length for use in infants. With this outfit, one has all the essentials for properly performing a lumbar puncture.

Certain standard conditions have been found essential if uniform and comparable pressures are to be secured. The patient should always be in the lying position with the cerebrospinal axis as nearly as possible in a position horizontal with the table or bed. Any deviation from this position, even the raising or lowering of the head, will modify the reading. The truth of this is best illustrated by the accompanying illustration. In Figure 4 the patient is in the proper position and the pressure is seen to be 8 mm. Without removing the needle, the patient was placed in the sitting posture, in which (Fig. 5) it will be seen that the pressure recorded has risen to 35 mm. Both of these readings are normal, one for the horizontal, the other for the vertical position, the increase in the latter being due to the change incident to raising a column of fluid the height of the cerebrospinal axis above the level of puncture. It is impossible and unnecessary to place all patients in the sitting posture whose spinal pressures we wish to take; therefore, in order to standardize readings, the first position is indicated.

The patient is placed on the left side, with the spine well arched by flexing the neck and thighs. Puncture is made in the midline between the fourth and fifth lumbar vertebrae after anesthetizing the skin and subcutaneous tissues at the point of puncture by the injection of 0.5 per cent. novocain solution. The entry of the needle through the skin is greatly facilitated by making this initial puncture with a Hagedorn needle, or any cutting edge needle, as the bevel on the lumbar needle is short and the material rather soft; it is often a little difficult to introduce through the skin without this preliminary preparation; it is also less painful. As soon as it is felt that the dural sac is punctured, the stylet is withdrawn, and at the appearance of the first drop of fluid, the shut-off cock is turned to the left, thus shutting both outlets until proper connections are made. The rubber tubing connecting the straight outlet and the right hand arm of the manometer is attached and all valves opened. The mercury will immediately rise in the left hand arm, and the height

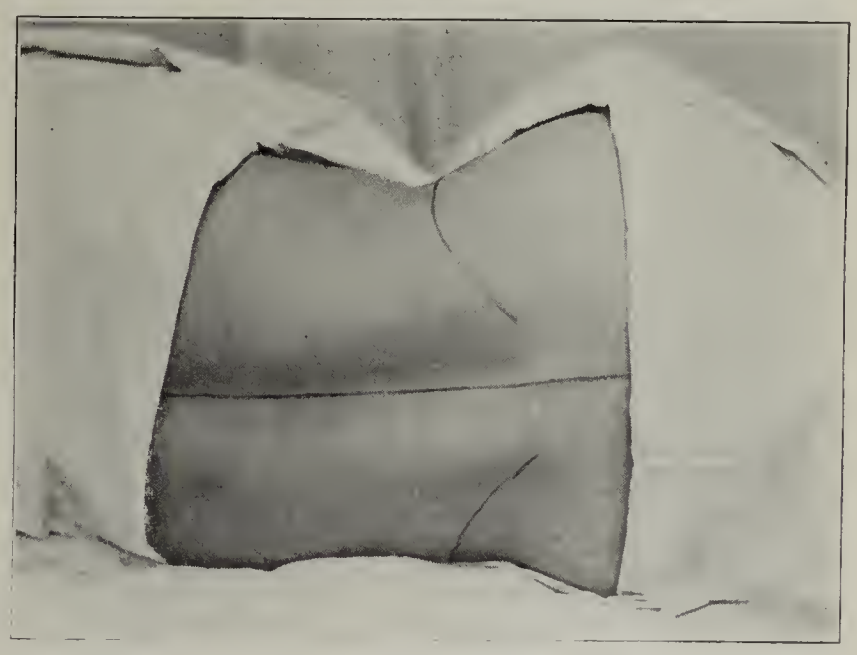


Fig. 3.—Patient in proper position for lumbar puncture. Note horizontal plane of spinal axis.

is noted on the scale. The lateral outlet of the needle may now be opened, which at the same time cuts off the straight outlet and permits the fluid to escape. Withdrawal of fluid is thus at all times under full control, guided by the effect on the pressure.

Puncture may be done and pressure taken as safely in cases of posterior fossa lesions as in those of pretentorial situation, since actual withdrawal of fluid is not necessary in order to estimate the pressure.

Not only do the needle and manometer permit of perfect control over the withdrawal of fluid, but also they are of distinct advantage in the intraspinal administration of serum or other therapeutic agents. Through the lateral outlet the serum may be injected by either the syringe or the gravity method, repeated

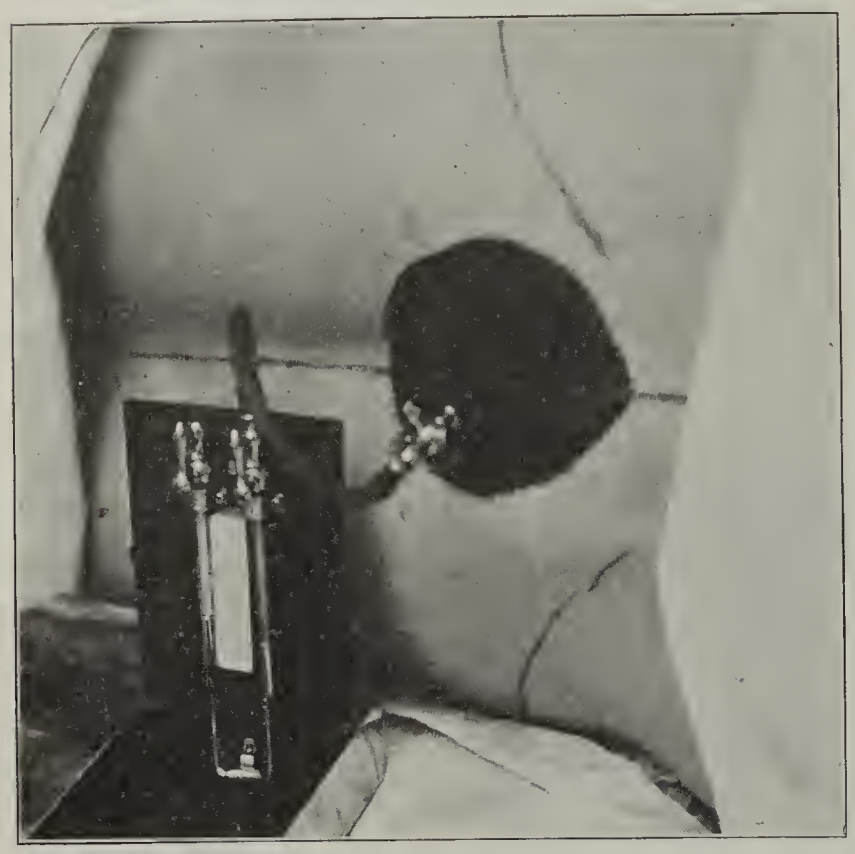


Fig. 4.—Manometer attached, showing normal pressure with patient in proper position.

readings during its introduction controlling both the rate of flow and amount injected.

Oscillations of the mercury column occur synchronously with the pulse and respiration, respectively, but are slight and of no moment. Calmness and quiet on the part of the patient are, however, essential, as struggling, straining or resistance will greatly raise the pressure temporarily and negative the findings during their occurrence.

From a large number of observations, we have found that normal intracranial pressure varies from 6 to 10 mm. of mercury, with an average nearer 8 mm. Readings even slightly above 12 mm. under proper attention to details of the technic are regarded as suspicious. Abnormal pressure varies from only slight rises to enormous tension, the highest probably occurring in the acute meningitides, in which the patients perish as often from the intracranial tension as from the acute toxemia. In cases of tuberculous meningitis, for instance, I have observed the mercury shooting completely out of the open arm of the manometer, indicative of the tremendous influence of the tension in this disease.

The various conditions which may be responsible for increased intracranial tension are so numerous that they cannot be considered in this communication. However, I have never seen an increased pressure revealed in a purely functional condition, while in organic lesions this complication is nearly always present at some stage. In the latter instances, spinal pressure is very often a valuable guide in their treatment. There are reasons for believing that in many cases of traumatic, and in some instances of so-called idiopathic epilepsy, there is constantly, or at least prior to the attacks, an increase in intracranial tension. If the presence or absence of this factor can be established, we have some guide as to the advisability of operative interference in certain of these cases. The value of the study of spinal pressure under these circumstances has been clearly demonstrated to me in two cases coming under notice within the past few weeks.

Again, we find ourselves more and more often guided by manometric readings in the treatment of cranial traumatism, both recent and in those often vague but distressing consecutive or remote conditions, the late results of cerebral injury. The value of spinal pressure estimation in suspected intracranial tumors is of inestimable value, variation in tension occurring long before the intra-ocular symptoms become manifest. If we would but avail ourselves of such a diagnostic aid, often the distressing results of prolonged intracranial tension would be avoided by the early institution of proper operative interference. These facts are well recognized by those engaged in neurologic surgery but are wofully neglected by the vast majority who negligently permit the poor victims of these conditions, subjected to various procrastinating treatments, to go from bad to worse until, as a last resort, they are foisted on the surgeon in a vain endeavor to restore a hopelessly lost vision, to relieve the unbearable headaches, and to prolong a miserable and unwelcome existence.

We should not lose sight of the vast field for clinical investigation into the cerebral disturbance occurring in the course of constitutional disease, such as the delirium of the infectious fevers, the "meningismus" of the Germans, in which there is reason to believe that in conjunction with the presence of irritant toxins in the cerebrospinal fluid, there is also an increase in secretion and consequent hypertension of the fluid.



Fig. 5.—Same patient as in Figure 4; improper position. Note change in mercury level.

The same conditions obtain in alcoholic delirium, in the cerebral disturbances in puerperal eclampsia, and in carbon monoxid poisoning. An almost untouched field lies open for determination of the part played by the cerebrospinal fluid in these complications, as well as to the best methods to pursue in their alleviation.

931 Carnegie Building.

OPERATIVE CURE OF CONGENITAL PYLORIC STENOSIS

THYMIC DEATH AFTER SEVEN MONTHS; NECROPSY

J. LOUIS RANSOHOFF, M.D.
Fellow of the American College of Surgeons
AND
PAUL G. WOOLLEY, M.D.
CINCINNATI

The efficiency of the Rammstedt partial pyloroplasty in the treatment of congenital pyloric stenosis has



Fig. 1.—Thymus.

been firmly established by many clinical observations, particularly those of Downes.

Its superiority to gastro-enterostomy is undoubted. It can be done in far less time, with less shock and through a smaller incision. As the gastro-intestinal canal is not opened, the danger of infection is minimized. Perhaps its greatest advantage is the restoration of the continuity of the gastro-intestinal canal. Since vomiting is not so frequent as after gastro-enterostomy, the vital problem of the feeding is simplified.

The anatomic confirmation of the value of this operation is shown in the case reported herewith, which so far as we can learn is the only one which has been reported after a complete cure.

History.—An infant, aged 10 weeks, seen with Dr. Max Dreyfoos, had had continuous and intractable vomiting since the third week of life. The child was exceedingly debilitated and thin, weighing less than at birth. A pyloric tumor could easily be felt. Gastric peristalsis was evident. Through an incision to the right of the middle line the pylorus was exposed. It was found occupied by a tumor of cartilaginous hardness, 2 cm. long and 1 cm. thick. A typical Rammstedt operation was done. The child's recovery was rapid and uneventful. Feeding was at once begun, and the child gained 14 ounces the first four days after operation. At the age of 6 months the child was in every way normal, except that it was slightly overweight. In the middle of the seventh month, the child, without warning, was found dead in bed.

Necropsy.—The body was that of a normal well developed and nourished child. There had been some hemorrhage from the mouth. The cause of death undoubtedly lay in an unusually large thymus (65.5 gm., Fig. 1), for there was nothing else found in the body which could by any stretch of the imagination be chosen as even a remote cause. There was a considerable congestion of the viscera, which could be due to thymus pressure. The lymphatic glands were not as generally hyperplastic as one would expect in an outspoken status lymphaticus; the gastro-intestinal, urogenital and respiratory tracts were, except for the congestion, healthy.

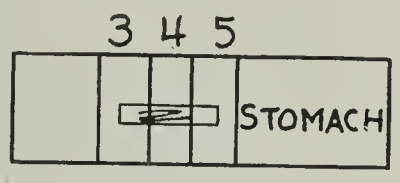


Fig. 2.—Key to location of sections given in Figures 3, 4 and 5.

One might be asked whether the death was due to the mechanical effects induced by the thymus or to some chemical factor contributed by the gland. In the present state of our knowledge we must give it as our opinion that death resulted from the mechanical effects.[1]

The stomach was normal and contained no blood, and the pylorus was patent. The pyloric portion of the stomach, the pyloric ring and the first part of the duodenum were removed for study.

Along the anterior surface of the pylorus there was a shallow linear depression approximately 2 cm. long, which represented the scarred site of a previous surgical incision, and on this groove and its margins were tags of old fibrous adhesions, rather tenuous in texture, which had united the pylorus to the adjacent tissues. From this specimen three smaller ones were made so that about half the groove was represented in the middle portion and a quarter in each of the others. From each of these portions sections were made, and stained with hematoxylin and eosin (Fig. 2). The numbers of the photographs indicate the location of the section in the sketch).



Fig. 3.—Section, location of which is shown in Figure 2.

The sections all showed practically the same state of affairs, namely, that from the bottom of the groove to the submucosa there was a band of fibrous tissue which represented a loss

1. Compare Park: Jour. Exper. Med., 1917, **25**, 129, Rev. Jour. Lab. and Clin. Med., 1917, **2**, 361.

of muscular tissue in that region. The appearances may be compared with those which would be seen in case a ring shaped muscle were supplied at one point with a tendon.

Aside from this, the other parts of the tissue seemed healthy. There was no bulging toward the exterior of the mucosa, no evidence of diverticulum formation or hernia, and everywhere the other layers of the organ seemed healthy. It is possible that the muscular layers were somewhat better developed than would be called normal, but the variation seemed too slight for weight to be attached to it.

It appears that the surgical incision permitted the muscular coats of the tissue to retract and the opening to gape, and that subsequently the space was filled with organized tissue, which, in its fully developed state, was fibrous tissue. This has formed a typical linear contracted scar. It seems that during the healing of the wound the pyloric orifice became dilated and then remained so, and thereafter performed its function in an acceptable manner.

This is an anatomic proof of the perfect efficiency of this operation. It shows also the futility of the numerous modifications, which only complicate the operation without in the least improving it. Another interesting feature is the disappearance of the tumor mass, which was plainly shown at the operation.

An important point is the association of enlarged thymus with congenital pyloric stenosis. This was present in lesser degree in another of our cases, which promptly yielded to Roentgen therapy. Palmer has shown the frequency of the simultaneous occurrence of the two conditions.

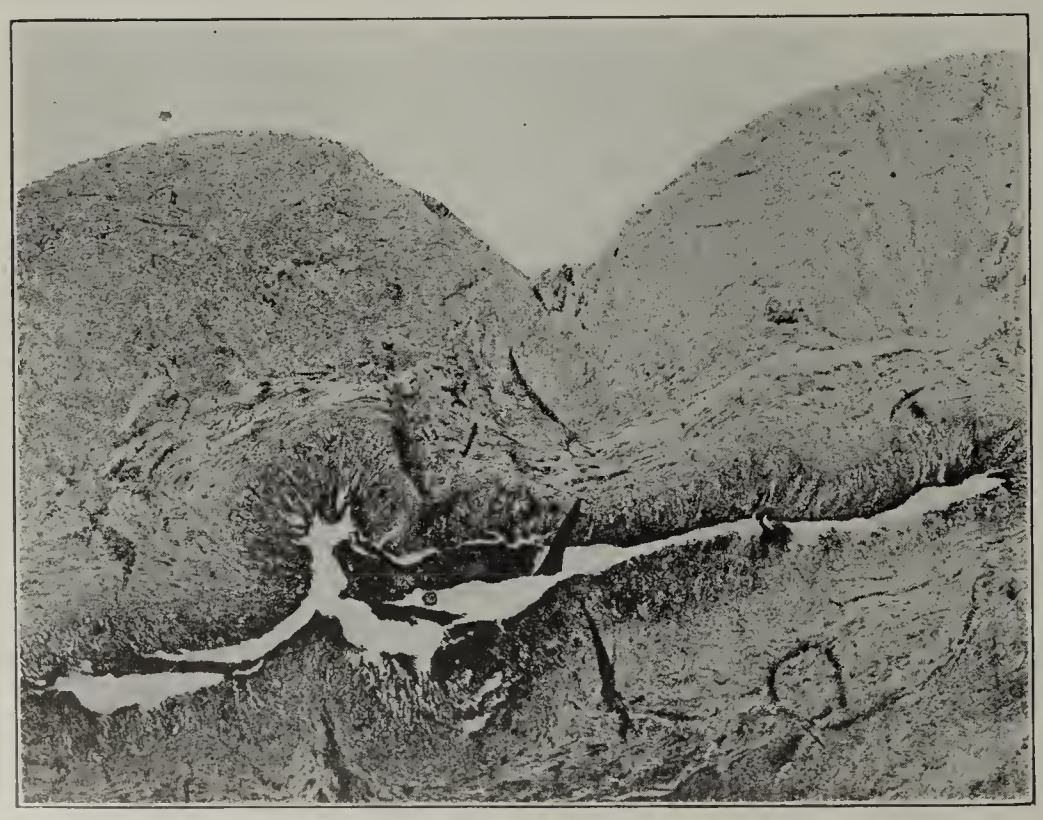


Fig. 4.—Section, location of which is shown in Figure 2.

The prevalence of enlarged thymus has been greatly underrated. In a recent communication before the Cincinnati Academy of Medicine, at Cincinnati, J. E. Benjamin reported nineteen cases occurring in 220 consecutive patients of the pediatric clinic. The diagnosis was in each case confirmed by the Roentgen ray.

This frequency of enlarged thymus probably best explains its not uncommon association with pyloric stenosis. However the case may be, it is not unwise to be on the lookout for enlarged thymus, which once discovered is so readily cured by the Roentgen ray.



Fig. 5.—Section, location of which is shown in Figure 2.

Railway Accidents.—*Accident Bulletin 58*, covering October, November and December, 1915, and *Bulletin 59*, covering January, February and March, 1916, contain data relative to accidents on steam and electric railways for the respective periods as reported by steam and electric railway companies to the Interstate Commerce Commission under the accident report law of May 6, 1910. For the last quarter of 1915 the number of killed in train accidents on the steam railways of the United States was 134 and the number injured 2,107. The total number of persons killed in all classes of accidents was 2,391, and the number of persons injured, 44,605. This includes 2,166 persons killed and 13,846 injured as the result of train service accidents to railway employees while at work, passengers getting on and off cars, by persons at highway crossings, persons doing business at stations, etc., as well as by trespassers and others. It also includes ninety-one persons killed and 28,652 persons injured in casualties reported as "nontrain accidents." On the electric railways during the same period one person was killed and 165 injured, including employees and all other persons in all forms of accidents. During the first quarter of 1916 the number of persons killed in steam train accidents was 188 and the number injured 2,100. The total number of persons killed on steam railways was 2,138 and the number of injured 46,048. This includes 1,808 persons killed and 14,122 injured in train service accidents by employees while at work, by passengers getting on and off cars, persons at highway crossings, persons doing business at stations, etc., trespassers and others. It includes also 142 persons killed and 29,826 injured in casualties reported as "nontrain accidents." On the electric railways during the same period seven persons were killed and 249 injured.

ACCIDENTAL SURGICAL INJURIES TO THE BILE DUCTS

WITH REPORT OF A CASE

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CHICAGO

In spite of the meager reports of operative injuries to the bile tracts, no doubt such surgical accidents are not as rare as the paucity of the literature on the subject would indicate. The majority of such injuries occurred in the hands of able surgeons; some happened to masters in this particular field. Thus it is safe to assume that in the experience of men of lesser eminence such calamities are not so extremely rare.

Jacobson[1] has collected reports of thirty-four cases; to these may be added two by Moynihan[2] and the case reported below.

The case which I report is the only one of its kind in the literature, and is unique from the type of injury inflicted, namely, complete severance of the common duct with proximal and distal ends securely tied, thus completely shutting off the bile flow from the liver to the duodenum. It is the third case in which there was a secondary operation for repair of the common duct.

The liability of the ducts to injury may be explained by the rather frequent anomalies of the course of these channels due to pathologic conditions.

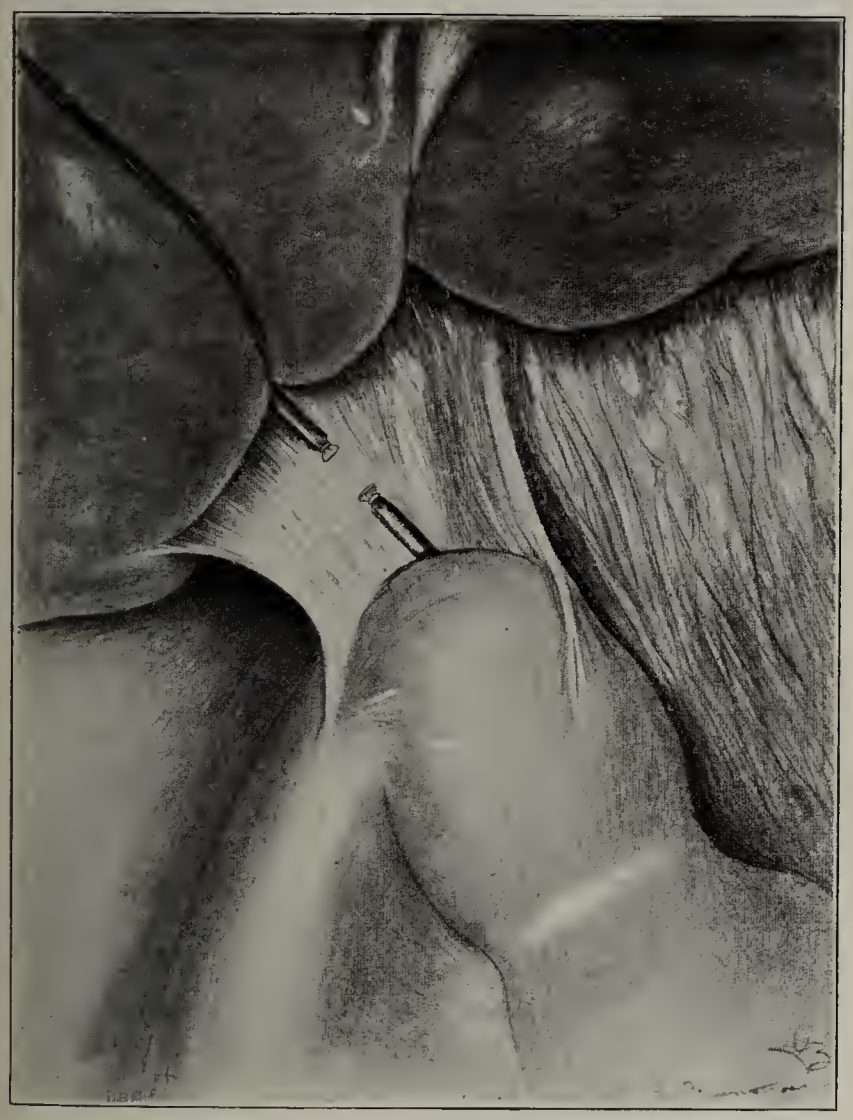


Fig. 1.—Accidentally resected duct with both ends tied.

The topography of the ducts has been studied by several investigators, but especially good work was done by Bruge,[3] Shackner[4] and Brewer.[5]

1. Jacobson, J. H.: Am. Jour. Obst., 1914, **70**, 6.
2. Moynihan: Abdominal Surgery, p. 210.
3. Bruge, E.: Verhandl. d. deutsch. Gesellsch. f. Chir., 1908, **37**, 238-268.
4. Schackner: Ann. Surg., October, 1910, p. 419.
5. Brewer: Ann. Surg., **29**.

Bruge found in a series of forty-three specimens that in the majority of the subjects the cystic duct in its terminal part ran parallel to the hepatic duct, and in only a few cases united with the latter at the classical acute angle. In a few instances, the cystic duct approached the hepatic at an acute angle and then ran

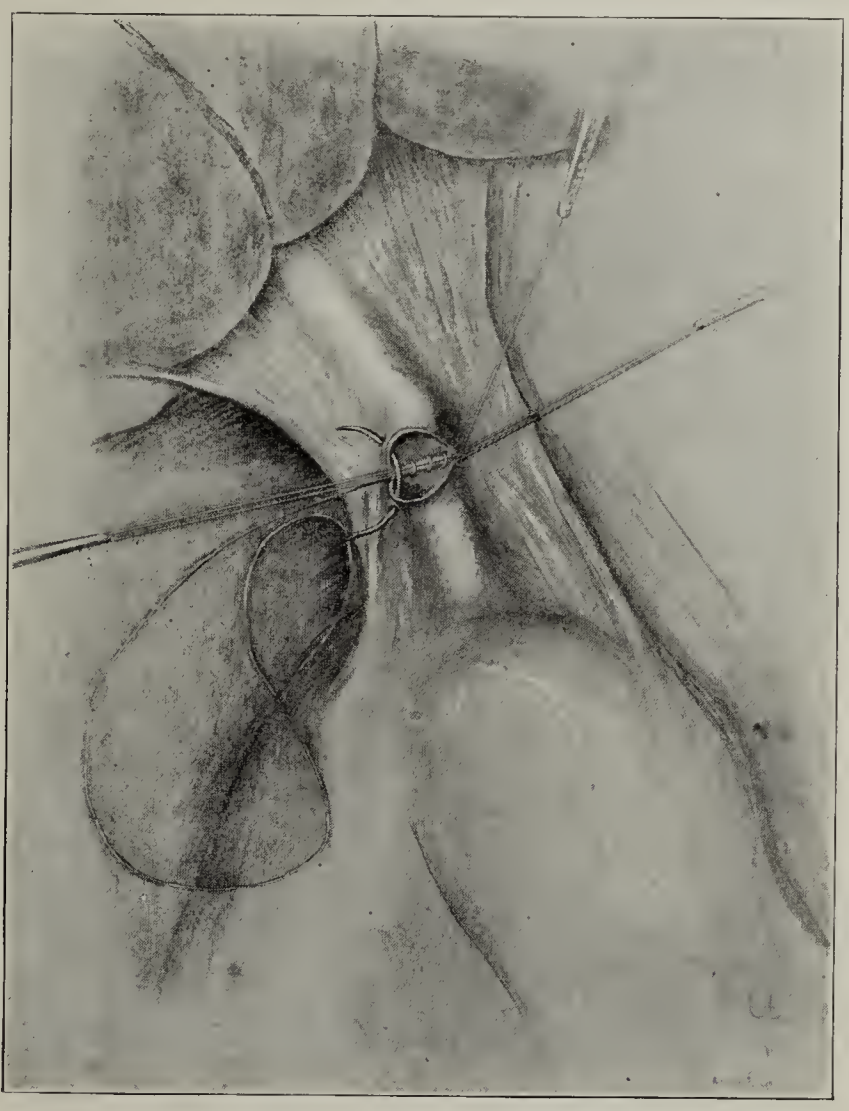


Fig. 2.—Method of anastomosis.

parallel to it. In some cases, the two ducts ran parallel to each other for the greater part of the course, closely bound together with connective tissue. In a number of cases, the cystic duct partly or completely encircled the hepatic duct in a spiral manner, the spiral always running toward the right. In this connection, it might be of interest to mention that in the preceding cases it would be impossible to tell in which duct a stone might be located. Also, a stone in the cystic duct might, by pressure on the hepatic, give all the ordinary symptoms of common duct obstruction. Thus it is seen that with such abnormalities, and especially with added pathologic conditions, the ducts might easily be injured during operations in this field. However, if Judd's[6] method of identifying and tying separately the cystic artery and the cystic duct is employed, there should be no danger of injury to the common duct. According to W. J. Mayo, this procedure can be used in the majority of cases.

REPORT OF CASE

History.—A woman, housewife, aged 47, had been operated on, a week before I saw her, May 15-16, by a physician who had performed a cholecystectomy for gallstones. Subsequent to the operation the patient had rapidly developed all the symptoms characteristic of common duct obstruction. The physician expressed fears that he had accidentally tied off the common duct. The history otherwise was negative.

6. Judd, E. S.: Ann. Surg., 1915, **61**, 306.

Examination.—The patient's general appearance was that of a fairly nourished, middle aged woman, intensely icteric. Examination of head, neck and chest was negative. The abdomen showed the healing scar of a Bevan incision. Palpation was negative. The urine showed the presence of biliary pigments; the stool was clay colored. Pulse, respiration and temperature were practically normal.

Operation.—I performed an operation, June 22, under ether anesthesia, assisted by Dr. C. Phifer. Following the ordinary preparations the abdominal wound was reopened and the liver raised out of the abdominal opening as much as possible. Without much trouble it was found that the junction of the cystic, hepatic and the common ducts had been resected in removing the gallbladder and that both the distal and proximal ends had been tied (Fig. 1). The stumps were separated about 1½ inches. A rubber covered clamp was placed on the hepatic duct and the knots cut. In cutting the ligature of the hepatic duct, I accidentally slit that tube and repaired it with one silk suture. The ends of the duct were now approximated and held in place by traction sutures. As the rubber clamp on the hepatic duct interfered with the work, I removed it, and to my surprise only a small amount of bile escaped. The ducts were united with a fine running silk suture. The posterior edges were inverted and the anterior, everted (Fig. 2) and covered with omentum. A rubber tube was placed in close proximity to the anastomosis held by a catgut stitch to the duodenum. The abdomen was closed in layers. The patient left the table in good condition.

Postoperative History.—The first ten days were uneventful. The third day the patient had her first bowel movement, passing bile colored stool. The tenth day there was a discharge of bile through the tube. This biliary fistula remained open until August 20. The jaundice quickly disappeared, and in a few bowel movements the stool looked normal in color. The patient left the hospital, August 1. A reexamination was held, December 15. The patient had gained a few pounds' weight, and seemed in good condition. There was no sign of jaundice.

30 North Michigan Avenue.

MULTIPLE CHANCRES OF THE LIP

ERWIN P. ZEISLER, M.D.
CHICAGO

This case of double extragenital infection with the *Spirochaeta pallida* is of unusual interest because of: (1) the rarity of extragenital chancres in the colored race, and (2) the simultaneous inoculation of the lower lip at two symmetrical positions, producing a double chancre and a bilateral submaxillary bubo.

REPORT OF CASE

History.—Miss G. F., aged 19, colored, came to the dermatologic department of Northwestern University Medical School, March 21, 1917, presenting two lesions on the lower lip. She stated that five weeks before she had first noticed two small, hard "sores" on the lip which grew rapidly to their present size. The swollen glands on the two sides of the neck developed shortly after the lesions on the lip. There was no pain at any time. During the past two weeks she had had headache, slight sore throat and malaise. On close questioning the patient admitted that she had been kissed repeatedly in the past few months by a colored man with a sore lip.

Physical Examination.—There were two cherry-sized protuberant masses on the lower lip, symmetrically placed on either side of the midline, of approximately equal size, each one about three-fourths inch in diameter and extending from the cutaneous edge across the vermilion portion of the lip. Both nodules were indurated, and the surface was excoriated, covered with reddish-brown crusts, and exuded a bloody serum on pressure. The entire lower lip was somewhat edematous; the upper lip was unchanged. A bilateral submaxillary bubo was present. The glands on the right side of the neck were somewhat larger than those on the left. There was generalized adenopathy, with marked enlargement of the posterior cervical and occipital chains. The mouth showed an angina involving the pillars and tonsils, but no mucous patches. A beginning typical macular eruption was faintly visible on the chest and the abdomen.

Laboratory Examination.—Spirochetes were demonstrated in secretions from both chancres in dark field and in smears. The Wassermann test was strongly positive.

COMMENT

A cursory examination of the literature on extragenital chancres reveals that chancres of the lip are the most frequent form of extragenital infection. Cole's[1] recent report of sixty-one extragenital primary lesions includes forty-three lip cases, of which thirty-two were on the lower and seven on the upper lip. Bulkley,[2] out of a total of 9,058 extragenital chancres, found that lip infections constituted 20 per cent. (1,810 cases). In his private practice he reports fifty lip chancres out of 113 extragenital lesions. Fournier[3] found that extragenital lesions comprised



Multiple chancres of the lip.

7 per cent. of all chancres, and that there were 567 lip cases out of a total of 1,124. These statistics are sufficient to show that the lip is a frequent site of infection with the *Spirochaeta pallida.*

It is stated that lip chancres occur more commonly in women than in men, and affect the lower lip in preference to the upper lip. Gaucher and Milian[4] in 1893 pointed out that the roseola appears earlier in lip chancres, probably because of the greater vascularity of the lip as regards both vessels and lymphatics. The initial lesion on the lip is usually single, and is frequently of such size as to push out the lip prominently and disfigure the face.

Multiple extragenital chancres, either of the lip or of other locations are, however, by no means common, although Osler[5] states that one fourth of all chancres

1. Cole, H. N.: Report of a Series of Sixty-One Extragenital Chancres, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1805.
2. Bulkley: Syphilis in the Innocent, 1894, p. 39.
3. Fournier, quoted by Kingsbury: Dermochromes, New York, 1913.
4. Gaucher and Milian, quoted in Power and Murphy, A System of Syphilis, 1908, **1**, 195.
5. Osler: Modern Medicine, 1914, **2**, 155.

are multiple. A few cases of double chancre of the lip are on record, and occasionally the combination of chancre of the lip and tongue or chancres on both lips have been observed. Compared with the frequency with which we see multiple genital lesions, for instance, chancres of the corona glandis and the adjacent prepuce in the male and juxtaposed chancres of the labia in the female, double extragenital lesions are distinctly rare, although I recall a case of double chancre of the cheek which I saw a few years ago. It is generally accepted that unless inoculation is simultaneous at two points, a superinfection does not take place. An adjacent surface does not become infected by contact with the secretions of the primary lesion. Most authorities agree that by the time a chancre is recognized, there is immunity against the production of fresh primary lesions. On the other hand, certain French authors contend that successive chancres may occur, that is, multiple chancres which develop at considerable intervals of time from each other. The cases cited in support of this view are not absolutely conclusive. In our case one would assume from the identical size of the two lesions that the lip had been inoculated simultaneously at two points.

Statistics show, furthermore, that extragenital chancres are not nearly so common in negroes as in white persons, for reasons that are not entirely clear. Hazen,[6] in over 3,000 cases of syphilis in the colored race, reports only three extragenital chancres. In view of the frequency of syphilis in the colored race, Reasoner[7] suggests that possibly there exists in the negro outside of the genitalia (as practically exists in the rabbit) the power of tissue defense or reaction to initial syphilitic infection. On the other hand, in the discussion of the symposium on syphilis[8] at the 1916 session of the American Medical Association, extragenital immunity was not considered an adequate explanation, and it was suggested possibly that the negro spends less time in amatory preliminaries. Nevertheless, statistics seem to show that extragenital lesions are far less common in negroes than in white persons.

30 North Michigan Avenue.

6. Hazen: Extragenital Chancres, Interstate Med. Jour., August, 1916, p. 661.
7. Reasoner, M. A.: Some Phases of Experimental Syphilis, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1799.
8. Abstracted in THE JOURNAL A. M. A., Dec. 30, 1916, p. 1989.

Effect of Fires on Food Supply.—With an average of one reported fire for every minute in the year and a daily destruction approximating nearly $600,000, according to the National Board of Fire Underwriters, the fire loss in the United States constitutes a not inconsiderable item in the high cost of living. This waste, which is largely preventable, has to do to a great extent with the food problem. For example, it is said that a recent blaze in an Illinois elevator destroyed 700,000 bushels of corn and 300,000 bushels of oats. Grain elevators, flour, cereal, grist and feed mills, on account of the explosive dust that accumulates in them, are especially subject to fires, and these with individual barn fires and crop fires due to lightning, railroads and many other causes, are a source of tremendous loss of food products. Food is only one item of the tremendous loss from fires, and in addition to the loss of material property, the interruption to business and employment adds greatly to the total. It seems that fire losses in the United States are greater than those of other countries. The actual figures of the underwriters show that 21.4 per cent. of this loss from fires is due to strictly preventable causes, 37.9 per cent. to causes which are partly preventable, and the remaining 40.7 per cent. of fires from "unknown" causes are probably largely preventable.

Clinical Notes, Suggestions, and New Instruments

A SIMPLE ANESTHETIC APPARATUS FOR LABORATORY USE *

BERNARD FRANCIS MCGRATH, A.B., M.D., MILWAUKEE
Professor of the Principles of Surgery and Director of the Surgical Laboratory, Marquette University, School of Medicine

This apparatus is a modification of one presented by me[1] in 1914. The modified apparatus is a considerable improvement over the original. It is easily and quickly adjustable

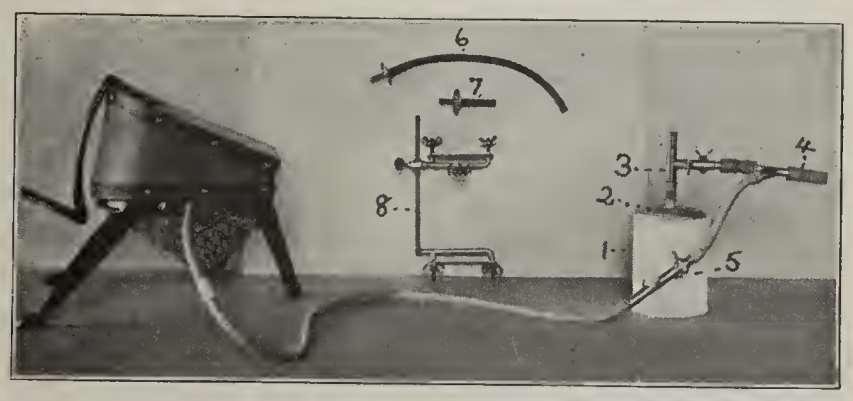


Fig. 1.—Apparatus adjusted for automatic anesthetization and resuscitation: 1, ether can; 2, small opening in top; 3, regulator of anesthetic; 4, connection for tube holder; 5, interrupter for resuscitation; 6, intratracheal tube; 7, intrabuccal tube; 8, mouth gag.

for automatic anesthetization, intrathoracic pressure with anesthetization, and resuscitation. The principles applied are not new: similar principles are involved in the apparatus of Meltzer and Auer, Corbett and others.

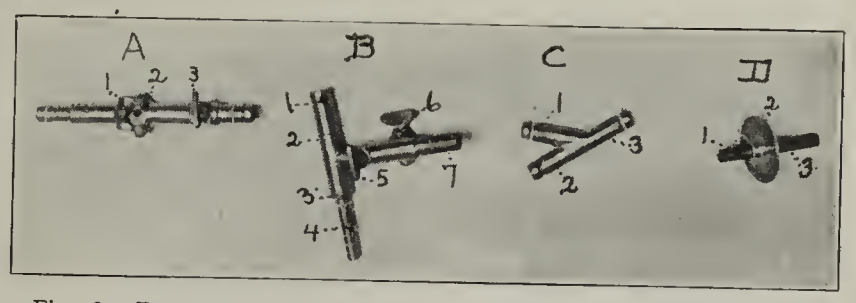


Fig. 2.—Parts of apparatus: *A*, resuscitator: 1, interrupter (pressed forward, air current; pressed backward, shut-off; 2, opening for expired air; 3, shut-off when resuscitator is not in use; *B*, Regulator of anesthetic: 1, air exit; 2, outlet valve (expiration); 3, inlet valve (inspiration); 4, for fixing in ether can, to be covered with rubber tubing; 5, ether valve; 6, air valve; 7, for rubber tubing connection with Y. *C*, Y for double connection with regulator and resuscitator: 1, for resuscitator; 2, for regulator; 3, for rubber tubing connection with tube holder; *D*, tube holder: 1, for rubber tubing connection with Y; 2, guard against tube slipping, fixed with bandage or mask; 3, for connection with intratracheal or intrabuccal tube.

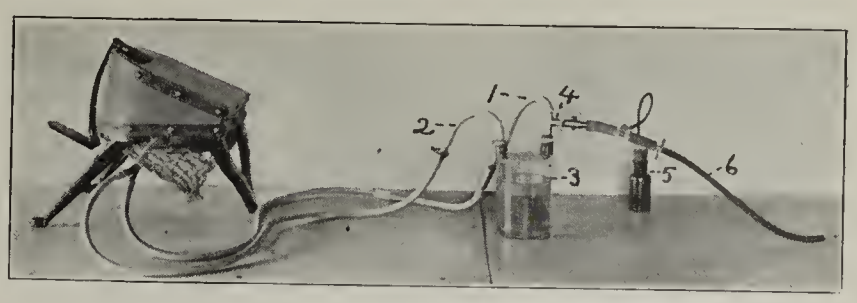


Fig. 3.—Apparatus adjusted for intrathoracic pressure with anesthetization: 1, air current, with interrupter (for resuscitation) inserted in tube; 2, air current passing through anesthetic reservoir; 3, anesthetic reservoir, substituted for the ether can (Fig. 1); 4, regulator of anesthetic; 5, regulator of degree of intrathoracic pressure (safety device against undue pressure); 6, intratracheal tube.

In my routine for administering ether in the laboratory, surgical anesthesia is induced in a cabinet by heated ether forced in by compressed air. The average time for this is about four minutes. The animal is then fixed on the operating table and an intratracheal tube (Fig. 1, 6) quickly introduced. The introduction of the intratracheal tube may be facilitated by

* From the Surgical Laboratory of Marquette University, School of Medicine.

1. McGrath, B. F.: Anesthesia in Surgical Research: A Simple, Economical and Efficient Apparatus for Ordinary Routine Work, Surg., Gynec. and Obst., 1914, **18**, 765.

means of the mouth gag (Fig. 1, *8*). The entrance of air through the nose and the mouth is completely excluded with cotton and a bandage, or a close fitting mask. The metal tip (Fig. 2, *D, 1*) of the tube is then connected with the apparatus, and the necessary admixture of ether and air regulated by means of the valves (Fig. 2, *B,* ether valve, 5; air valve, 6). The opening (Fig. 1, *2*) in the top of the ether can is uncovered. In case of respiratory failure, both the ether and the air valves are closed, the valve situated in front of the interrupter (Fig. 2, *1*) of the resuscitating device is opened, and artificial respiration produced by pressing the lever of the interrupter forward for inspiration, and backward for expiration through the opening (Fig. 2, *A, 2*). Either a foot bellows or the piping of the laboratory may be used for compressed air. When intrathoracic pressure with anesthetization is required, a two-mouthed glass bottle (Fig. 3, *3*) is substituted for the ether can. The outlet valve of the regulator (Fig. 2, *B, 2*) is removed by unscrewing the cap. The tube for the air current (Fig. 3, *1*) is applied at this point. The tube for the ether current (Fig. 3, *2*) is attached. The interrupter for resuscitation is in the air current tube. A safety valve (Fig. 3, *5*) for regulating the degree of intrathoracic pressure is introduced, as shown in Figure 3. The ether valve and the air valve of the regulator are adjusted for the required admixture of ether and air. An intrabuccal tube (Fig. 1, *7*) may also be used for anesthesia.

Experience has proved that this apparatus and method are convenient, effective and reasonably economical.

SPOROTRICHOSIS: REPORT OF A CASE

A. A. Spoor, M.D., Lansing, Mich.
Bacteriologist, State Board of Health

This is the first case of sporotrichosis reported from Michigan. R. L. Sutton says:

> There are many busy practitioners who have never even heard of sporotrichosis. For this reason, I believe that all recognized cases of the affection should be reported, during the next few years at least, in order to disseminate as widely as possible a knowledge of its symptomatology.

Therefore I wish to report a case which came under my observation.

March 11, 1917, Dr. M. R. Morden of Adrian, Mich., wrote me to this effect:

> Enclosed find discharge from a small, deep furuncle over enlarged cervical glands. The patient, J. W. P., is an athletic young man, aged 18. Crop after crop of small boils on an area the size of his hand have been occurring in the spot mentioned for a few months, some of them like boils, others like scrofuloderma—tuberculosis cutis. The hard swelling existed some months before the eruption over it occurred. Please report findings.

The small, subcutaneous boils, together with the enlargement of the neighboring lymph glands, and the duration of the disease, showing a lack of response to ordinary surgical treatment, led me to think of sporotrichosis. I inoculated slanted glucose agar tubes with some of the discharge, and in three days at room temperature the sporothrix developed as white colonies and later became markedly pigmented with black pigment, forming large, flat, black colonies with marked striations. The growth is not nearly so rapid as that of the *Aspergillus niger,* and the mycelial filaments do not grow up from the media (aerial) like the *Aspergillus niger.*

Schenck in 1898 first described this parasitic mold, which he found in the lesions of a peculiar disease, beginning as a localized ulcer, with later involvement of the neighboring lymph glands, in which cold abscesses formed and opened to the exterior. A second similar case was described by Hektoen and Perkins. Since its discovery, a large number of cases have been identified in all parts of the world, and especially in the middle western portions of the United States. The lesions in this condition resemble, at times, those of tuberculosis, while, occasionally, they appear more like those of syphilis. The chief characteristics are the sharply defined, painless cutaneous or subcutaneous abscesses, which are small and which follow the course of the lymphatics, together with enlargement of the neighboring lymph glands, and they do not yield to the ordinary surgical prodecures. Many of the cases occur on the extremities.

AN UNUSUAL CASE OF INTESTINAL INTUSSUSCEPTION

F. A. Van Buren, M.D., Omaha

An infant, aged 5 months, admitted to the hospital, Dec. 2, 1915, at 4:30 a. m., five days after the onset of illness, had been well up to this time. The child was bottle fed, and the modified cow's milk had apparently agreed with the child up to just prior to the illness, when the stools contained considerable curds. The onset was sudden. The child became restless from evident intestinal disturbance. The bowels moved some the first day, the last movements containing blood and mucus. On the second day, calomel was given, and 2-dram doses of castor oil every two hours for several doses. The child began to vomit, but no more bowel movements resulted. The child became rapidly worse, when on the fifth day it was brought to the hospital in a dying condition.

The child was well developed, of apparently normal weight, unconscious and restless. Respiration was of the Cheyne-Stokes type; the pulse could not be counted. The abdomen was distended. A tumor could be felt in the abdomen extending transversely between the iliac spines. Pressure on this tumor produced a friction rub. The tumor was palpable through the abdominal wall. Owing to the seriousness of the infant's condition, no operation was performed, and it died after about three hours.



Condition as found postmortem: *A,* intussusception of ileum into cecum; *B,* transverse colon; *C,* descending colon; *D,* ileum.

There were no special features in the history, symptoms or course of the illness, differing from the classical picture of intussusception of the bowel in infants.

The postmorten examination of the abdominal contents confirmed the diagnosis, but we were surprised to find a double intussusception, of the ileum into the cecum for a distance of about 10 cm., and of the distended descending colon over the collapsed sigmoid for about the same distance. The peritoneum was dry and had lost its luster. The ileum was dark and congested, and contained much gas and fluids. The neck of the ileocecal portion was tight, and grasped the intussusceptum so firmly that reduction was impossible without cutting. It was covered by a plastic exudate. The portion of colon between the proximal and distal obstruction was rather normal in appearance except for the lusterless appearance of the peritoneum. The intestine was much distended with gas and fluids. The distal intussusception was also covered at the neck by plastic exudate. The distal colon and sigmoid were collapsed. In order to preserve the specimen without mutilation, the intussuscipiens was not opened to examine the intussusceptum. No doubt this was gangrenous, as is common. Some speculation was indulged in as to which was the probable primary intussusception. We decided the ileocecal was the primary one and that the purgatives had produced the second.

SOME INSECTS AND REPTILES ON THE BORDER

JAMES COUGHLAN, M.D., NEW YORK
Lieutenant, Medical Corps, Second New York Field Artillery, National Guard

When the national guard of the northern states reached the Mexican border on and about the first part of July, the natural and climatic conditions encountered were entirely new and unusual to men unaccustomed to that type of outdoor life. In the section called the "Magic Valley," embracing the towns of McAllen, Mission City and Pharr, where the New York guard was stationed, the country is arid and one of the most barren regions of the south. Cactus, mesquite and sage, with Spanish bayonets and daggers scattered here and there, comprised the only growth that flourished. Vegetation and grass were so sparse, more especially in the dry weather, that animals required an extensive area for grazing. One of the interesting features was the variety of insects and reptiles injurious or poisonous to man. During the earlier days, there were many tales told of the "deadly" rattlesnakes, centipedes, tarantulas, spiders and others that had never been heard of before and never will again. In the course of a six months' stay in that region, a small amount of practical and personal knowledge of the subject was gleaned.

Most bites and wounds were received during the earlier months of July and August, owing possibly to the site of encampment on ground that was infested with insects, the fact that those months were very hot and animals seemed to



Fig. 1.—Scorpion.



Fig. 2.—Tarantula.

be more predatory, and because of the limited protection at that time. The number of bites received depended more on the location than on the mobility of the unit. If a camp was made in the midst of a cactus-mesquite-sage field, the bites were more numerous than on a plain. More men suffered from insect wounds and snake bites for a given period of time at our base camp on the outskirts of McAllen, than for the same period of time on the plains of Palo Alto.

Red ant bites were numerous, and when a person was bitten in a number of different places an annoying irritation and smarting sensation was produced. Tincture of iodin painted over the area relieved the condition in a few minutes.

Scorpions (*Scorpionidea*), of the *Arachnida* group, caused many troublesome bites. Scorpions vary in length from 1 to 4 inches, and are composed of a cephalothorax united to the abdomen by a broad base, the body elongated and plainly segmented and narrowing to a tail containing a vesicle with a sting. Two palpi emerge from the cephalothorax, one on each side, and end in two pairs of claws. They have about eight eyes and the same number of legs. A small white area resulted from the bite which required, as a rule, several applications of tincture of iodin.

Of the many varieties of spider bites, the most severe was that caused by the tarantula (*Theraphosidae*), of the *Arachnida* group. These vary in length from 1 to 5 inches, with the body and legs covered with long, black hair, and are slow in moving but quick to strike. They produced white, raised, swollen areas, about an inch in diameter with a smarting, stinging sensation. The earlier bites were treated with iodin, but later more instant relief was obtained from the use of equal parts of spirit of ammonia and water applied as a wet dressing. No constitutional effects were seen.

Centipedes (*Chilopoda*), of the group *Myriapoda*, were not so numerous. The largest, seen in the possession of a Texan, was 6 inches long. Each of its many segments has a pair of legs, and the poison comes from a large pair of jaws under the head, which is developed from the second pair of legs. Two bites were seen and quickly incised and drained and a wet mercuric chlorid dressing applied. No constitutional symptoms resulted.

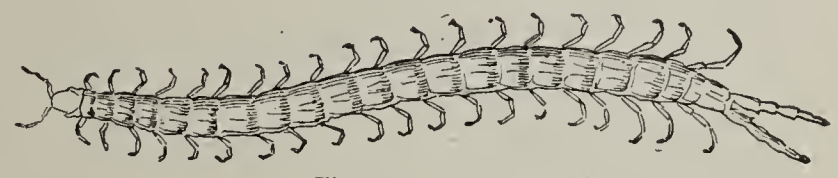


Fig. 3.—Centipede.

The Texas rattlesnake (*Crotalus atrox*) and the diamond rattlesnake (*Crotalus adamanteus*) are so similar that the term "Diamond-backed" is commonly applied to rattlesnakes in Texas. It seems to be questionable whether or not they belong to separate classes, though the shapes of their heads differ and the Texas rattlesnake is not so good a swimmer as the diamond rattlesnake. The latter lives in the southeastern part of this country, from Florida north to the Carolinas and west to the Mississippi Valley. The Texas rattlesnake occurs in the arid portion of Texas, parts of southern New Mexico, Arizona and northern Mexico. They are frequently seen in cactus fields; the largest was 7½ feet in length with fourteen rattles, and its skin is now in the possession of Capt. Louis Kuntz of the Second New York Field Artillery. The rattles end in a cone-shaped cup or button. The snake's projectile range is about one third of its length, and its striking range about one half its length, accompanied by a forward thrust of the head and neck. It is possessed of movable fangs at the anterior end of the upper jaw which are erected coincidentally with the forward thrust. Pressure by the muscular apparatus of the jaw causes an expulsion of venom from the poison sac along the unsheathed fangs and into the wounds. As the fang points frequently diverge, it is a combination bite and blow, the wounds usually being larger than similar incisions from curved needles. The wounds are about five-eighths inch apart and from one-half to three-quarters inch in depth, accompaned by a small amount of bleeding.

Six cases of rattlesnake bites came to my attention, varying in severity, the most severe occurring in a "guard" who had captured the snake with a forked stick, and insisted on picking it up with his bare fingers. He received a bite on the middle finger of the left hand, the fangs penetrating to the bone, and was seen about five minutes after the occurrence.

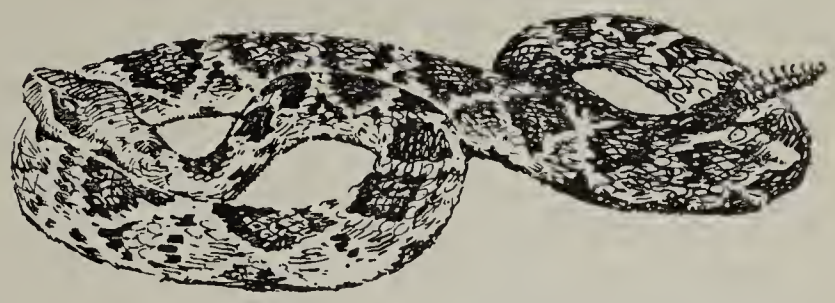


Fig. 4.—Texas rattlesnake.

The finger was swollen, the fang marks plainly visible, with a little dark red blood oozing from the two openings. A tourniquet was applied over the upper arm, and two incisions about 1½ inches long made over each fang point, which allowed about 2 ounces of dark red blood to flow. Five per cent. tincture of iodin was painted in the wounds, and the fingers, forearm, and arm bandaged with a mercuric chlorid wet dressing. The tourniquet was loosened and tightened every twenty minutes for two hours. The entire arm up to the tourniquet became swollen about one and a half times its normal size with a bluish-red discoloration, somewhat painful, and causing considerable anxiety to the patient, but no

constitutional symptoms. Repeated mercuric chlorid applications were made, and strychnin sulphate, one-thirtieth grain, given by mouth and repeated in half an hour. Aside from slight stiffness in the bitten finger, the patient made an uninterrupted recovery.

In five other cases, from five to twenty minutes elapsed between the time of the rattlesnake bites and the time they were treated, and all the patients recovered without any serious manifestations.

719 West One Hundred and Eightieth Street.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1478*)

HYDRONEPHROSIS

This condition — a dilatation of the renal pelvis — can occur only as the result of some obstruction in the ureter. Such an obstruction may be due to an impacted calculus, a coagulum of blood, congealed pus, some tumor growth pressing on the ureter, a twist of the ureter caused by looseness of the kidney, or to long continued distention of the bladder. An obstructed ureter will rarely be found as a congenital condition. The longer such a dilatation of the pelvis of the kidney continues, or the more frequently such a condition occurs, the greater the injury to the kidney structure. Frequently, if the pressure of urine in the kidney becomes sufficiently great, it will either straighten a twisted ureter or dilate the ureter around an obstruction, and the kidney will empty itself into the bladder. If the calculus or other obstructive substance plugs the orifice of the ureter and is soon displaced, dilatation of the pelvis may not occur and such plugging may not recur although the calculus may still remain in the pelvis of the kidney. Any sudden obstruction or a twist of the ureter does not always lead to dilatation of the kidney pelvis, as the associated kidney congestion and a diminution of the excretion of urine sometimes prevents this. Repeated obstruction, however, will generally cause a hydronephrosis.

Anything that causes prolonged distention of the bladder, whether due to an enlarged prostate or to some urethral obstruction, may cause a hydronephrosis of one or both kidneys. A readily movable kidney may have a more or less dilated pelvis, even when Dietl's crises do not occur, although in this condition alone real hydronephrosis does not often occur. A gradual dilatation of the pelvis of the kidney may cause an abdominal discomfort from the weight and pressure on the adjacent organs, but perhaps no real pain. The polyuria following a Dietl's crisis is due not only to the outflow of retained urine in the pelvis of the kidney, but also to an increased secretion from the irritated kidney.

Hemorrhage into the pelvis may cause its dilation and a subsequent distention from plugging of the ureter. Such blood may come from a tumor, or from varices in the pelvis or calices of the kidney.

When the flow of urine is suddenly obstructed, shock may occur, as in renal colic, and the temperature may rise, as it usually does when the obstruction is caused by a plug of pus from a pyelitis or from a coagulum from a bleeding kidney. The more serious the cause of the obstruction, the more frequent become the attacks of acute hydronephrosis, pain, etc.

Urinary signs ordinarily do not occur when external pressure or a twisted ureter is the cause. If there are renal calculi, if the kidney is bleeding, or if there is pyelitis, the urine will show blood, or pus, or both.

There may be no absolute obstruction to the flow of urine, and yet the conditions may cause sufficient damming back to produce a dilated pelvis. This condition is discovered by cystoscopy, the passage of the ureteral catheter and by ascertaining how much fluid the pelvis will contain. Long continued irritation of a ureter may cause sufficient narrowing to prevent the passage of a ureteral catheter; or a constricted ureter may be congenital.

The sensation of pain when fluid is injected into the pelvis of the kidney will indicate when the pelvis is full. Although there is a difference of opinion as to the amount of liquid a normal pelvis should contain, it is probable that anything over an ounce (30 c.c.) should be considered abnormal.

While a large hydronephrosis may ordinarily be diagnosed by physical signs and symptoms, pyelography, the injection into the pelvis of the kidney of a solution that will give definite roentgenographic pictures, will positively determine the size of a kidney pelvis, and the relationship of an abdominal tumor to the kidney.

That any obstruction which causes a hydronephrosis may seriously impair the kidney structure has been shown experimentally, and Keith and Snowden[119] found that experimental hydronephrosis soon caused albuminuria, decreased phenolsulphonephthalein and lactose excretion, and increased the nonprotein nitrogen of the blood, causing renal insufficiency. Death may result from this condition, unless the other kidney is in perfect health. It should also be recognized that a hydronephrotic kidney may readily become infected.

The kidney probably becomes painful only when its pelvis is irritated, or when there is an irritation near its capsule. Consequently, disturbances located in the secreting kidney substance are rarely painful. One of the most frequent causes of kidney pain is distention of the pelvis perhaps by a calculus. Just how much distention the pelvis may tolerate without pain may be variable, but as previously stated, more than an ounce of fluid, sometimes less, will cause kidney ache, if not actual kidney pain. The patient may get relief at night from kidney pain due to pelvic distention or pelvic irritation only by lying on the affected side, so that the respiration will not cause as much movement of this kidney. Kidney pain and distress, accompanied by a diminished amount of urine, followed by the passage of a large amount of urine with relief from distress, points strongly to obstruction of the ureter and a dilatation of the kidney pelvis.

At first such pain is referred to the lumbar region, and a tender point is discovered between the last rib and the erector spinae muscles, the point of tenderness being about the size of the end of the thumb. This pain is stabbing and severe, and may cause vomiting. As the kidney pelvis distends more and more, there is more general abdominal discomfort, and the pain and ache is diffused over the whole side and lumbar region. As the pelvis reaches its full capacity, distress is referred to the abdomen, more, of course, on the affected side, and the symptoms become more like those of renal colic; but the acute obstruction is likely to be shorter than that of a renal colic as the

119. Keith, N. M., and Snowden, R. R.: Functional Changes in Experimental Hydronephrosis, Arch. Int. Med., February, 1915, p. 239.

fluid forces its way downward. The pain is increased on standing up by the drag of the heavy kidney, and is lessened on lying down. The pain may be as agonizing in Dietl's crisis as a renal colic. The pain, if right sided, may be referred to the gallbladder region, to the appendix or to the pelvis, and render diagnosis difficult, at least while the pain is acute. But a tumor in the kidney region, or a movable tumor, with the history of the case, will generally prevent an unnecessary immediate operation. In a doubtful case the patient should be anesthetized and a ureteral catheter passed to ascertain whether there is an obstruction and whether relief can be given. The diagnosis can thus be cleared.

It is self-evident that recurring dilatations of the pelvis of the kidney or more or less permanent hydronephrosis should not be allowed to occur as the kidney structure may become permanently diseased, pyelitis may result, and the kidney may become useless. It should also be remembered that serious irritation or inflammation of one kidney cannot occur without danger of involving the other kidney.

Of course it is recognized that when the abdomen is fat, ordinary physical examinations and even ordinary roentgenograms of the abdomen may not make the diagnosis clear, and that cystoscopy, ureteral catheterization, pyelography, and perhaps even exploratory laparotomy are necessary to make the diagnosis positive.

(*To be continued*)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SOFOS.—A mixture of sodium dihydrogen phosphate and sodium hydrogen carbonate (sodium bicarbonate), rendered stable by coating the particles of one of the constituents with disodium hydrogen phosphate. One part of sofos has the same phosphate value as 1.75 parts sodium phosphate, U. S. P.

Action and Uses.—When sofos is treated with water, sodium phosphate (Na_2HPO_4) is formed and carbon dioxide is set free. (The reaction does not go to completion, some sodium dihydrogen phosphate remaining; but this is not considered important, as primary phosphate is also formed when sodium phosphate is taken into the acid gastric fluid.) Sofos has the physiologic action of sodium phosphate. It is claimed to have an advantage over the effervescent sodium phosphate preparations in that it is free from citrate or tartrate.

Dosage.—For adults, from 5 Gm. to 15 Gm. (from 1 to 4 drachms) in a glassful of water, taken before effervescence ceases.

Manufactured by the General Chemical Company, New York City. U. S. patent No. 1,037,078 (Aug. 27, 1912; expires 1929) and No. 1,150,901 (Aug. 24, 1915; expires 1932). U. S. trademark applied for.

Sofos is a white powder, having a slightly acid taste. It is permanent in dry air. On the addition of water, effervescence occurs with formation of secondary sodium phosphate and evolution of carbon dioxide. (When treated with water at room temperature, about 70 per cent. of the available carbon dioxide is liberated; when treated with human gastric fluid, about 93 per cent. of the available carbon dioxide is set free.)

Assay.—Dissolve about 0.5 gm. of sofos, accurately weighed, in 100 Cc. of water, and, after effervescence ceases, acidify with a small excess of hydrochloric acid. Boil the solution until the carbon dioxide is removed, cool and render ammoniacal. The phosphorus content is then determined in the usual manner, weighing as magnesium pyrophosphate. The amount of phosphate radical (PO_4) present should not be less than 46 per cent.

Special Article

THE MEDICAL OFFICER OF THE ARMY

VI

FIELD SERVICE REGULATIONS

These regulations are solely for the government of the army in time of war, while at maneuvers or in other exercises simulating warfare. Regulations of any kind written for peace times cannot, of course, readily be applied to war conditions. Therefore, new rules must be prepared. If these rules have been prepared before war takes place, officers entrusted with the carrying out of the regulations have already become familiar with them. The rules have the same interest to the medical officer as to the line officer, and the subject requires careful consideration by every one on his entrance into the service.

These regulations will be discussed as they are arranged in the "Field Service Regulations." The first chapter treats of the land forces of the United States. According to the present laws these land forces consist of the Regular Army, the National Guard and any other forces called into service in time of war. These forces are divided into the mobile army and the coast artillery, the mobile army consisting of troops which are to be used in actual field operations, and the coast artillery of special troops for service in manning the coast fortifications of our country.

THE DIVISION

The unit of the mobile army is the division. It consists in round numbers of 28,000 men, and is a self-sustaining unit in that all branches of the service are represented and each branch takes its proper position. In each division are nine regiments of infantry, two of field artillery, one of cavalry, one of engineers, one battalion of signal corps, four ambulance companies, four field hospital companies, and the proper supply trains. Three or more of these divisions may be formed into an army corps under the control of a corps commander. Though the coast artillery is not a part of the mobile army, certain regiments, preferably of infantry, may be detailed as coast artillery supports. Their duty is to protect the fortification from attacks by landing parties while the coast artillery itself is serving the guns of the fortification.

TABLES OF ORGANIZATION

The details of the formation of the different parts of the division and the field army are laid down in the "Tables of Organization." These give the personnel and transportation of all regiments, battalions or other units, with their proper distribution.

MILITARY INFORMATION

The next chapter treats of military information. While this information is primarily of interest to the line, and relates to the enemy, his strength and location, still, for the proper handling of the medical department in the field, the service of the channels of military information is necessary. It is important, first, to obtain reliable information in regard to the local resources of the towns and cities with reference to their ability to accommodate large numbers of sick

and wounded, and to furnish medical supplies in sufficient quantity; also to obtain a knowledge of the roads, railroads, and the general sanitary condition of the territory in which operations are conducted. This information is obtained by air and cavalry reconnoissance in addition to the services of spies and secret agents.

From a medical standpoint, the cavalry reconnoissance work is especially interesting. This cavalry may be independent of the division and serving directly under the corps commander, or it may be divisional and a part of the cavalry regiment assigned to each division. From the nature of the work it can readily be understood that great difficulty is encountered in properly caring for and evacuating the wounded. Medical officers and sanitary troops are with each cavalry regiment, but no ambulances can be depended on to keep up with a rapidly moving mounted command. Any wounded must therefore receive first aid and then be left at some farmhouse or other convenient place until removal farther to the rear. The wounded are made as comfortable as possible, and, if necessary, an enlisted man is left with them to administer to their wants until they are taken in charge by the sanitary personnel of the foot troops marching in rear or are picked up by the cavalry on its return.

THE ADVANCE GUARD

With all moving commands, security is an important factor. If the command is advancing, advance guards are provided. The advance guard consists of from one twentieth to one third of the entire command. The larger the command the larger the advanced guard in proportion to the total force. A division, for instance, has an advance guard consisting normally of one brigade — three regiments — of infantry, one battalion of artillery, one squadron of cavalry, one company of engineers and one ambulance company. This is known as a reenforced brigade, and marches a mile or more in front of the main body. The advance guard is divided into three parts: the advance party, consisting of a few men thrown out in front, the support and the reserve, the reserve containing the major portion of the advance guard and being its rearmost portion of the advance guard. The ambulance company, which is usually minus its transportation, this having been left back with the trains, follows directly in the rear of the reserve. The necessity of having an ambulance company in this location is great. The advance guard frequently becomes engaged long before the main body can be placed on the firing line. Therefore some assistance greater than that furnished by the regimental detachments must be provided. The ambulance company so assigned will establish a dressing station, if necessary, and as long as required, and rapidly collect the wounded so that their further evacuation can be facilitated.

THE FLANK GUARD

When a command is moving in such a way that the enemy is liable to attack their flank, a flank guard is used to protect the column. This flank guard may consist of any number of men, and has with it its proper proportion of sanitary troops on the basis, as a rule, of one ambulance company to a brigade. This ambulance company follows in the rear of the last combatant unit of the flank guard, and in case of engagement, will act in the same way as the ambulance company assigned to the advance guard.

THE REAR GUARD

When a command is retreating and a rear guard is formed, sanitary assistance must also be provided. Wounded occurring in an advance guard engagement can be more readily handled than the wounded occuring in rear guard engagements. The main body in the former is coming forward, and the regular divisional evacuation service can take care of them; but with the latter the whole command is retreating, and if the wounded are not carried with them they will fall into the hands of the enemy. Therefore, not only must this ambulance company with the rear guard have its ambulances with it, but also, if heavy fighting is liable to occur, more than one ambulance company to a brigade will sometimes be necessary. The wounded are succored and rapidly placed in the ambulances to be removed farther to the rear.

THE FIELD ORDER

General and special orders have been explained in these articles, but a type of order used only in the field is outlined here. This is called a field order and has a certain, regular form. It is, as a rule, divided into five paragraphs. The first paragraph gives information of the enemy and of our own troops that the commander desires to publish. The second gives his general plan of operations. The third specifies what each combatant unit of his command is to do. The fourth outlines the specific duties of the sanitary troops, and the location of the supply trains. The fifth shows where the commander himself can be found.

CONDUCT OF MARCHES

The next chapter of the "Field Service Regulations" outlines the conduct of marches. From a sanitary standpoint, marches are of great interest. In the first place, the sanitation of the area through which the march is conducted must receive attention from the medical officers. The habits of the men, water supply, and disposal of wastes while on the march are problems of more or less gravity, and if time permits, the greatest care is necessary to see that the men themselves are kept in the most perfect physical condition possible. With an infantry command, the feet of the soldier must be looked after carefully. Before the march takes place, a foot inspection is held to eliminate those unable to stand the hardships of the march and to correct any defects noted. After each day's march, any sore feet must be promptly treated so that as few men as possible will have to drop out. Furthermore, the care and evacuation of the sick occurring during a march constitutes sometimes a problem of great gravity. While the command is in motion, all men taken sick are permitted to leave the ranks and are picked up by the ambulances following behind. When the movement is not in the presence of the enemy, ambulances are distributed throughout the command in the proportion of one to a regiment, and this ambulance follows directly behind the unit to which it is assigned. When camp is reached immediate arrangements must be made for the care of these sick and also any sick that may occur during the stay at

this camping place. This, of course, is placed in the hands of a field hospital company specially detailed for the purpose, but it is not contemplated that this field hospital should pitch its tentage. Some farmhouse or other building suitable for the purpose and conveniently located is taken over as a temporary hospital, and only such supplies as are absolutely necessary for the care of the sick are unpacked from the wagons. When the command moves off the next day, the field hospital company does not remain, but leaves only sufficient personnel to care for the sick until the service of the line of communications can come forward and remove them to hospitals in the rear.

SANITATION OF CAMP SITES

The usual march, whether in peace or in war, begins early in the morning; and before the command leaves camp it is the duty of the medical officers attached to see that the sanitary condition of the camp site is satisfactory. It must be understood that in war operations camp sites may be occupied by a number of different commands, one after another, and that their sanitary condition must be good at all times.

RATE OF MARCH

The rate of march for infantry or any other foot troops is from 2¼ to 2½ miles an hour, and the length of the average daily march is 15 miles; but with large bodies of troops, consisting of a division or more, 12 miles a day is about all that can be accomplished. After the command has been on the road for an hour, a halt of from fifteen to twenty minutes is allowed so that the men can attend to the calls of nature. As a rule, during every succeeding hour a ten minute halt is allowed.

POSITION OF THE SANITARY UNITS

When a division is on the road, the sanitary units are assigned to a regular position in the line of march. One ambulance company, as has been shown, accompanies the advance guard; the other three companies follow the last combatant unit of the main body. The field hospital companies are with the trains, and their position in the trains depends on whether the march is conducted in hostile territory or at a time when no fighting is expected. In the former case they precede all of the trains but the ammunition train; but in the latter case the field trains which contain the rations and baggage of the regiments come first, as they will be needed first, and the field hospital companies follow immediately after them.

CARE OF THE SICK IN CAMP

When camp is made, in addition to the question of camp sanitation, which must receive careful attention at all times, the care of the sick must also be provided for. It has been shown that a temporary hospital is established and the sick requiring hospital attention are moved to this hospital; but other arrangements must be made for those cases which require only slight attention. To do this camp infirmaries are established in the proportion, as a rule, of one to a brigade, and they are located at a point convenient to all of the regiments of this brigade. The camp infirmary is nothing but a small dispensary. A wagon is provided to carry its supplies and there is a noncommissioned officer in immediate charge of the equipment, but the personnel to look after the sick brought to this camp infirmary must be provided by the regiment which it serves. The sick are brought to the infirmary, and either receive treatment or are removed to the temporary camp hospital by an ambulance company detailed for the purpose.

SANITARY SERVICE IN COMBAT

Combat is offensive or defensive. The offensive combat may be either a rencounter engagement or a planned attack. In the rencounter the enemy is encountered usually first by the advance guard, and the other units of the command are fed into the battle line as required without any previously planned procedure. In the planned attack, on the other hand, the enemy's location is positively known and a regular plan is made beforehand for the entire attack. With either form of attack the ambulance companies are not used at once, but dressing stations are established only when required, and then where the wounded are thickest, and not equally throughout the entire command. In a defensive engagement, on the other hand, a different procedure can sometimes be followed. If a defensive position is taken with prepared fortifications and a determination to hold this position, dressing stations can be established beforehand and prepared for the reception of the wounded. This is the procedure that has been carried out in the fighting in Europe on the western front. If the engagement, whether offensive or defensive, has been unsuccessful, efforts must be made by the sanitary troops to remove all the wounded possible in the transportation at their command; but frequently this is impossible, and collections of wounded, or even entire field hospitals filled with wounded, must be left in the hands of the enemy. If this is done, sufficient personnel must be provided to care for these wounded until the enemy himself can take over the work. In case of a successful issue of the engagement, the police of the battlefield must receive attention. The removal of arms, ammunition, guns, etc., is naturally in the hands of the line, but the sanitary service must remove the wounded as rapidly as possible. If the fighting has been severe and the casualties heavy, the sanitary personnel may be insufficient for this work, and in that case assistance is requested from the line, and battalions or even regiments may be detailed to help in this work. It must not be understood that this assistance can be always counted on. Frequently the whole command rapidly moves off to the pursuit of the fleeing enemy, leaving the sanitary service to perform its duties as best it can. The dead are buried by line troops detailed for the purpose, but a medical officer is usually provided to see that this burial is done in a thoroughly sanitary manner.

(*To be continued*)

Extempore Speaking.—In Grant Duff's *Notes from a Diary* (1896 to Jan. 23, 1901) he records that he asked the Bishop of Ripon whether he had not very exceptional facility in extempore speaking. The bishop said, and with justice, that real extempore speaking is very rare; in nine cases out of ten what appears to be extempore has been prepared long before, and laid up unconsciously in the recollection. He went on to cite an answer made about a sermon which had struck one of the listeners very much. 'I wonder how long it took to prepare that sermon?" The answer was, "Fifty years."—*Brit. Med. Jour.*, Jan. 27, 1917.

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SATURDAY, MAY 26, 1917

EPIDEMIC MENINGITIS AND THE ARMY

Of the acute infectious diseases none is feared more than epidemic meningitis, and justly, because of the frightful death rate, to say nothing of the suffering and disability. Even under the most favorable circumstances, which means the prompt intraspinal use of potent antiserum, it has not been possible to reduce the death rate much below 30 per cent. Consequently the importance of prevention cannot be overstated. The conditions in military camps and garrisons clearly favor outbreaks among soldiers, as shown repeatedly in the course of epidemics, and most recently by the outbreaks among British and Canadian troops. About 1840 the disease was carried from one end of France to the other by the movements of a certain regiment of infantry in which the infection had established itself.[1] Like diphtheria, epidemic meningitis is spread by contact with the sick and with healthy carriers, and as the meningococcus carriers are always more numerous than the meningitis patients and move about freely (unless detected and detained), the carrier undoubtedly is the most important agent in spreading the disease. The presence of an occasional carrier among troops or under other conditions which bring people into close contact may result in the development of a large number of more or less temporary carriers of which a certain number for various reasons not clearly understood fall sick of the disease.

That carriers far outnumber the patients has been established by numerous observations: for example, of the sixteen room-mates of a soldier stricken with meningitis, ten were carriers; and recently in England as many as 400 carriers have been found at one time in large garrisons in which the development of cases of meningitis led to systematic bacteriologic examinations of the nasopharynx of large numbers of men. The occurrence of epidemic meningitis is thus direct evidence of the presence of carriers. Naturally, in crowded quarters, a long chain of carriers may be formed, link by link, and we realize the great importance of preventing the establishment of starting points for such chain carriers, any single one of which may convey the meningococcus to susceptible persons and be the means of setting on foot meningitis in previously nonepidemic places.

In England the spread of epidemic meningitis among soldiers (and through soldiers to the civilian population) has been combated with conspicuous energy and success. In addition to prompt isolation of patients, segregation and examination of all contacts with detention of those found to be carriers until free from meningococci have been carried out systematically and in some instances on a very large scale. For the purpose there was established a central laboratory and some thirty-seven district laboratories. One problem that arose was that of an efficient culture medium easily prepared in the large quantities needed. As the meningococcus requires for prompt growth certain special substances hitherto supplied by the use of ascitic fluid or blood, neither of which under the circumstances was procurable in sufficient quantities or sterile, the blood having the drawback also of making the medium opaque, Gordon and his associates solved the problem by working out a pea extract trypsin agar which answers the purpose satisfactorily.[2] In most of the carriers the meningococci disappear in a short time, but in some they persist longer, and interesting experiments have been made (Gordon and associates) on the effects of inhalation by carriers of nebulized disinfectants, chloramin in from 0.5 to 1 per cent. solution apparently giving the most promising results. The meningococcus is little resistant to disinfectants, but as it is found chiefly in the nasopharynx, the question is to reach all its parts. In making cultures, the posterior wall of the pharynx must be swabbed, and in Foster and Gaskell's useful book a special swab constructed for this purpose is described. These authors also give in detail the various points considered by British workers in the differentiation of the meningococcus from other gram negative cocci in cultures from the nasopharynx; but this question cannot be discussed further now except to mention that Gordon believes there may be four definite and permanent groups of meningococci determinable by agglutination with immune serum for each group. If this proves true, a great step in advance will have been made, not only in the diagnosis of cultures from the throat, but also, we may hope, in the preparation of potent immune serum for therapeutic purposes, in which case the determination of the particular group to which belongs the meningococcus concerned in the given instance of meningitis would have to be made by agglutination tests or other means in order that the proper antiserum might be injected. We know from earlier work that the meningococci fall into distinct groups, and it seems altogether reasonable that by following such grouping, improvements both in diagnosis and serotherapy may result.

1. Foster and Gaskell: Cerebrospinal Fever, Cambridge, 1916.

2. Gordon: Jour. Roy. Army Med. Corps, 1915, **24**, 455; Brit. Med. Jour., 1916, **2**, 673 and 678. Foster and Gaskell (Footnote 1).

The special object at this time is to direct attention to the situation in this country. Epidemic meningitis is now prevalent to an unusual degree in various places — in Philadelphia, Cleveland, St. Louis, Hartford, Minneapolis, New York, Chicago and elsewhere[3] — a matter of great importance in itself and of additional concern because we are about to establish a large number of training camps for soldiers. The question is, Are we as well prepared as we ought to be to prevent the spread of epidemic meningitis in our cities and communities and to keep it out of our military encampments? If not, steps should be taken immediately by civilian and military authorities to arrest the spread of the disease by isolation and proper treatment of the sick and by detection and confinement of all carriers until free from meningococci.

THE PITUITARY IN CHRONIC POLYURIA

To the publications of Sir Edward Schäfer and his collaborators in Edinburgh is due the widely published and generally accepted statement that extracts of the posterior lobe (including the pars intermedia) of the pituitary gland produce diuresis. The pituitary is also one of the few sources of substances reported to produce an increased flow of milk from the mammary gland. This alleged galactogogic function has, however, been challenged and denied,[4] and the experiments to ascertain the diuretic potency have given far from concordant results. The actual statements based alike on human and on animal experiments are frankly contradictory.

There are many evidences of some sort of connection between the pituitary body and renal activity, but the tradition of the diuretic effect has persisted as the expression of this relationship. Experiments by S. A. Matthews showed that in careful extirpation of the posterior lobe by Aschner's method[5] there results often an enormous polyuria, or diabetes insipidus. A dog of 4 kg. may secrete as much as 3 liters (quarts) of urine a day. This is not accompanied by any lowering of sugar tolerance, nor is the operation followed or accompanied by glycosuria.[6] This result of removal of pituitary function does not speak for a normal diuretic function on the part of the pituitary, but gives indications of a contrary influence. In harmony with it, K. Motzfeldt[7] has come to the conclusion that the pituitary body, as shown by its extracts, exerts a constant, physiologic influence on the functional activity of the kidneys in human beings. This action consists in a checking of the flow of urine — an antidiuretic effect which is most marked when the diuresis is high.

Motzfeldt's researches, carried out in the Laboratory for Surgical Research at the Harvard Medical School, indicate that the inconstant and conflicting results of the past in respect to the relation of pituitary extracts to renal function are attributable to unsuitable methods of study. After producing typical polyurias experimentally he was able to check them definitely with extracts of the pars intermedia and posterior lobe of the hypophysis, given orally, subcutaneously or intravenously. Extracts of the anterior lobe show a similar effect, but only to a slight degree.

This constant antidiuretic effect, which is independent of changes in blood pressure or intestinal absorption, is similar to that produced by beta-imidazolylethylamin (histamin), para-oxyphenylethylamin (tyramin), small doses of nicotin, large doses of caffein, and by extracts of the suprarenal cortex. These amins are at present believed to have a general stimulating effect on the sympathetic nervous system. The antidiuretic potency is practically absent in any attempt to check so-called salt diuresis. These facts are interpreted to signify that the antidiuretic action exerted by pituitary extracts, in the cases studied, is caused by the stimulation of the sympathetic nervous system, and that the renal vasomotor system in this respect is of chief importance.

For many years diabetes insipidus, or chronic polyuria, has been associated by clinicians with vasomotor disturbances. Motzfeldt believes that the new points of view formulated by his studies "bring the polyurias related to disorders of the nervous system and the polyurias of pituitary origin in closer contact." From the standpoint of the clinic one thinks at once of the possible use of the posterior lobe extracts in the management of suitable chronic polyurias — an application of organotherapy which has already been attempted.[8]

CONNECTIVE TISSUE CELLS AND PHAGOCYTOSIS

The importance of phagocytosis in the defensive reactions of the organism certainly has not become diminished through the newer investigations in the field of immunology. It is not only in the protective responses of the body against bacteria that the phagocytic powers of body cells are brought into play; they are said to accompany the involution of certain organs and to attend various atrophic changes in tissues, acting there in the capacity of scavengers which remove and destroy the discarded débris.[9] The phagocytosis exerted by some of the white blood cells is well appreciated, but it is not so generally known that other cells of the circulating medium can digest foreign particles.

Metchnikoff distinguished between the "motile" and "fixed" phagocytes, the former the leukocytes of the

3. Public Health Reports, 1917, **32**, 639.
4. Pituitary Extract and Milk Secretion, editorial, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2292; Some Aspects of Lactation, Nov. 27, 1915, p. 1918.
5. Aschner: Ueber die Funktion der Hypophyse, Arch. f. d. ges. Physiol., 1912, **146**, 1.
6. Mathews, A. P.: Physiological Chemistry, 1915, p. 648.
7. Experimental Studies on the Relation of the Pituitary Body to Renal Function, Jour. Exper. Med., 1917, **25**, 153.
8. Motzfeldt, K.: Hypofyse og diurese, Norsk Mag. f. Lægevidensk. 1914, **75**, 1292.
9. Compare Zinsser, H.: Infection and Resistance, New York, 1914, from which some of the statements made above are taken.

blood, the latter certain connective tissue cells, endothelial cells, splenic pulp cells, and certain cellular elements of the lymph nodes, the neuroglia tissue, and, in fact, all phagocytic cells which are ordinarily confined to some definite localization in the body.[9] The latter groups are regarded as the ones concerned more particularly with the management of cellular detritus. It is thus evident that phagocytosis has been ascribed to a considerable variety of cells.

Zinsser has intimated that the identification of these structural elements in tissues is often a purely morphologic problem fraught with many possibilities of error. He ventures the assertion, nevertheless, that from a standpoint of phagocytic potency probably the most active fixed tissue cells are the endothelial cells of the blood vessels and those which line the serous cavities and the sinuses of the lymph nodes and the spleen. Among other varieties certain connective tissue cells are included.

Jones and Rous[10] of the Rockefeller Institute for Medical Research agree, likewise, that, in connective tissue, phagocytosis of bacteria and particles of unorganized matter occurs not infrequently. It can sometimes be seen about bacterial foci, and it is common in the neighborhood of old blood extravasations. They point out that such connective tissue as is ordinarily under observation is a congeries of cells of at least two sorts, namely, fibroblasts and endothelial cells from the blood and lymph channels. The latter are, of course, known to have phagocytic power.

Will the activity of such endothelial cells along with that of wandering cells account entirely for the phagocytosis observed in connective tissue? The new methods of Jones and Rous for obtaining individual, living cells from the fixed tissues by tryptic digestion has given an opportunity to make a direct test of the possible phagocytic power of the fibroblasts alone. The phagocytic ability of these suspensions of isolated cells against carmin and bacteria has been tested. The great majority of them, we are told,[10] fail to take up either, but a few large cells are able to do so. They will ingest bacteria only when serum is present; that is, they require the interaction of opsonins.

Jones and Rous[10] now state that there is good reason to suppose that these phagocytic cells are endothelial in nature. Should they prove to be fibroblasts, like the other elements present, the fact will remain that the phagocytic power of fibroblasts is practically negligible. Their failure to ingest foreign matter in vivo is to be laid not to the obstacles offered by the tissues they compose, but to an inherent lack of ability on their part. If these conclusions are valid, the phagocytosis of blood pigment, bacteria, etc., which takes place in granulation tissue is probably carried on wholly by endothelial cells and wandering cells.

10. Jones, F. S., and Rous, P.: The Phagocytic Power of Connective Tissue Cells, Jour. Exper. Med., 1917, **25**, 189.

Current Comment

HAVE YOU ACCEPTED YOUR COMMISSION?

In a letter from the Surgeon General's Office under date of May 17 it is stated that that office has recommended for commission in the Reserve Corps a total of 4,224 men, and that at the time of writing only 1,773 of those commissioned had sent their acceptances to the Adjutant General's Office, leaving 2,451 commissions at this time unaccepted. All these commissions had been out a sufficient length of time for the acceptances to be sent back. In some instances several months had intervened. It must be clearly understood that the receipt of a commission does not complete the enrolment of the medical officer. It is the duty of those men who have made application for commission in the Medical Reserve Corps to accept that commission, unless circumstances have developed in the interim between making application and receiving commission that warrant them in withdrawing their applications. In such cases, a letter to this effect should be sent to the Adjutant General, returning the commission and stating why. We appeal to those who have received commissions and who have not sent their acceptances to the Adjutant General's Office at Washington to do so at once. All that is asked is that the physician act at least in as respectful a manner toward his government as one business man acts toward another. Further, it should be realized that until one is fully enrolled the books, pamphlets, orders and various information that the government supplies to reserve officers will not be sent to him. Thus he will not be prepared when the call does come.

THE DUTY OF THE MEDICAL PROFESSION

In the National Guard, when its quota is full, there will be 433,800 men; in the new regular army there will be 293,000 men, and in the first draft of the new national army there will be 500,000 men. This makes an army of 1,226,800, whose mobilization is practically immediate. Such an army calls for 8,600 medical men as a minimum provision. This includes only the medical officers who will actually be with the army in the camps, and on active duty — not those who may go to Europe with hospital units or the 1,000 men asked for in France, or the large number of medical men that will be required for administrative work. This is possibly but the beginning. The 500,000 called for in the first draft of the new national army may be followed by a second call for 500,000, possibly for a third 500,000, and even it may be for a fourth 500,000, making an army of 2,000,000 men, as has been prophesied will be necessary. In such an event the medical department of the army will call for a total of 20,000 medical officers, which is nearly 15,000 more than have yet been commissioned. There are in the United States approximately 145,000 physicians; consequently less than one in seven is needed even for full preparedness. Is it possible that there shall finally be difficulty in obtaining voluntarily the medical men needed? We cannot believe so. It is inconceivable

that conscription of physicians will ever be necessary. But if we are to get the necessary 20,000 on the volunteer system there must be more eagerness for service shown on the part of our profession than has thus far been shown. THE JOURNAL this week carries a new blank[1] to nearly 70,000 medical men. May every man who receives it and who is within the age limit — under 55 — and physically and professionally qualified, recognize his debt to his country and his responsibility to his profession!

COLONEL GOODWIN AND THE MEDICAL OFFICER ON ACTIVE SERVICE

Colonel Goodwin of the British Commission to the United States has addressed organizations of medical officers in several of our cities, appealing to them for their aid and telling of conditions met on the West front early in the war. Colonel Goodwin took part in the retreat from Mons in August and September, 1914. His description of the action of a cavalry field ambulance in that significant engagement, a time when for ten days troops were continually moving, unable to rest, unable to remove their clothes — a time spent almost wholly in the saddle or on foot — is a narrative which by its simplicity, its statement of cold, inspiring facts, thrilled every audience which has had the enviable opportunity of hearing him. In his story there is one portion which is particularly noteworthy. He describes the days of activity, the terrible fatigue of men and officers, the utter inability to respond with renewed effort to new demands. Then came the time when at last the men were able to halt for rest. The officers did not at once, however, take advantage of this opportunity. The duties of the medical officer, says Colonel Goodwin, are first to take care of his wounded, second, to see that his horses are taken care of. This must be done at once. Otherwise the horses would be neglected "since the men are so dog-tired," as Colonel Goodwin expressed it. Third, the officer sees to it that his men are well fed and quartered. He must think of himself last. On the medical officer fall these responsibilities.

IMMEDIATE DUTIES OF MEDICAL RESERVE OFFICERS

Regularly commissioned Medical Reserve Officers, as well as those who are applying, or who are thinking of applying, for such commission are inquiring as to when they will be put on active duty and what that duty will be. Many letters are received in which the writers express the desire to be ready when the call comes, but do not want to make definite arrangements regarding their practice until they know how soon they may have to respond to the call of duty. It is impossible even for government officials to give the information positively as regards any particular individual. The following is a general statement that may be a basis from which each one may draw his own conclusions: It is probable that many Reserve Corps Officers — those of rather mature age — will be put on active duty to examine recruits. When the examination of these 500,000 recruits actually begins, it will put to the test the "preparedness" of the medical profession. To make a physical examination of 500,000, to give the series of prophylactic injections for typhoid fever and, in the majority of recruits, vaccinate against smallpox, will be an extensive and a serious undertaking. But it probably will be found that nearer 700,000 will have to be examined before the 500,000 "fit" men are secured. Hence we repeat again, the big, immediate work before those of our profession who have volunteered is that of examining recruits. Another point to be considered is this: As they pass their physical examination the recruits will be mobilized in camps to be located in various parts of the country. Some eighteen camps, it is stated, are being selected. To supply these camps will require 3,500 medical officers — that is, seven medical officers for each 1,000 men. These officers, since they have been drawn from civilian life, will have to meet conditions and problems and perform duties entirely different from those to which they have been accustomed — so different that special training and special instruction are positively necessary. Hence these 3,500 men must go through a course of training. Preliminary details for this training, we understand, are now being worked out. There will be three training camps for medical officers, Fort Oglethorpe, Fort Benjamin Harrison, and Fort Riley, each to accommodate 600 men. In addition, smaller groups of medical men will be assigned to, and take their training where reserve officers of the line are taking their special training. As a matter of fact, already quite a number of medical men have been assigned to training camps. Of course the Reserve Officers when trained will be transferred, part to the mobilization camps, and part to assist in the examination of recruits. The men assigned to these camps for training will probably be the younger men — those under 45.

1. For procedure see page 1558.

THE FOOD SUPPLY IN WAR TIME

The maintenance of the food supply of the army and of the civilian population of the country is as important a question as any which confronts our leaders in this time of rapid action and stirring events. In every foreign country food commissions were appointed early in the war to control this problem. A few weeks ago THE JOURNAL[1] emphasized the advisability of appointing at once in this country an appropriate scientific body to advise on these questions. In this issue appears the report of a meeting of the New York Academy of Medicine especially to consider this subject. The speakers, all of whom have been either eye-witnesses of conditions abroad or have specialized in food problems, were wholly agreed on several fundamental propositions. In brief, these were that our people must have a definite quantity of food suitable to their tastes as determined by their usual diet; second, that we must be prepared to supply our allies with all the food that can possibly

1. The Food Supply, editorial, THE JOURNAL A. M. A., April 28, 1917, p. 1262.

be spared after our own needs are satisfied; and third, that our enormous waste of food material must be controlled in some such manner as our allies and the enemy are controlling waste. To control these problems satisfactorily, the aid of scientific men who know what the physiologic needs of human beings are and what various conditions of life demand, must be consulted. In the appointment of a food board such men should have the first consideration. As Graham Lusk says: "The successful accomplishment of this task is the only factor that will save the world in the present situation."

"ABROGATE THE PATENT ON SALVARSAN"

Under this caption we publish this week — in the Correspondence Department — a communication from Drs. Finney and Walker of Baltimore. They present reasons for the abrogation of the patent on salvarsan additional to those given by the committee of the Chicago Medical Society and the St. Louis Medical Society, which were published five weeks ago.[1] Drs. Finney and Walker call for action on the part of medical men — medical societies especially. In a case of this kind appeals, to be effective, should be made to the individual Congressmen or Senators who represent the petitioners. But while resolutions count, individual action is needed also. Furthermore — and we would especially emphasize this — it is not the medical profession that is suffering; it is not the medical profession that has had to pay the enormous price for this product; it is the people. Consequently, appeal should be made to the people to aid in getting justice for themselves in this matter by the action of their own representatives.

URGENT NEED FOR YOUNG MEN FOR THE MEDICAL CORPS

Some weeks ago we called attention to the fact that when the full quota of the regular army, as enlarged by the act of June 3, 1916, was called there would be immediate and positive need for a large increase in the number of permanent medical officers. The call has now been made, and this enlarged regular army will soon be manned and equipped. As enlarged, it will consist of 293,000 men, and will need 2,051 medical officers. There are at the present time, all told, barely 550. The immediate need, therefore, is for 1,500 young medical men who are willing to make the army their chosen field by joining the Medical Corps. The life and professional work of the regular army medical officer has many attractions. It nowadays offers opportunities for the scientifically inclined that it did not offer until recent years. The position is one of honor, one that commands respect, and one that presents many opportunities for the ambitious. Considering the number of men available for the position, there should be no difficulty in securing the needed 1,500. Basing the statement on the number of physicians who have graduated during the last six years, there are at least 20,000 who are eligible, so far as age and professional standing are concerned. The age limit until Jan. 1, 1918, is 34 years; after that, 32 years. It cannot be emphasized too strongly that the needs are urgent, and that those who are considering making application for membership in the Medical Corps should do so at once.

1. The Journal, April 21, 1917, p. 1203, "Abolition of Patents on Salvarsan."

Medical Mobilization and the War

Information Regarding Appointment in the Medical Reserve Corps of the U. S. Army

The Journal this week publishes again a personal application blank for the Medical Reserve Corps. The following facts should be borne in mind:

Qualifications.—The applicant must be a citizen of the United States, between 22 and 55 years of age; a graduate of a reputable medical school; must have qualified to practice medicine in some state, and must be in the active practice of his profession. "Active practice" includes those who specialize in eye, ear, nose and throat, dermatology, neurology, obstetrics, etc.

Procedure.—Note carefully the following procedure: 1. Fill out the personal application blank; read carefully every question before answering it, and write distinctly. 2. After filling out the blank subscribe and swear to it before a notary public or other person authorized to administer oaths. This is very essential; the form is not complete without this procedure. 3. Obtain letters of recommendation from at least two citizens who know you. It would be well if at least one of these were a physician. Then attach these letters to your application blank. Keep copies for your own information and future satisfaction. 4. Communicate with the examining board most convenient to you—a list of boards up to May 17 is printed below—and arrange for an examination. You can send your application blank and letters or take them with you when you appear before the board. When you report to the board for examination, if you have not already done so, present your application blank, your testimonials, your state certificate and if of foreign birth, documentary evidence of your full citizenship.

Examination.—The professional examination for the Reserve Corps is not severe, is oral and practical in character.

Medical Corps.—It must be remembered that there is an urgent demand for members of the Medical Corps. We shall be glad to send application blanks to those who wish to apply for membership in this corps. A physician may be commissioned in the Medical Corps of the Army provided he is between 22 and 32 years of age (34 up to Jan. 1, 1918), a citizen of the United States and a graduate of a reputable medical college. He must have had also at least one year's hospital training subsequent to graduation, including practical experience in the practice of medicine, surgery and obstetrics and will be expected to present evidence to that effect. Whether or not he is married has no effect on his eligibility to the Medical Corps. He must pass a preliminary examination and a final or qualifying examination in accordance with the rules and regulations which may be obtained on application.

War Registration and the New York Session

Under the Selective Conscription Act every male civilian physician between 21 and 30 years of age, inclusive, must register at the place of his permanent residence. This registration must be effected on Tuesday, June 5. This date is the second day of the New York Session of the American Medical Association. Registration for the draft cannot be effected at any other place than the residence of the man registering or at any other time. The regulations, how-

PERSONAL HISTORY OF APPLICANT FOR APPOINTMENT IN THE MEDICAL RESERVE CORPS, UNITED STATES ARMY.

Give your name *in full* (including your full middle name):

The date of your birth: The place of your birth:

When and where were you naturalized (if of alien birth)?

Are you married or single? Have you any children; if so, how many?

What is your height, in inches? Your weight, in pounds?

Give the nature and dates of all serious sicknesses and injuries which you have suffered:

Do you labor under any mental or physical infirmity which could interfere with the efficient discharge by you of the duties of a medical officer?

If either parent, or brother, or sister has died, state cause and age in each case:

Do you use intoxicating liquors or narcotics; if so, to what extent?

Have you found your health or habits to interfere with your success in civil life?

What academy, high school, college, or university have you attended? State periods of attendance from year to year, and whether you were graduated, giving date or dates of graduation:

Name any other educational advantage you have had, such as private tuition, foreign travel, etc.:

Give all literary or scientific degrees you have taken, if any, names of institutions granting them, and dates:

With what ancient or modern languages or branches of science are you acquainted?

When did you begin the study of medicine, and under whose direction? His residence?

How many courses of lectures have you attended? Names of colleges and dates:

When and where were you graduated in medicine?

Have you been before a State Examining Board? If so, state when, where, and with what result:

Have you had service in a hospital? If so, state where and in what capacity, giving inclusive dates of each kind of service:

What clinical experience have you had in dispensary or private practice?

Have you paid particular attention to any specialty in medicine; if so, what branch?

What opportunities for instruction or practice in operative surgery have you had?

Have you previously been an applicant for entry into the United States service? If so, state when, where, and with what result:

Are you a member of the organized militia? If so, state with what organization and in what capacity.

Have you been in the military or naval service of the United States? If so, give inclusive dates of service with each organization, designating it:

In case of war or threatened war, will you accept active service for duty with the Army, should your services be needed?

What occupation, if any, have you followed other than that of student or practitioner?

Present or temporary address: †

Permanent residence: †

I CERTIFY that to the best of my knowledge and belief the above statements are true.

Signature ☞

Date, ..., *191*

Subscribed and sworn to before me, this................day of......................A. D. 191

[SEAL] ....
[Signature and official title.]

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† The candidate should give his present address for correspondence, and also his permanent address to which he desires commission sent should he be appointed.

FORM 149.
W. D., S. G. O.
(Revised March 6, 1912.)

JOUR. A. M. A.
MAY 26, 1917

...., *M.D.,*

OF

....

....

...., *191*

FURNISHES PERSONAL HISTORY,

IN CONNECTION WITH

APPLICATION FOR APPOINTMENT

IN THE

MEDICAL RESERVE CORPS,
U. S. ARMY

..................*Inclosures*

ever, permit a prospective registrant to perform that part of the registration process that is essentially personal in advance of the registration day if he is to be absent from his home on that day. According to information received from the office of the Provost Marshal General, a physician who will be absent from his permanent place of residence on registration day may apply to the county clerk, or to the city clerk if he lives in a community where registration is to be effected on the basis of the city, as a unit, for a registration card. The clerk will prepare a card and deliver it to the applicant. The applicant must then deliver the card filled out or see that by mail or by responsible messenger it is delivered to the chief registrar of the registration precinct in which the applicant would normally register so as to be in his hands not later than June 5. He should leave or send with it a self-addressed stamped envelope so that on registration day the chief registrar can mail him a registration certificate as evidence that the requirements of the law have been complied with. Every physician who is within the class required to register and whose attendance at the New York meeting will compel him to be absent from his permanent place of residence on Tuesday, June 5, should without fail attend to all preliminaries of registration before leaving home.

Physicians to Assist in Registration for Military Service

The President has prescribed certain registration regulations for the registration of June 5.

Registration is to be made primarily on the basis of the county as a unit. In each county or similar subdivision it is to be entrusted to a board of registration, consisting of at least three members, named by the governor. Normally each such board is to consist of the sheriff, the county clerk, and the county physician. If there is no medical officer in the county or other similar registration subdivision, or where the medical or health officer of any such subdivision is not a licensed physician, or where the governor deems it inadvisable to constitute a local medical officer surgeon of the board, the governor may name a licensed physician to act in that capacity. But no member of a registration board may be connected with the military establishment.

Cities of 30,000 population and over are not to be within the jurisdiction of the county board but are to be under the jurisdiction of the mayor or the officer or officers corresponding to the mayor, and such cities may be divided into registration districts of approximately 30,000 population each if it is deemed advisable to do so, a separate registration board being appointed by the mayor, for each such district. A licensed physician is to be appointed on each board.

If a member of a registration board does not volunteer his services without compensation, he will be paid $7.50 as a lump sum for his work, but volunteer service as a matter of patriotism will be welcomed. This compensation will be entirely separate from compensation rendered in connection with the further execution of the law, such as those that will be incident to the making of the selective draft. It is now intended to convert registration boards into boards for the making of the draft, but regulations governing compensation for such services have not yet been formulated.

Medical Reserve Corps Officers Assigned to Active Duty

The following officers of the Medical Reserve Corps have been assigned to active duty at the designated mobilization camps: Capt. Clarence B. Ingraham, Jr., of Denver, Golden, Colo.; First Lieut. Albert W. Lindberg of Hillsboro, Springfield, Ill.; Capt. Hans Hansen of Logan, Fort Des Moines, Iowa; First Lieut. Edward S. Parker of Ida Grove, Camp Dodge, Iowa; Capt. Herbert Atkins of Pratt, Fort Riley, Kan.; First Lieut. Constant M. Colignon of Muskegon, Camp Grayling, Mich.; First Lieut. Harry B. Zimmerman of St. Paul, Fort Snelling, Minn.; First Lieut. Robert R. Glynn of Springfield, Nevada, Mo.; First Lieut. Joseph M. Shramek, Omaha, Fort Crook, Neb.; First Lieut. Hugo Mella of Bismarck, Fort Lincoln, N. Dak.; First Lieut. Benjamin I. Harrison of Cleveland, Camp Perry, Ohio; First Lieut. Lee W. Cary of Winnebago, Camp Douglas, Wis.

First Lieutenants Henry G. Turner of Raleigh, N. C., Thomas M. Chaney of Winston-Salem, N. C., Nuckols T. Davie of West Blockton, Ala., Charles T. Grier of Carthage, N. C., and Charles W. Armstrong of Troy, N. C., have been assigned to active duty and ordered to report in person to the commanding officer at Fort McPherson, Ga. Capt. Frederick T. Harris of Lewiston, Idaho, has also been assigned to active duty and has been ordered to report by telegraph to the commanding general of the Western Department.

See That Your Patients Register

On June 5 every male person in the United States between the ages of 21 and 30 years, both inclusive, who is not an officer or enlisted man in the Regular Army, the Navy, the National Guard, or the Naval Militia, in the service of the United States, must be registered. Ordinarily a person who is to be registered must present himself in person at the registration booth for that purpose. Any one who on account of sickness is unable to do so may cause some suitable person to apply to the county or the city clerk for a copy of the registration card and for authority to fill it out. If satisfied that the case is bona fide, the clerk will deputize the person applying for the card to make the proper entries on it and to fill out the registrar's report that the card calls for. The card is then to be mailed by the sick person, or delivered by his agent, to the registrar in the sick person's voting precinct in time to reach there by the day set for registration—June 5. The sick person should enclose with his registration card, if he mails it, a self-addressed stamped envelope, in order to enable the registrar to send him the registration certificate, as evidence of having registered. Physicians should bring this matter to the attention of their patients, and cooperate with them in obtaining registration.

Offering Service With Provisos

A recent letter from the office of the surgeon-general of the army says that a large number of medical men are offering their services "in case of emergency" and for "their specialty only." It should be made plain that the emergency has already arrived and that the department is in urgent need of every qualified medical officer it can obtain and that men who accept commissions in the Medical Reserve Corps must be ready for active duty of such character as the exigencies of the service may demand; that there will be for all of them a great deal to learn in addition to professional knowledge which they now have, whether they are specialists or general practitioners. It should be quite as easy for the specialist to learn his other duties as a medical officer as it will be for the large number of men throughout the country who are accepting line commission without any knowledge at all of the military service. "If you can, through the columns of THE JOURNAL," says the letter, "explain this matter to the profession at large, it will save this office a very great deal of unnecessary correspondence and may avoid dissatisfaction among those who are tendering only qualified services."

Protecting the Practice of the Absent Physician

THE JOURNAL has received the following inquiry from a Virginia physician:

"Will you please send me the outlines of one or more plans that have been adopted or suggested for looking after the practice of those in this city who may enlist in the Medical Reserve Corps? I have the honor of being chairman of a local committee to suggest such a plan to the local society and would like to know what others have done."

ANSWER.—The following is a list of references on this subject which have appeared in THE JOURNAL:

Punishing Patriotism. April 14, 1917, p. 1131.
Offers Services to Soldiers' Families. April 21, 1917, p. 1190.
Resolutions by the Chicago Laryngological and Otological Society. April 28, 1917, p. 1269.
Will Conserve Practices of Medical Officers. April 28, 1917, p. 1270.
How They Protect the Absent Physician in England. April 28, 1917, p. 1270.
Military Surgeons' Practice to be Protected. May 5, 1917, p. 1331.
The Responsibility of the County Society in Preparedness. May 19, 1917, p. 1484.
Conservation of Medical Practice During the War. May 19, 1917. p. 1487.
Practice of Physicians in Military Service. May 19, 1917, p. 1487.

Medical Students Must Register

To the Editor: On page 1415 of the edition of THE JOURNAL of May 12, under the heading "Medical Students and Conscription," you state that there will be an exemption of medical students from the selective draft. I have a copy of the Emergency Army Bill from the *Army and Navy Journal*, and under exemptions I find no such mention. What am I to infer from this, and what definite enlightenment can I get

on this subject? This is a very important question to me and I should like to have you look into it at your convenience, before registration day if possible, and advise me. I would be very grateful to The Journal for this information.

Answer.—The above letter is from a physician in Minnesota. The question has already been answered in The Journal. No exemption is made in the law for medical students or for prospective medical students. Incidentally, neither is any exemption made for civilian physicians under 31 years of age. There is no doubt, however, that medical students will be exempted by regulation immediately after registration is completed. However, it must be borne in mind that this exemption will take place after registration; in other words, medical students must register.

Examinations for the Medical Corps of the Navy

Examinations of candidates for commissions in the regular Medical Corps of the Navy will be held on June 2, at fourteen naval stations in various parts of the United States. Approximately 350 candidates have already presented satisfactory credentials and will be admitted to examination.

The Bureau of Medicine and Surgery of the Navy Department is in receipt of information in advance of the formal official reports, from some of the examining boards that conducted the examinations of May 11. Of the fourteen candidates examined at Washington, D. C., eleven passed; of thirty-one examined at the Great Lakes Station, near Chicago, twenty-four passed; of four examined at Charleston, S. C., two passed, and the one candidate examined at Pensacola, Fla., passed. Other examining boards remain to be heard from.

Naval Medical School Begins with a New Class

Sixty-six candidates for commissions in the regular Medical Corps of the Navy began a course of study at the Naval Medical School at Washington, D. C., May 15, to prepare them for their duties. They will be required, however, to take the regular examination to be held on June 2, to which all candidates for commissions are to be subjected. In the selection of questions and tests to be used in the examination care will be taken to exclude any concerning which a candidate might have at the time of the examination acquired any special knowledge while at the Naval Medical School, so as to put the candidates who have begun training at the school on exactly the same plane as the candidates who have not had the advantage of such training.

Bureau of Information of Casualties

The American Red Cross has just established a bureau of information of casualties, under the direction of Prof. William E. Castle of Harvard University. This bureau will relieve the medical and the fighting forces of the burden of correspondence concerning the sick, wounded, killed, missing and prisoners, gathering such information as may be obtainable and transmitting in a sympathetic and humane way to the home folks such as can properly be sent, and forwarding to the adjutant-general such as may be of value to him.

Training Camps for Medical Reserve Corps

Army training camps for medical officers in the Reserve Corps have been established at Fort Oglethorpe, Ga., near Chattanooga, Tenn.; at Fort Riley, Junction City, Kan., and at Fort Benjamin Harrison, Indianapolis. Each camp will accommodate 600 officers under instruction. Medical officers in the Reserve Corps who are under 45 years of age are to be ordered to these camps for a period of three months' practical training, preparatory to active service.

Base Hospitals Reach Port

Lakeside Base Hospital No. 4, Cleveland, under the command of Major H. L. Gilchrist, with Dr. George W. Crile, director, reached a European port on May 18. The Harvard Medical School Unit, Red Cross Base Hospital No. 5, under the command of Major R. W. Patterson, with Dr. Harvey Cushing as director, reached Falmouth, England, on May 22.

Examining Boards for Medical Reserve Corps

The following is a list of medical boards as appointed up to May 21. The name and address of the chairman of the board only is given. It is presumed that applicants will select the board most accessible to themselves even though this may mean a board in another state:

ALABAMA

Birmingham—Capt. John M. Lowrey, M. R. C., 727 1st National Bank Bldg.
Mobile—Capt. John O. Rush, M. R. C., 412 Van Antwerp Bldg. (also O'Gynn and Kilpatrick).
Montgomery—Major J. N. Barker, M. R. C.

ARIZONA

Douglas—The Surgeon, U. S. Troops.
Ft. Huachuca—The Surgeon.
Naco—The Surgeon, U. S. Troops.

ARKANSAS

Hot Springs—Commanding Officer, Army and Navy General Hospital.

CALIFORNIA

Coronado—Major William L. Kneedler, U. S. A., Retired.
Los Angeles—Capt. John J. Kyle, M. R. C., 702 Title Insurance Bldg.
San Francisco—Commanding Officer, Letterman Gen. Hosp., Presidio, San Francisco.

COLORADO

Denver—Capt. Cuthbert Powell, M. R. C., Metropolitan Bldg., President.
Ft. Logan—The Surgeon.
Trinidad—Lieut. John R. Espey, M. R. C., Main and Walnut Sts.

CONNECTICUT

New Haven—Lieut. John W. Churchman, M. R. C.

DISTRICT OF COLUMBIA

Washington—Commandant, Army Medical School.
Washington—Major Abram B. Hooe, M. R. C., 1220 Sixteenth St., N. W., President (local only).
Washington—Major W. D. Webb, M. C., 1803 Connecticut Ave., N. W. (Univ. of Va.). Visits University of Va., Charlottesville, every Thursday.

FLORIDA

Ft. Barrancas—The Surgeon.
Jacksonville—Capt. Graham E. Henson, M. R. C., St. James Bldg.
Key West Barracks—The Surgeon.
Tampa—Lieut. E. H. McRae, M. R. C., American Bank Bldg.

GEORGIA

Augusta—Major Eugene E. Murphy, M. R. C., 432 Telfair St.
Ft. McPherson—The Surgeon.
Ft. Oglethorpe—The Surgeon.
Ft. Screven—The Surgeon.

IDAHO

Boise—Lieut. Col. Marshall W. Wood, U. S. A., Retired.

ILLINOIS

Chicago—Major John A. Hornsby, M. R. C., 111 W. Washington St., President.
Mt. Vernon—Capt. William H. Gilmore, M. R. C.
Springfield—Capt. George N. Kreider, M. R. C., 522 Capitol Ave.

INDIANA

Ft. Benjamin Harrison—The Surgeon.
Indianapolis—Major George M. Wells, Retired, M. C., 622 Hume-Mansur Bldg., President.

IOWA

Ft. Des Moines—The Surgeon.

KANSAS

East Hutchinson—Lieut. Herbert L. Scales, 506 Avenue A.
Ft. Riley—The Surgeon.
Leavenworth—Lieut. James R. Langworthy, M. R. C., Ryan Bldg.

KENTUCKY

Ashland—Lieut. John W. Stephenson, M. R. C.
Bowling Green—Major Arthur T. McCormick, M. R. C.
Louisville—Capt. Frank T. Fort, M. R. C., "The Atherton."

LOUISIANA

Baton Rouge—Capt. Charles McVea, M. R. C.
Jackson Barracks—The Surgeon.
New Orleans—Major Isadore Dyer, M. R. C., 124 Baronne St., President.

MAINE

Brunswick—Lieut. F. N. Whittier, M. R. C., Bowdoin College.
Portland—Dr. William L. Cousins, 231 Woodford St.

MARYLAND

Baltimore—Capt. John S. Davis, M. R. C., 1200 Cathedral St.

MASSACHUSETTS

Boston—Major Horace D. Arnold, M. R. C., Harvard Univ. Graduate School of Medicine (President).
Ft. Banks—The Surgeon.
Springfield—Lieut. Charles F. Lynch, M. R. C., 387 Main St.

MICHIGAN

ALBION—Lieut. George C. Hafford, M. R. C.
ANN ARBOR—Lieut. Reuben Peterson, M. R. C., Univ. of Michigan Med. School, President.
BATTLE CREEK—Capt. W. H. Haughey, M. R. C.
DETROIT—Major Angus McLean, M. R. C., David Whitney Bldg.
MARQUETTE—Lieut. A. W. Hornbogen, M. R. C.
SAULT STE. MARIE—Lieut. E. H. Webster, M. R. C.

MINNESOTA

FT. SNELLING—The Surgeon.
MINNEAPOLIS—Lieut. James F. Corbett, M. R. C., 4401 E. Lake Harriett Blvd., President.
ROCHESTER—Major Charles W. Mayo, Mayo Clinic.
WINONA—Lieut. Hugh McGaughey.

MISSISSIPPI

HATTIESBURG—Capt. W. W. Crawford, M. R. C.
MERIDIAN—Lieut. I. W. Cooper, M. R. C.
VICKSBURG—Capt. J. S. Ewing, M. R. C.
WINONA—Major J. W. Barksdale, M. R. C.

MISSOURI

COLUMBIA—Dr. Mazyck H. Ravenel, University of Missouri.
DONIPHAN—Dr. John R. Hume.
FT. WILLIAMS—The Surgeon.
JEFFERSON BARRACKS—The Surgeon.
KANSAS CITY—Major J. F. Binnie, M. R. C., Rialto Building.
SPRINGFIELD—Capt. Joseph W. Love, M. R. C.
ST. CHARLES—Dr. Frank J. Tainter.
ST. JOSEPH—Dr. Daniel Morton.
ST. LOUIS—Capt. William H. Luedde, M. R. C., 311 Metropolitan Bldg., President.
TRENTON—Dr. James R. McVay.

MONTANA

FT. MISSOULA—The Surgeon.
HELENA—Major William C. Riddell, M. R. C., 504 Dearborn Ave.

NEBRASKA

LINCOLN—Capt. L. B. Sturdevant, M. R. C., 2757 Holdredge St.
OMAHA—Col. John M. Banister, U. S. A., Ret., 400 Brandeis Theater Bldg.

NEVADA

RENO—Lieut. Raymond St. Clair, M. R. C., Nixon Bldg.

NEW JERSEY

ATLANTIC CITY—Dr. Curney Williams, 3915 Atlantic Ave.
NEWARK—Capt. David A. Kraker, M. R. C., 236 Broad St.

NEW MEXICO

FT. BAYARD—The Commanding Officer.

NEW YORK

ALBANY—Major Henry L. M. Shaw, M. R. C., 361 State St., President.
BUFFALO—Capt. Herbert A. Smith, M. R. C., 566 Delaware Ave.
PLATTSBURG—The Surgeon.
NEW YORK—Major Henry C. Coe, M. R. C., Academy of Medicine, 17 W. 43d St., President. Office Hours—3 to 5 p. m. every day except Saturday and Sunday.
NEW YORK—Dr. Simon Flexner, 150 E. 61st St.
ROCHESTER—Major John M. Swan, M. R. C., 457 Park Ave.
SYRACUSE—Major James I. Mabee, M. C., 309 Orange St.

NORTH CAROLINA

FT. CASWELL—The Surgeon.
GREENSBORO—Major John W. Long, M. R. C., 119 Church St.

NORTH DAKOTA

BISMARCK—Lieut. Albert M. Fisher, M. R. C.

OHIO

CINCINNATI—Major Robert D. Maddox, M. R. C., 4 West 7th St., President.
CLEVELAND—Capt. Harry G. Sloan, M. R. C., 1021 Prospect Ave., S. E.
COLUMBUS BARRACKS—The Surgeon.

OKLAHOMA

FT. SILL—The Surgeon.
OKLAHOMA CITY—Lieut. Rex G. Boland, M. R. C., 1524 West 29th St.

PENNSYLVANIA

HARRISBURG—Capt. Benjamin F. Royer, M. R. C., Donaldson Apts.
PHILADELPHIA—Lieut. Col. Henry Page, M. C., Aldine Hotel (special only).
PHILADELPHIA—Major Elijah H. Siter, M. R. C., 1818 S. Rittenhouse Square, President.
PITTSBURGH—Major John W. Boyce, M. R. C., Empire Bldg., President.
SCRANTON—Lieut. J. Mayhew Wainwright, 516 Spruce St.

RHODE ISLAND

NEWPORT—Lieut. Charles D. Easton, M. R. C., 36 Ayrault St.
PAWTUCKET—Capt. James L. Wheaton, 210 Main St.
PROVIDENCE—Major John W. Keefe, 262 Blackstone Bldg.

SOUTH CAROLINA

CHARLESTON—Col. A. N. Stark, M. C.
COLUMBIA—Lieut. Francis A. Coward, M. R. C., State Board of Health Laboratory.
FT. MOULTRIE—The Surgeon.

SOUTH DAKOTA

ABERDEEN—Lieut. William E. Clark, 519 Seventh Ave., S. E.
STURGIS—Capt. J. D. Brooks, M. R. C.

TENNESSEE

MEMPHIS—Major Frank D. Smythe, M. R. C., 554 East St.
NASHVILLE—Major Lucius E. Burch, Eve Building.

TEXAS

AUSTIN—Capt. Albert F. Beverly, 311 W. 13th St.
DALLAS—Capt. Edgar W. Loomis, M. R. C., 236 Page Ave.
FT. BLISS—Commanding Officer, Base Hospital.
FT. CROCKETT—The Surgeon.
FT. SAM HOUSTON—Commanding Officer, Base Hospital.

UTAH

FT. DOUGLAS—The Surgeon.

VERMONT

FT. ETHAN ALLEN—The Surgeon.

VIRGINIA

FT. MONROE—The Surgeon.
NORFOLK—Lieut. Burnley Lankford, M. R. C., 530 Shirley Ave.
RICHMOND—Major Stuart McGuire, M. R. C., 513 Grace St., East, President.
STAUNTON—Capt. Wilbur M. Phelps, M. R. C.

WASHINGTON

FT. GEORGE WRIGHT—The Surgeon.
SEATTLE—Capt. Ira A. Brown, M. R. C., 901 Seventh Ave.
VANCOUVER BARRACKS—The Surgeon.

WEST VIRGINIA

CHARLESTON—Major John E. Cannaday, M. R. C., Capital City Bank.
WHEELING—Lieut. William H. McClain, M. R. C., 83 Twelfth St.

WISCONSIN

MILWAUKEE—Capt. C. V. I. Brown, M. R. C., 349 Prospect Ave., President.
SHEBOYGAN—Major E. J. Barrett, M. R. C.

ALASKA

FT. GIBBON—The Surgeon.

PORTO RICO

SAN JUAN—Col. Basil H. Dutcher, M. R.

Mobilization of Medical Reserve Corps

For the week ending May 19, 1917, 399 physicians were recommended for commissions in the Medical Reserve Corps. Of these, 15 were recommended for appointment as majors, 37 as captains and 347 as first lieutenants.

New Base Hospital.—The people of Buffalo have pledged a fund of $75,000 to provide a base hospital and the medical men of the city have pledged themselves to furnish $10,000 of this amount.

Pharmaceutical Corps Desired.—The Philadelphia Drug Exchange has initiated a movement for the establishment of a pharmaceutical corps in the United States Army, and has addressed a letter to the secretary of war asking for its establishment. It is pointed out that the enlisting of pharmacists in the line is unjust to these men who have had professional training. It is also pointed out that these men might make valuable medical assistants in case of a shortage of physicians.

The Russian-Roumanian Medicosurgical Society.—A French medical unit is with the Russians and Roumanians in the Jassy region, and a medical society has been organized among the physicians there. At its first meeting, recently, Dehelly described the Carrel method of treating wounds. The society has three presidents, the Russian, d'Osten Sacken; Coulland, chief of the French unit, and the Roumanian bacteriologist, Cantacuzene. All the Roumanian physicians and most of the Russians speak French, so the *Bulletin* will be published in French. J. Clunet was in charge of the French unit at first but succumbed recently to typhus.

To Study Social and Economic Problems.—In anticipation of the social and economic problems likely to result from the German-American War, the National Council of Defense, through its Advisory Commission on Labor and Welfare—Mr. Samuel Gompers, chairman—has appointed Mr. Frederick L. Hoffman, statistician of the Prudential Insurance Company of America, chairman of the National Committee on Statistics and Information. The plan is to inaugurate at once a national statistical service whereby the state of the nation regarding health, physical and social wellbeing, sickness and accidents in industry, unemployment, etc., may be presented with scientific conclusiveness from week to week, for the information of the council and the public at large.

Nurses of Northwestern Unit Killed.—Two nurses connected with base hospital No. 12, known as the Northwestern

Base Hospital Unit, which was on its way to France, were killed by an accident, May 20. The *Mongolia,* on which the unit sailed, was about 100 miles east of New York, and in accordance with the usual practice the guns were fired to test mounts and ammunition and to drill the navy gun crew on board. One of the charges exploded and splinters of the brass case ricocheted and were deflected to the deck of the ship, where several nurses were watching the firing. Mrs. Edith Ayres and Miss Helen Burnett Wood were killed and Miss Emma Matzen was seriously wounded. The *Mongolia* returned to New York so that an official investigation of the occurrence might be made.

Modern Hospital Train Presented.—In presenting to Maryland the most modern hospital train to be found in this country or abroad, the three railroads making the gift, the Baltimore and Ohio, the Pennsylvania and the Western Maryland, have enabled Maryland to be first in this field. The credit for the idea is due to Dr. Daniel Z. Dunott, chief surgeon of the Western Maryland Railway. There are six cars which make up the train. Three of these are hospital cars, with forty-two hospital beds; an operating car, which it is claimed is not surpassed in the completeness of its equipment by any operating room in the city; a Pullman and dining car for the personnel of the hospital, and an express car which carries two motor ambulances. An overhead trolley by means of which a stretcher may be carried from one car to another is a special feature.

Only Commissioned Medical Officers Will Be Called On.—Please answer through The Journal the following questions:

1. Will the government exhaust the Medical Reserve Corps before it calls on medical men outside of the reserve?
2. Would a man of 50 in the reserve corps be taken before one of 40 or under not in the reserve corps?

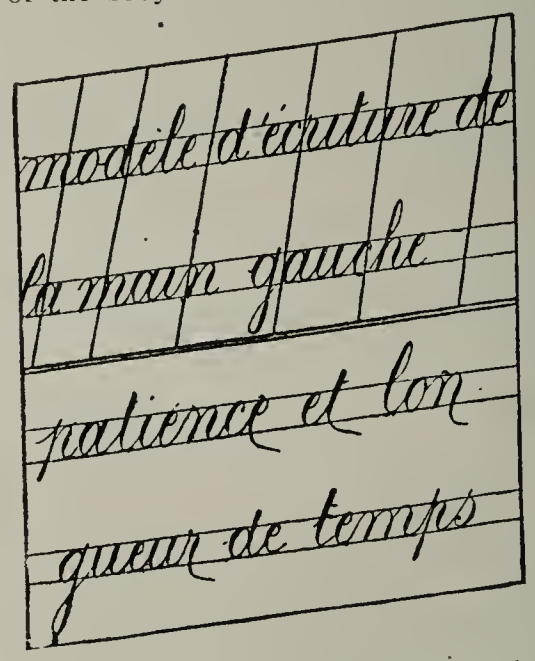
C. O. Henry, Fairmont, W. Va.

Answer.—Yes, to both questions.

Devices Used in Combating Gases in Trench Warfare.—Dr Yandell Henderson, professor of physiology in the Yale Medical School, and J. W. Paul, in charge of the rescue work of the Bureau of Mines, the experts of this bureau, state that the present types of oxygen-rescue apparatus are imperfect and involve grave danger. One instance given in the exhaustive report which the bureau has made on this subject is that the apparatus is so constructed that the oxygen supply can be set at a rate sufficient only for moderate exertion on the part of the wearer; hence rapid movement when wearing this mask might mean suffocation at a time when leisurely movement would result in the death of the wearer. W. E. Gibbs, an experienced engineer, has produced a new apparatus in accordance with the physiologic lines recommended by this report which experimental tests have shown to be far superior to the older types, and which he hopes to so modify as to be serviceable in the European trench warfare.

Ambulance Items.—There is said to be at present 500 American ambulances on duty on the French fighting fronts.——The board of directors of the Chicago College Club has voted to raise a fund for the purchase of a Red Cross ambulance in the name of the college women of Chicago.——Dr. Stephen V. Balderston, Evanston, who is connected with the Northwestern University Ambulance Company, has received orders for the enlistment of the organization.——St. Mary's Notre Dame College Club has arranged to provide an ambulance, to be known as St. Mary's ambulance, for service in France.——At a reception held in New York, May 11, for University of California students who are on their way to France, $45,000 was subscribed for the American Field Ambulance Service.——An ambulance company for service in France is being recruited by the Chicago chapter of the Red Cross.——Dr. George Dock, St. Louis, has received the French war cross and has been mentioned for his service in moving wounded soldiers under heavy bombardment while engaged in the American Field Ambulance Service.——Members of the Evanston (Ill.) Club have subscribed $15,000 for the fund to provide an ambulance for service in France.——Employees of the American Radiator Company, of America, have donated a fully equipped ambulance in memory of Frederick W. Monahan, one of the founders of the American Ambulance Corps in France.——Three ambulances have been presented to the Detroit College of Medicine and Surgery, Base Hospital Unit No. 36.——Brooklyn students of University and Bellevue Hospital Medical College are securing subscriptions in Brooklyn for the purchase and equipment of ten ambulances to be sent with the first American contingent to France.

Training the Left Hand in Writing.—Dr. C. W. Hutt has described in the *Lancet* (April 7, 1917, p. 553) the work of M. Tamenne, a Belgian refugee, at the Professional School for the Wounded at Montpellier, in teaching maimed soldiers to write with the left hand. Tamenne, who is a one-armed man, places considerable emphasis on learning to write in a hand resembling as closely as possible the former handwriting, which, he says, contributes in a large degree to make the maimed person think of himself as not handicapped in any way. The writing taught has the same slope as ordinary writing; not even upright writing is allowed. The position of the body is the same as in writing with the right hand.



The following rules are given: 1. Place the forearm comfortably on the table so as to fatigue the hand as little as possible. 2. Practice writing between lines about 3.5 mm. apart. 3. Place the paper in a sloping position as shown in the accompanying illustration. 4. Try from the beginning to give the letters the usual slope. This may be facilitated by drawing faint oblique lines as shown in the illustration and making the up and down strokes of the letters parallel with these oblique lines. 5. Always be sure that the hand is immediately below the point of writing. The last two rules will be found difficult and will tire the hand. Rest should be taken for a few minutes and the practice then resumed. After nine or ten lessons of an hour and a half it is said the difficulty will be overcome and the letters will be formed easily and the movements become more precise. After acquiring some skill the writing should be done between lines 2.5 mm. apart, and later on a single line. Do not try to rush the matter by practicing too long at a time, or by making the letters carelessly. Time will be lost in this way. Considerable skill should be acquired in two months.

Care of Physicians' Practice.—At the meeting of the Kings County New York Medical Society in Brooklyn, May 15, resolutions were adopted favoring the dividing of fees for the benefit of physicians who are called to the colors. It is proposed that the physician attending the case shall receive 50 per cent. and the remainder of the fee shall be turned over to the family or dependents of the physician at the front.——The Lyon-Lincoln Counties (Minnesota) Medical Society, at a recent meeting, adopted resolutions that dependent members of famillies of all who enlist (but not conscripts) and who hold rank below that of lieutenant, will be attended by members of the society when necessary free of charge, and that they would attend patients of physicians who enlist and on their return would give over to them the fees collected on the accounts held against their patients, and will furthermore endeavor to return such practice to the physician intact.——The Michigan State Medical Society, at its annual meeting, voted unanimously to take care of all dependents of physicians who go to the front and to conserve their practice.——Sixty members of the Rogers Park (Ill.) Physicians' Club, May 13, volunteered to take care of the practice of all physicians in Rogers Park who enter military service and to turn over 50 per cent. of the fees received to the family of the physician.——At a meeting of St. Louis physicians, May 12, an agreement was made whereby physicians of St. Louis who are exempt from military service will take over the practice of physicians at the front and divide fees with them.——The Physicians' Club of Oak Park has passed resolutions to care for the patients of all physicians called to the colors, and to give 50 per cent. of all fees received from such patients to the families of the absent physician, and to return these patients to the physician on his return from military service.——The Washington County (R. I.) Medical Society has adopted a resolution that should any member of the society leave his practice for war service the members of the society remaining at home will carry on his practice and pay his family 50 per cent. of the proceeds.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Ambulance Company Organized at Washington, D. C.—The Washington Ambulance Company, with Dr. Ryan Devereux, Medical Department, U. S. Army, as captain, will go into training at Allentown, Pa., May 24. Equipment is being provided by public subscription. One hundred and fifteen persons have pledged themselves to service in this corps, and sixty-three have already been sworn in. Members of the corps are looking forward to service in France as soon as the company has had the necessary training.

GEORGIA

New Hospital for Fort McPherson.—Congress has appropriated $90,000 for the erection of a new hospital at Fort McPherson, near Atlanta.

Personal.—Dr. and Mrs. Elijah S. Peacock, Harrison, celebrated the twenty-fifth anniversary of their wedding, April 18.——Dr. William H. Goodrich has been elected chairman of the Board of Control of the University Hospital, Augusta.

Salvarsan Resolutions.—At a recent meeting of the Georgia Medical Society of Chatham County, Savannah, resolutions were adopted setting forth the vital importance of salvarsan, the uncertainty and difficulty of obtaining the drug on account of its being protected by patent rights and the fact of its manufacture abroad, and urging Congress to abolish the patents on this drug and its closely related products.

ILLINOIS

Chicago

Results of Cook County Intern Examinations.—The results of the competitive examinations for internship in the Cook County Hospital recently announced place 68 men on the eligible list. Of this number, 41 are graduates of Rush Medical College, 13 graduates of the University of Illinois College of Medicine and Surgery, 9 graduates of Northwestern University and 5 of the Chicago College of Medicine and Surgery.

The Retreat from Mons.—Col. Thomas H. J. C. Goodwin, R. A. M. C., C. M. G., D. S. O., the medical member of the British Commission, visited Chicago, May 22; was entertained at luncheon at the Union League Club, and in the afternoon attended the initial meeting of the State Committee for National Defense, and there detailed the needs of the Allies for surgeons and nurses, and expressed his appreciation of the prompt response to this appeal. He was the guest of honor of the Medical Reserve Corps, U. S. Army, Illinois Division, at a dinner at the La Salle in the evening, and after dinner gave a very simple and plain, but effective and thrilling account of his personal experiences as officer in command of a field ambulance during the advance of the Germans toward Paris, which necessitated the retirement of the British troops for a time. He paid an eloquent tribute to the loyalty, self-sacrifice and devotion of the officers and men of the sanitary troops, hundreds of whom had laid down their lives in the endeavor to evacuate the wounded from the front and to alleviate their sufferings. At the conclusion of Colonel Goodwin's address, an informal reception was held.

IOWA

Hospital News.—A site has been purchased for the Tuberculosis Sanitarium for Dubuque County. The tract of land is 26 acres in extent, located between Fifth and Seventh avenues, and near Eagle Point.——The Sisters of St. Francis have purchased the Le Mars Hospital and will rebuild it at a cost of $85,000.

Personal.—Dr. John C. Murphy, Davenport, has been commissioned lieutenant, M. C., Iowa N. G., and assigned to duty with the Field Artillery.——Dr. Frank T. Launder, Garwin, has been elected a member of the state board of health, succeeding Dr. Henry A. Dittmer, Manchester, term expired.——Dr. Frank O. Burk, Davenport, has succeeded Dr. Emil A. Ficke as physician of Scott County.——Dr. Charles R. Jones, Atlantic, is reported to be seriously ill with duodenal ulcer.

State Medical Women Elect.—The State Society of Iowa Medical Women held its twentieth annual meeting at Des Moines, April 8, under the presidency of Dr. Lily Kinnier, Dubuque, and the following officers were elected: president, Dr. Laura House Branson, Iowa City; vice presidents, Drs. Jeannette F. Throckmorton, Chariton; Josephine M. W. Rust, Grinnell, and Rosabell A. Butterfield, Indianola; secretary, Dr. Ida G. Rhoades, Cedar Falls (reelected), and treasurer, Dr. Nelle Noble, Des Moines.

New State Officers.—The sixty-sixth annual meeting of the Iowa State Medical Society was held at Des Moines, May 9-11, under the presidency of Dr. John F. Herrick, Ottumwa. Fort Dodge was selected as the place of meeting for 1918 and the following officers were elected: president, Dr. John N. Warren, Sioux City; president-elect, Dr. Max E. Witte, Clarinda; vice presidents, Drs. Michael J. Kenefick, Algona, and Elias B. Howell, Ottumwa; editor of the journal, Dr. David S. Fairchild, Clinton (reelected); treasurer, Dr. Thomas F. Duhigg, Des Moines (reelected); secretary, Dr. Tom B. Throckmorton, Des Moines, and delegates to American Medical Association, Drs. William B. Small, Waterloo; Lawrence W. Littig, Davenport, and Mathew N. Voldeng, Woodward.

MARYLAND

Baltimore

Allied Bazaar Fund Completed.—The final accounting of the Allied Bazaar at Baltimore shows receipts of $85,500 collected as follows:

Baltimore fund for relief of disabled soldiers and sailors and their families	$21,000
Great Britain and Ireland	12,500
Belgium	12,500
France	12,500
Italy	10,000
Roumania, Servia, Poland, Lithuania and Armenia	17,000

More Hospitals for Tuberculosis.—A committee composed of Drs. Henry Barton Jacobs, C. Hampson Jones and J. Hall Pleasants, and Mr. H. Wirt Steele, representing the Maryland Tuberculosis Association, has sent a letter to Governor Harrington and the Maryland Preparedness and Survey Commission in which it is urged that the legislature at the special session provide for doubling hospital accommodations for tuberculosis patients, and also for more hospitals to be erected and equipped to meet the increasing number of cases of the disease expected as a result of the war. It is also recommended that all the state tuberculosis institutions be correlated, coordinated and controlled under a state tuberculosis commission to be established by the general assembly.

Personal.—Dr. Hugh Hampton Young, director of the James Buchanan Brady Institute, the Johns Hopkins Hospital, has received notification of his appointment as major in the Medical Reserve Corps, and will leave shortly for England. With Dr. Young will go Dr. Louis C. Lehr, professor of urology at Georgetown University, and Dr. Montague L. Boyd, professor of urology at Emory University, Atlanta, Ga., who will have the rank of captains, and Dr. Howard L. Cecil of the Brady Urological Institute, who has been commissioned as first lieutenant.——Dr. David M. Davis, head of the research laboratory of the Brady Urological Institute, has sailed for France.——Drs. Sydney M. Cone and Lewis C. Spencer, Baltimore, will go with the Harvard Orthopedic Unit to France.

Meeting for Medical Preparedness.—At a special meeting held in Osler Hall, Baltimore, May 17, in the interest of medical preparedness, the principal speakers were: Col. Thomas H. Goodwin, service medical officer with the British Commission; Major Robert E. Noble of the surgeon-general's staff; Surg.-Gen. William C. Gorgas, U. S. Army, and Dr. H. Young, chairman of the Maryland Committee on Medical Preparedness. Colonel Goodwin gave a graphic description of the retreat from Mons and the battle at the Marne. Major Noble in his address said that only 4,223 medical men had been recommended for commissions in the Officers Reserve Corps, while the army would need 20,000. General Gorgas stated that the first problem confronting us is to take care of the 1,000,000 men in the army from a sanitary and medical viewpoint. "There must be the preliminary examination to determine the physical fitness of the recruit. We shall need 10,000 physicians for this duty and we shall need 6,000 men in the medical and ambulance service in France."

Mental Clinic for Maryland Offered.—Members of the Maryland Psychiatric Society have offered Adjutant-General

Warfield and the War Department their services, with two specific plans: First, that a mental clinic be established at the proposed concentration camp at Havre de Grace, and second, that receiving and convalescent stations be established for American soldiers, who may suffer from mental or nervous disorders as a result of the war. The Psychopathic Ward at the Spring Grove State Hospital has been offered as a receiving station, and a convalescent station at the Springfield State Hospital has been suggested. This latter station would be temporary, consisting of wooden buildings on the grounds of the hospital, while for the receiving station the new building at the hospital, which has just been completed and for which equipment will be asked of the extra session of the legislature, will be used. The cost of equipping both stations will be about $80,000. If the stations are authorized, probably vocational schools for the wounded also will be established, like those in France. Volunteer teachers will instruct the crippled and those whose minds are affected in trades by which they can make a living. The mental clinic would take care of all mental trouble at the concentration camp. Physicians would visit the camp on stated days and examine any soldier whose nerves had been overstrained, and arrange for the care of more serious cases. The committees appointed are: Medical: Drs. Arthur Herring, Baltimore, chairman; J. Clement Clark, Sykesville; J. Percy Wade, Catonville; Robert P. Winterode, Crownsville; William R. Dunton, Jr., Townson; Andrew C. Gillis, Baltimore; Henry J. Berkley, Baltimore, and Frank W. Keating, Owings Mills. Advisory: Daniel Randall, Senator Wade Warfield, Harry J. Hopkins, W. Champlin Robinson, William J. Ogden and Drs. Edward N. Brush and Charles G. Hill.

MASSACHUSETTS

New Surgeon-General.—The governor has announced the appointment of Dr. William A. Brooks, Boston, as chief surgeon of the National Guard, with the rank of lieutenant-colonel.

Pharmacy College Cornerstone Laid.—In connection with the commencement and class day exercises of the Massachusetts College of Pharmacy, the cornerstone of the new building for the institution was laid with appropriate exercises, May 22.

Personal.—Dr. Leverett D. Bristol, Boston, has been appointed state health officer of Nebraska under the new Fox law.——Dr. Benjamin F. Andrews has been placed in charge of the surgical outpatient service of the Worcester State Hospital. Dr. Allan J. McLaughlin, Boston, has been appointed to succeed Dr. Richard P. Strong, Boston, as chairman to the subcommittee on hygiene, medicine and sanitation of the Massachusetts Committee for Public Safety.——Dr. William T. Councilman, Boston, has returned after an absence of several months.——Dr. Frank T. Lougee has been appointed city physician of Lynn, succeeding Dr. Joseph F. O'Shea, deceased.

New District Officers.—Worcester District Medical Society, at Springfield, May 9: president, Dr. Michael F. Fallon; secretary, Dr. Ernest L. Hunt.——Franklin District Medical Society, at Greenfield, May 8: president, Dr. Harry N. Howe; secretary-treasurer, Dr. Frank A. Millett, both of Greenfield. ——Essex North District Medical Society, at Lawrence, May 2: president, Dr. Thomas R. Healy, Newburyport; secretary, Dr. J. Forrest Burnham, Lawrence.——Suffolk District Medical Society, at Boston, April 25: president, Dr. Herman F. Vickery; secretary, Dr. George G. Smith.——Hampden District Medical Society, at Springfield, April 24: president, Dr. John M. Birnie; secretary, Dr. Hervey L. Smith, both of Springfield.

MINNESOTA

Sanatorium Notes.—The tuberculosis sanatorium, which has been under construction at Granite Falls for the last two years, was formally opened to receive patients, April 29. The institution is the sanatorium for Yellow Medicine, Chippewa, Lac qui Parle and Renville counties, has been erected at a cost of $90,000, and has accommodations for forty patients. ——Dr. Merton Field, St. Peter, has purchased the Miles B. Johnson residence, which will be converted into a hospital and sanatorium.

Personal.—Dr. George B. Weiser, New Ulm, was knocked down and run over by an automobile, May 3, sustaining painful injuries.——Dr. Charles A. Lester, Winona, fell in a gymnasium, April 26, fracturing his patella.——Dr. Walter H. Darling, Minneapolis, has returned after nearly a year of service on the western front.——Dr. John P. Rosenwald, Minneapolis, has been commissioned first lieutenant, M. C., Minn. N. G., and assigned to duty with the First Field Artillery.——Dr. Edward H. Trowbridge has resigned as assistant superintendent of the Minnesota School for the Feebleminded, Faribault.

Medical Board Changes.—Dr. Charles L. Schofield, Benson, has been appointed a member of the state board of health, to succeed Dr. Winslow C. Chambers, Blue Earth.—— Dr. Edward T. Sanderson, Minnesota, has been appointed a member of the state advisory commission for tuberculosis. ——Dr. Egil Boeckmann, St. Paul, and Dr. Christopher Graham, Rochester, have been reappointed members of the state board of health.——Dr. George B. Weiser, New Ulm, has been appointed a member of the State Board of Medical Examiners, to succeed Dr. Frank R. Weiser, Windom.—— Dr. Arthur M. Eastman, Minneapolis, has been appointed a member of the board, to succeed Dr. Robert D. Matchan, Minneapolis, and Dr. Ida A. MacKeen, Minneapolis, has been appointed a member, to succeed Dr. Annah Hurd, Minneapolis.

Special Fellowships.—Fellowships in ophthalmology and otolaryngology in connection with the University of Minnesota have been established by Dr. Frank C. Todd of Minneapolis and Dr. Frank E. Burch of St. Paul, both of the School of Medicine. These fellowships carry with them the same stipend that is paid by the University of Minnesota to the university fellows, namely, $500 the first year, $750 the second year and $1,000 the third year. Such fellows will spend half their time in the private clinic of Dr. Todd or Dr. Burch, and the other half in laboratory and clinical work and in pursuit of certain courses for specialists in ophthalmology and otolaryngology at the university. For work done in these private clinics, credit will be given toward the degree granted by the university in the course of ophthalmology and otolaryngology given at the University of Minnesota, to accepted doctors of medicine covering a period of three years which prepares the physician for the specialty of ophthalmology and otolaryngology. Applications for these fellowships may be made to the chief of the department, Dr. Frank C. Todd, Minneapolis.

MISSISSIPPI

Hospital Notes.—The Matty Hersee Charity Hospital, Meridian, which was closed, March 6, on account of lack of funds, was reopened April 1, as the result of public subscription. The state appropriation of $11,000 for the institution is still unavailable.——Work on the South Mississippi Charity Hospital, Laurel, has been started and it is expected that the institution will be ready for occupancy in September. The hospital site is at Lakeview, on a hill overlooking the lake near the Marathon Mill.

Personal.—Major John H. Allen, M. C., Nashville, Tenn., has been assigned to duty as officer in charge of sanitation and to make arrangements for necessary hospital facilities at the camp at Vicksburg, Miss. He will go to that city for a conference with Lieut.-Col. Willard D. Newbill, Quartermaster Corps, in regard to the sanitation of the camp for the national memorial celebration and peace jubilee to be held there. He will be on duty at Vicksburg until the close of the camp.——Dr. Kutcher T. Klein, for several years superintendent of the Matty Hersee Charity Hospital, Meridian, resigned, May 1, and Dr. Thomas D. Bourdeaux was elected his successor.——Dr. John L. Trice, Tupelo, has been appointed surgeon in charge of the Natchez Hospital, and Dr. Clarence E. Mullens, Slingerlands, N. Y., assistant surgeon.

NEW YORK

Personal.—Dr. Henry T. Williams has resigned as president and director of the Rochester Public Health Association.——Dr. Howard Lull Van Winkle, Kingston, has been appointed bacteriologist of Ulster County at a salary of $2,000.

Money Raised for Hospital.—At a meeting of the Williamsburgh Hospital Campaign Committee, held April 30, it was reported that $189,703, of the $200,000 required for the institution had been received in the first sixteen days of the campaign.

Marriage Bill Becomes Law.—Governor Whitman has signed the Whitney bill which requires that those who apply for marriage licenses in New York State shall present affidavits that they are free from communicable diseases. The affidavits filed must contain sworn statements that the affiant has never had venereal disease, or that laboratory tests show that such diseases are not now present.

Sale of Skimmed Milk Legalized.—The Wicks bill, which provides that the prohibition contained in the law regulating the sale of adulterated milk shall not apply to skimmed milk which is clean, pure, healthy, wholesome and unadulterated, except by skimming, if it is sold for and as skimmed milk, has been passed by the legislature. This bill also stipulates that prohibitions against the sale of cheese made from adulterated milk or cream shall not apply to pure skim-cheese made from milk which is otherwise clean and pure except by skimming. This act is to take effect immediately.

Civil Service Examinations.—The State Civil Service Commission announces that on June 23, open competitive examinations will be held throughout the state for the following positions:

Assistant Medical Examiners of Schools, education department; salary $3,000; open to men only.

Assistant in Pathology, State Institution for the Study of Malignant Disease, Buffalo; salary $1,800; applicants must be under 28 years of age and graduates of Class A medical schools or foreign universities of equal standing.

Bacteriologist-Pathologist, state department of health; open to men and women; salary $2,500; degree in medicine or an equal education desirable.

Physician, State Institution for Feeble-Minded Children, Syracuse; salary $1,800; open to men and women under 30 years of age.

Applications for these positions will be received at the office of the State Civil Service Commission, Albany, not later than June 13.

New York City

St. Luke's Hospital Ready for Home Defense Service.—Rev. Dr. George F. Clover, superintendent of St. Luke's Hospital, announces that the Norris Pavilion of the hospital will be opened for service, May 21, for the treatment of minor defects of men who have applied for enlistment and have been rejected. Thirty beds in the pavilion are ready for occupancy.

Sue Milk Company for Typhoid Epidemic.—Residents of South Brooklyn and Bay Ridge have begun sixteen lawsuits asking for a total of $306,000 damages from the Ideal Dairy Company, Brooklyn. It is alleged that the milk supplied by this company was the cause of a number of cases of typhoid fever and several deaths in 1915. It is stated that the charges will be vigorously denied, as the cause of the epidemic has never been officially established.

Venereal Disease.—The New York State Department of Health devoted the entire May issue of *Health News* to the discussion of venereal disease, giving authoritative information as to the extent of these diseases and the methods by which they are being combated. The attitude is wholly from the standpoint of health, and did not consider the moral factors involved, but left this part of the subject to other agencies.

Oral Hygiene Week.—The *Bulletin of the Bureau of Public Health,* May 11, dealt with Oral Hygiene Week. May 15, 150 dentists, members of the first and second district dental societies, visited the public schools and gave short talks to the children on the importance of proper care of the teeth, and on the next day, compositions written by the children, on the subject of the talk given them by the dentists, were read in the schools.

Conference of Charities and Correction.—The eighth New York City Conference of Charities and Correction was held in Brooklyn, Manhattan and Dobbs Ferry, May 22-24, under the presidency of Mr. Leopold Plaut, New York. The sections under which the conference worked were: Families; Public Health, Publicity and Administrative Methods; Recreation and Delinquency, and Children. Dr. S. Adolphus Knopf, chairman of the Public Health Committee, made a report before the Public Health Section, and papers were read on "Constructive Suggestions Toward the Control of the Most Important Infectious Diseases," Dr. S. Josephine Baker, considering the subject from the viewpoint of child life, and Dr. Ira S. Wile from that of adult life.

Personal.—Dr. I. Seth Hirsch has resigned as director of the Roentgey-ray department of the Post-Graduate Hospital and Medical School to accept a similar position in Bellevue and Allied hospitals.——Dr. Martha J. Peebles, Brooklyn, while cleaning a revolver at her summer home near Stroudsburg, Pa., accidentally shot herself, and is under treatment at the Monroe County Hospital, Stroudsburg.——Dr. Linsyl R. Williams has succeeded Dr. John S. Billings as deputy health commissioner of New York City.——Dr. Henry H. M. Lyle, who recently returned after two years' service on the western front, read a paper on "The Base Hospital in France" before the Wayne County Medical Society, Detroit, April 23.——Capt. John A. Quell, Brooklyn, has resigned from the Medical Corps of the First Cavalry, to become a passed assistant surgeon in the navy.

NORTH CAROLINA

Auxiliary Medical Defense Committee.—The following is the Auxiliary Medical Defense Committee of Wake County, N. C.: Drs. Augustus W. Knox, chairman; Hubert A. Royster, Robert P. Noble, James W. McGee, Louis N. West, Albert S. Root Henry G. Turner, James H. Payne, U. S. Navy Recruiting Station; Watson S. Rankin, Raleigh; James M. Templeton, Cary; Charles B. Wilkerson, Apex; John L. Moore, Wendell; William T. Carstarphan, Wake Forest.

NORTH DAKOTA

Personal.—Dr. John W. Cox of the state public health laboratories, Grand Forks, has returned to the university after having been a month in the United States Public Health Service, in Okmulgee County, Okla.——Dr. Charles J. McGurren, Devils Lake, was appointed state superintendent of public health and secretary of the state board of health.

New State Officers.—The thirteenth annual meeting of the North Dakota Medical Association was held in New Rockford, May 9-10, under the presidency of Dr. Victor J. La Rose, Bismarck. Fargo was selected as the place of meeting for 1918, and the following officers were elected: president, Dr. George M. Williamson, Grand Forks; vice presidents, Drs. Edgar A. Pray, Valley City; William P. Baldwin, Casselton, and Fred E. Ewing, Kenmare; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. William F. Sihler, Devils Lake; delegate to the American Medical Association, Dr. Charles MacLachlan, New Rockford; alternate, Dr. James P. Aylen, Fargo, and councilors, Drs. Paul Sorkness, Fargo; John E. Countryman, Grafton; Francis R. Smyth, Bismarck. The association recommended for members of the state medical examiners board, Drs. Joseph C. Suter, Grafton; Albert W. Skelsey, Fargo, and Archibald D. McCannel, Minot, and for member of the Medical Defense Board, Dr. Andrew Carr, Minot.

PENNSYLVANIA

No Change in Requirements.—A resolution recently passed by the Pennsylvania Bureau of Medical Education and Licensure states that inasmuch as the Council of National Defense has announced that no changes in the usual procedure of medical schools are made necessary to supply physicians in the present national emergency, the bureau declines to make any modification in the requirements in medical education as demanded by the laws of Pennsylvania.

Personal.—Dr. William W. Keen, emeritus professor of surgery in Jefferson Medical College, and president of the American Philosophical Society, fell, May 17, severely injuring his right shoulder.——Dr. De Forrest P. Willard of Lansdowne has joined the Orthopedic Unit of the United States Army and will be commissioned a captain.——Dr. Harold L. Amoss and Dr. Royal S. Haynes of New York read papers before the joint meeting of the Philadelphia County Medical and the Philadelphia Pediatric Societies on May 23, on "The Mechanism of Defense and Serum Treatment of Poliomyelitis" and "The Early Recognition of Acute Anterior Poliomyelitis and its Importance in Respect to Treatment," respectively.

RHODE ISLAND

Personal.—Dr. Arthur W. Stevenson, Newport, has returned from Europe, where he served in military hospitals on the war front.

New Officers.—At the annual meeting of the Pawtucket Medical Association, Dr. Charles H. Holt was elected president, Dr. Ardashes H. Merdinyan, vice president; Dr. Earl J. Mathewson, secretary-treasurer, and Dr. Stephen F. Hughes, treasurer.

SOUTH CAROLINA

Personal.—Dr, William C. Sandy, Jr., medical director of the State Hospital for the Insane, Columbia, has resigned to accept the appointment of the assistant superintendent of the State Hospital for the Insane, Middletown, Conn.

District Association Meet.—The Third District Medical Association held its annual meeting at McCormick, April 11, and elected Dr. Rallie M. Fuller, McCormick, president; Dr. Jesse H. Teague, Laurens, vice president, and Dr. James S. Fouche, Ninety-Six, secretary-treasurer. Laurens was selected as the next place of meeting.

WISCONSIN

Surgical Association Elects Officers.—At the annual meeting of the Wisconsin Surgical Association, held in Milwaukee, May 9, Dr. Horace M. Brown, Milwaukee, was elected president, Dr. John F. Pember, Janesville, vice president, and Dr. Daniel Hopkinson, Milwaukee, secretary-treasurer (reelected).

Personal.—Dr. Othoa Fielder, Sheboygan, a member of the state board of health, was operated on recently for appendicitis, and is said to be doing well.——Dr. Erwin C. Cary, Reedsville, who has been ill with pneumonia in the Holy Family Hospital, Manitowoc, is convalescent and will soon return home.

Hospital Items.—At a meeting of physicians in the office of the Health Department of Milwaukee, April 30, it was recommended that a new and centrally located emergency hospital be established with a capacity of five hundred beds, to replace the present emergency hospital.——The directors of the Dodgeville General Hospital have closed negotiations for the purchase of the residence of Mrs. D. H. Williams, which, after remodeling, will be opened as a sanatorium.

CANADA

University News.—Queen's University, Kingston, Ont., is holding a special course, commencing May 15, for a number of medical students who went overseas with the Queen's Base Hospital.

Hospital News.—The Galt (Ont.) General Hospital is providing for a children's ward.——The medical men of Winnipeg, Man., have made an offer of a base hospital for service in France.——A new isolation hospital is to be built at Saskatoon, Sask.——The building of a new sanatorium at Fort Qu'Appelle, Sask., has been commenced. The work on this institution was suspended at the outbreak of war.

Typhoid Fever.—There is an outbreak of typhoid fever at Orillia, Ont., due, it is said, to failure of that town to pasteurize its milk supply.——Typhoid fever has been prevalent in parts of the province of Quebec. A number of cases have occurred in Montreal, Sherbrooke, Lachine, St. Johns, Farnham, St. Hyacinthe, Sorel, and Levis.——The situation as regards typhoid fever in Edmonton, Alta., has been encouraging during the past year. There were only eight cases contracted in that city during the past year, and only one death.

Banquet to Major Mayrand.—Major R. Mayrand, professor of electrotherapy at Laval University, Quebec, was tendered a banquet on his recent return to Quebec from the seat of war. He served at the Valcartier camp and sailed with the first Canadian unit, the only representative of the French Canadians in this first hospital corps, which served first at Hampstead, then at Boulogne in France and later was stationed at Lemnos, where the equipment for 400 patients was swamped with 800 patients suffering from dysentery, and nearly the whole of the personnel were affected also. The hospital was then sent to Alexandria and Saloniki, where malaria took the place of dysentery. Then the hospital was recalled and will probably be sent to France next, where Major Mayrand expects to rejoin it. The banquet was tendered by the medical service of the Hotel Dieu, to which he is attached, and by the Laval University.

Public Health.—Dr. John W. McIntosh, Vancouver, B. C., speaking in the British Columbia legislature, referred to the unsatisfactory way in which problems connected with public health were dealt with in the province of British Columbia. In the city of Vancouver the death rate from tuberculosis, instead of decreasing, has increased by 43 per cent. during the period elapsing between the years 1904 and 1914; and in Victoria during the same period it has increased by 58.5 per cent. In Vancouver 15 per cent. of all deaths are due to tuberculosis. Dr. McIntosh contrasted these figures with those of the province of Ontario, where the death rate from this disease has diminished by as much as 40 per cent. He objected to the treating of advanced and incipient cases side by side in the same hospital, and thought that incipient cases only should be treated in the institution at Tranquille. As much had been done in recent years by the employment of the tuberculin test in cattle, he considered that within the next three or four years the cattle in British Columbia would be free from tuberculosis.

Personal.—Lieut.-Col. George R. Philip, Toronto, after being in France thirty months, has been recalled for important duty which is to be assigned him.——The report published that Lieut.-Col. George E. Armstrong, Montreal, had relinquished his temporary commission in the Canadian Army Medical Corps is now stated to be incorrect. Dr. Armstrong is remaining in England.——Dr. Walter Connell, professor of pathology, bacteriology and sanitary science in Queen's University, Kingston, Ont., has been appointed to the command of the new Queen's Military Hospital at Kingston.——Lieut. Ray V. McCarley, M.D., Vancouver, B. C., has left for England to join the Royal Army Medical Corps.——Dr. Hyman Lightsone, R. A. M. C., Montreal, has been awarded the medal of honor by the French government in recognition of services rendered in combating an epidemic of typhoid fever in the district of Querrien, Point Noyelles.——Capt. W. Norman Gilmour, M.C., R. A. M. C., Brockville, Ont., medical officer of the 16th Royal Scots, is in hospital at Boulogne, France, with a fractured right humerus.——Stewart S. Skinner, M.B., has resigned as registrar of the College of Physicians and Surgeons of New Brunswick and is leaving for overseas. Dr. John S. Bentley, St. John, has been appointed to succeed him.

GENERAL

Prophylaxis of Cancer in Porto Rico.—A propaganda committee has been appointed in Porto Rico, affiliated with the Cancer Commission of the United States, to educate the public in the prophylaxis of malignant disease. The committee includes six physicians with Dr. J. G. Brioso as chairman.

No Separate Health Department for Brooklyn.—A bill providing for a reconstruction of the city health department whereby Brooklyn would have an independent health department has been vetoed by Mayor Mitchell, who holds that instead of improving health administration, it would tend to make it less efficient than it is now, and would add a considerable burden to the taxpayer.

Union Endorses Industrial Hygiene Work.—The Amalgamated Lithographers of America recently adopted resolutions which have been sent to the mayor in which they express appreciation of the importance of the work of the Division of Industrial Hygiene and assure the department of health that the Division of Industrial Hygiene will have the support and cooperation of this union.

Georgia Railway Surgeons Meet.—The annual meeting of the Central of Georgia Railway Surgeons Association, held in Macon, May 3, the following officers were elected: president, Dr. Louis E. Broughton, Andalusia, Ala.; vice presidents, Drs. Alfonso J. Mooney, Statesboro, Ga., and Agnew H. Hilsman, Albany, Ga., and secretary-treasurer, Dr. Walter E. Saunders, Arlington, Ga.

Smallpox.—During the five weeks ended April 27, 1917, according to *Public Health Reports,* May 11, 1917, there were reported from seventy cities of the United States 1,157 cases of smallpox. The high points of the disease were reached in Minneapolis, where there were 154 cases, and in Austin, Tex., where there were 76. The disease was mild everywhere, except in Austin, where it is said the virulent type was present.

Dental Hygienists.—Next month ninety-six young women will be graduated from the Columbia University School of Oral Hygiene. This will be the first class of this kind graduated. Through these "dental hygienists" the department of health will inaugurate a new method of looking after the teeth of schoolchildren. The graduates in dental hygiene have been taught how to examine teeth and to clean them with instruments, and as soon as they are graduated will enter on this work in the schools.

The Teeth of Schoolchildren.—Oral Hygiene Week has brought out statistics with reference to the teeth of schoolchildren. Last year in its supervision of the health of schoolchildren the Bureau of Child Hygiene, which employs 117 physicians, 235 nurses and nine dentists, examined the teeth of 275,000 children and found that 166,000 children had bad teeth. The department of health now maintains eight special dental clinics in schools in various parts of the city. Since these clinics started in January, 1913, they have treated approximately 45,000 children. Altogether 65,000 teeth have been extracted and 20,000 filled. The department of health feels that the facilities for the care of the teeth of New York children are developing satisfactorily.

Food Expert Brinkler Seeks Abrogation of Fraud Order.—George H. Brinkler, who has posed nationally for some years past as a food expert and dietist, has petitioned the supreme

court of the District of Columbia to compel the postmaster general to abrogate a fraud order issued Aug. 19, 1914, barring Brinkler from the use of the mails. Brinkler was tried before a jury in Washington, D. C., in January last, on a charge of using the mails to obtain money under false pretenses, and was acquitted, but the postmaster general has allowed the fraud order to remain in force. To a request from Brinkler for the abrogation of this order the postmaster general replied that he found that the order had been properly issued and that its revocation for the purpose of permitting the resumption of a business found by the postoffice department to be fraudulent was not warranted.

FOREIGN

Deaths in the Profession Abroad.—**H. R. Jones** of Liverpool, aged 53, noted for his important work in training medical men for the diploma of public health, as well as for statistical and pathologic research.——**C. P. M. Boeck,** until recently professor of dermatology at the University of Christiania, aged 71. He founded in 1880 the journal now known as the *Tidsskrift for den norske Lægeforening.*——**v. Delsaux,** professor of otology at the University of Brussels, founder and editor of the *Presse Oto-rhino-laryngologique.*——**F. Labadie-Lagrave,** a well-known gynecologist and obstetrician of Paris, aged 73.——**P. Cruet,** pathologist and prosector at the University of Paris, aged 34.——**Gairal,** mayor of the town of Carignan, vice president of the Association générale des médecins de France and president of the Union des syndicats médicaux. His medical diploma dates from 1872.——**G. Jäger,** formerly professor of hygiene at Stuttgart, aged 84. His name is familiar on account of his invention of the clothing material that bears his name.

Death of Presiding Officer of Nobel Medical Prize Committee.—K. A. H. Mörner, professor of chemistry and pharmacy at the Karolinska Medico-Chirurgical Institute of Stockholm, died recently, aged 62. Since 1892 he has been rector of the institute, in which position he participated in drawing up the regulations for the prizes of the Nobel Prize committees, and since has been president of the Nobel Medical Committee. Count Mörner spoke several foreign languages well, and his addresses on the prize winners, their work and achievements, at the ceremonies of conferring the Nobel Prize in medicine, are said to have been a conspicuous feature of the Nobel presentation ceremonies, much appreciated by the Swedish lay public as well as by the profession. He spoke to Golgi in Italian, in awarding him the Nobel Prize, to Ramon y Cajal in Spanish, and to Pawlow in Russian, as well as in English to Ross and Carrel, and in French and German to the other recipients, making a short address in the recipient's own language as he presented him with the prize. Mörner's research and publications in the line of chemistry, especially physiologic chemistry, toxicology and chemical analysis, were notable. A work of his on physiologic albumin in the urine was awarded the Alvarenga Prize in 1895.

LONDON LETTER

London, April 28, 1917.

Vital Statistics for the Year 1915

The annual report of the registrar-general for 1915 has just been issued. As that was the first complete year of the war, the figures are unusually interesting. They are remarkable for the number of previous records which are broken. The marriage rate was the highest on record. The birth rate was the lowest. The death rate from typhoid fever was the lowest on record; that from influenza the highest since 1900, and that from measles the highest since 1896. Again, the age rates of spinsters marrying bachelors and of bachelors marrying spinsters were both the highest on record. Finally, the increase of boy babies over girls from July, 1915, to June, 1916, was the highest on record for fifty years. This seems to bear out the superstition that war causes a relative increase in the male as compared with the female birth rate. The idea, of course, is that Nature tries to compensate for the loss of male life in battle. The marriage rate was 19.5 per thousand, being 3.6 above the rate for 1914. The provisional figures for 1916, however, indicate that the marriage "boom" is passing. The birth rate was 22 per thousand, which is 3.5 below the average for the preceding ten years and 1.8 below the rate for 1914. But this rate compares favorably with that of other belligerent nations. The provisional rate for 1916 is still lower, being 21.6. The infant mortality during the year was 110 per thousand births. This is 5 above the rate in 1914, but below the average of the years 1905-1914. The provisional infant mortality rate for 1916 shows a fall to 91, the lowest on record. The civilian death rate was 15.7 per thousand, which is 1.2 above the average for the preceding ten years. However, various factors affect this rate, such as the withdrawal of many young men from civilian life. Most of the principal causes of death showed increased mortality, but scarlet fever, typhoid fever and diarrheal diseases were exceptions. Cerebrospinal fever showed an abnormally high death rate. A curious fact is a remarkable decrease in the number of male suicides. Thus suicides by poison numbered over 500 in 1913, the last complete peace year, while in 1915, the first complete war year, they were only about 300. Various explanations have been suggested. One is the increased price of poisons. But it seems more probable that the war by engrossing attention has to a certain extent diminished the introspection and the preying of personal troubles on the minds of morbidly inclined persons. There was a marked increase of tuberculosis among males and a slight increase among females. It must be borne in mind that these rates refer only to the civil population and are swollen by the healthy males taken away from civil life in large numbers. The average age of bachelors marrying spinsters was 27.33 years, and of spinsters marrying bachelors 25.47. The ratio of male to female births was 1,040 : 1,000. For the year July, 1915, to June, 1916 (the first complete year during which the births registered have been fully affected by the war), the ratio is still higher, 1,047 : 1,000. These ratios may be compared with that of the March quarter of 1915, which was not affected by the war and was 1,032 : 1,000.

PARIS LETTER

Paris, April 26, 1917.

The War

TREATMENT OF EMPYEMA FOLLOWING FIREARM WOUNDS OF THE CHEST

The present treatment of empyema consists of free drainage, the injection into the pleural cavity of a liquid to prevent the stagnation of the pus, and the expansion of the lung, with or without respiratory gymnastics, so that the lung and the parietes may come in contact with each other. When neither of these expectations is realized, there is initiated a long and unsatisfactory period of successive resections of the ribs, by the operation of Estlander or its modifications. Depage and Tuffier have devised a method of treatment consisting of two steps: First, pleurotomy is performed and the pleura sterilized, then the operation wound is closed. Depage and Tuffier have applied Carrel's method to these suppurations, that is to say, progressive sterilization by means of neutral solution of chlorinated soda used according to Carrel's method. When the bacteriologic findings are such as to indicate sterilization, the wound is closed and transformed into a sterile cavity, a closed pneumothorax, that will resolve itself spontaneously and permit of the contact of the lung and the chest walls.

The first step also includes the exploration of the pleural cavity in order to ascertain its extent, direction and the presence of diverticula. Direct examination with the finger, an instrument or an endopleural light gives exact information. Roentgenography of the chest, after a series of rubber tubes threaded with silver wire have been placed in the pleural cavity, shows the threads penetrating all the diverticula and indicates their depth, direction and extent. This exploration having been made, the tubes employed in the Carrel method are introduced into all the diverticula. Injections of the neutral solution of chlorinated soda are continuous or intermittent, every two hours. The dressing is changed every twelve or twenty-four hours. The temperature falls rapidly and the suppuration diminishes, so that when the point of sterilization is reached the compress maintained in the wound may be stained with only a few drops of fluid in twenty-four hours. This sterilization is obtained rapidly in recent cases, and is equally rapid, as has been shown, in benign cases (diplococcus, pneumococcus). It is much more difficult to secure, especially to maintain, in chronic cases. Five or six days after this sterilization has been obtained, they proceed to the closure of the wound, and for that, especially when it is a recent case, local anesthesia suffices (three or four injections of stovain at the point of suture). They use deep sutures of catgut and superficial sutures of silkworm-gut. One suture, including muscles and skin, passing as nearly as possible to the pleural cavity, is sufficient, and they obtain thus perfect primary union. The deep raw surface not sutured and in contact with the pleura need not

be disturbed, as it is sterile and heals without giving any trouble. The results of the operation are that the wound unites, the temperature becomes normal, the wound becomes cicatrized, and the respiration extends to all parts of the lung. During the period of healing the patient is required to make expiratory efforts in such a way as to distend the lung as much as possible.

The method is applicable in certain nonsurgical cases of purulent pleurisy as well as in traumatic pleurisies. Of twelve observations of Depage and Tuffier, ten were cases of traumatic pleurisy (in three of which there were broncho-pleural fistulas), and two were nonsurgical purulent pleurisies. Of the ten traumatic pleurisies, five were the result of wounds from shell fragments, four from bullet wounds, and one from a fragment of a bomb. In two cases, thoracotomies were performed on the day of the wounding. The other interventions had taken place from nine to seventy-seven days after the wounding. The time elapsing between the wounding or the beginning of the lesion and the closure had been from twelve days to a year. As a result of treatment, in seven cases there was complete recovery; in four others the results were uncertain; in one case the patient was still under treatment.

Summarizing, Depage and Tuffier think that a purulent pleurisy can be sterilized in many cases by the method of Carrel; when the pleurisy is sterile, the operation wound can be closed without disturbing the cavity underneath. In a certain number of cases the outcome can be improved, and this Depage and Tuffier insist should be attempted.

In line with the communication of Depage and Tuffier, Toussaint declares that he is always able to prevent persisting pleural fistulas for which the two surgeons have conceived their treatment, treating the empyema thus, as soon as it is diagnosed: thoracotomy with resection of the rib at the base; introduction of the index or index and middle fingers into the pleural cavity; detachment and extraction of the false membrane—a veritable curettage of the pleura—drainage with two drains; irrigation every other day with 25 per cent. hydrogen peroxid, and dressing with levigated boric acid powder in case of blue pus. Thanks to this technic, displacement of the lung is prevented and we are assured of the emptying and disinfection of the pleura, a cure without a persistent fistula, and the more or less rapid return of the patient to the front.

TREATMENT OF SALIVARY FISTULA FOLLOWING WAR WOUNDS

Morestin, who has treated sixty-two cases of such fistulas (of which thirty were of the gland, thirty of the canal and two involving the gland and the canal), presented to the Paris Surgical Society the results of his experience. The treatment of fistulas following war wounds may be reduced to a few simple rules: First, it is unnecessary to say that many of these fistulas close spontaneously. The indication, the most common and the most essential from the point of view of operative technic, is to extirpate with the greatest care the entire fibrous mass and the fistulous tract, preserving the soft and healthy tissues; when it is a fistula of the gland, to bring together the sides of the glandular excavation by layers of sutures and to seal hermetically the orifice that allows the escape of the saliva. For fistulas of the canal of Stenson, while it is true that satisfactory results may be obtained by divers procedures, it seems that only two are applicable in the cases actually presenting: the extirpation of the fistula, the mass of fibrous tissue and the mutilated portion of the canal, with establishment of drainage into the mouth, or extirpation with ligature and burying of the stump of the canal. Either method will cure the patient, but in case the first fails to secure the establishment of an artificial canal, the second seems more tempting, more clear, more rapid, and appears, in consequence, particularly to be recommended.

NECESSITY FOR TREATING SPINAL DEFORMITIES

Having ascertained that subjects of spinal deformities have been kept in the base hospitals for prolonged periods without being subjected to neurologic examinations permitting the determination of their condition and the institution of treatment which frequently would produce rapid benefit, the Neurological Society of Paris has expressed the view that all subjects presenting spinal deformities hospitalized in the sanitary formations of the rear should be sent to the regional neurologic centers and given the necessary roentgenologic and neurologic examinations and treatment appropriate to their condition, and also that the proper medicomilitary measures may be taken in regard to theim.

WATERPROOFING CLOTHING AND SHOES

Nievenglowski has communicated to the Academy of Sciences a formula for waterproofing shoes and clothing. It consists of a solution of paraffin in gasoline in the proportion of 30 gm. per liter. It is employed cold for clothes by dipping them into the solution. For shoes it may be applied warm with the aid of a brush. The procedure preserves for cloth and leather their softness and their color, and in addition has the advantage of waterproofing uniforms without requiring removal of the buttons, ornaments or insignia.

INDUCED ERUPTIONS IN SOLDIERS

Milian, physician to the hospitals of Paris, at the medico-surgical reunion of the Fifth Army, called attention to the increasing number of induced eruptions of variable clinical aspect. These artificial eruptions are grouped under several types, of which the most interesting are:

1. Eczema-like eruptions that represent well the aspect of induced dermatites, but of which as such the diagnosis is always difficult. They present frequently the characters of acute facial eczema, but subside in four or five days. Relapses appear suddenly and early in the morning, and the lesions present at once the maximum development of the eruption. One never encounters the minute vesicles of eczema, or the depression following the rupture of the vesicles.

2. Pustular eruptions, which are more frequent than the preceding. They are characterized by the eruption, on the hairy parts, by preference, in local regions easily accessible, of little pustules, full, nonumbilicated, frequently surrounding individual hairs; but these pustules have no areola and are all of the same age. They disappear completely in a few days. Relapses frequently follow, also, in series, suddenly and in the morning. The lesions may be confounded with the pyodermatites and nontrychophytic sycosis.

3. Pemphigoid eruptions, more rare, manifested by the appearance of great bullae or phlyctens, sometimes of the size of a large hazelnut, with a base of healthy skin, without redness, disappearing quickly in a few days, but reproducing themselves in the form of successive explosions.

4. Persistent sores, maintained with the aid of caustics or vesicants, presenting, sometimes, difficulty in diagnosis from gummatous ulcers.

5. Mucous plaques, resembling those of syphilis, well treated, but returning with new lesions in the mouth, resembling the mucous plaques of the inside of the cheeks, of the lower lip, or of the velum palati. But the eruptions on the fauces are ulcerations rather than papulous eruptions, there is no inflammatory reaction, there is no tendency to cicatrization, and they occur in crops. They are lesions produced by burns and not mucous plaques.

The diagnosis of induced eruptions is always difficult. The admission of fraud is obviously rare. The usual means of diagnosis consists especially in the lack of frankness of the subject, the absence of the signs characteristic of each eruption, the irregularity of the symptoms, the presence or exaggeration of abnormal signs, the provocation of a new eruption on a disguised suggestion, the spontaneous and rapid cure, the relapses, sudden and in series, etc.

WORKSHOP FOR THE CRIPPLED

The president of the republic recently visited, at Grand-Palais, one of the most interesting institutions established since the beginning of the war. The Union of the Foreign Colonies in France, which was organized to help the victims of the war, consists of generous philanthropic foreigners. As stated in a previous letter (The Journal, July 22, 1916, p. 297), the purpose of this foundation is to reeducate crippled and mutilated soldiers, so that they may return to civil life with a feeling of self-confidence. The institution at Grand-Palais represents only one result of the work done. Other activities of this foundation are the following: (1) the so-called "placing bureau" and a medical service (rue Scribe, No. 11); (2) a boarding school for invalids while being reeducated (quai Debilly, 28); (3) a second school of professional reeducation at the Maison-Blanche at Neuilly-sur-Marne (The Journal, Sept. 16, 1916, p. 891); (4) an agricultural center, the most important, at Juvisy-sur-Orge. The president of that association is M. W. V. R. Berry, president of the American Chamber of Commerce of Paris. The secretary-general and treasurer are both well known Hollanders, MM. Joseph Ascher and M. Van Hemerst. The council of administration contains the names of all the principal bankers and merchants of the allied countries.

Association News

NEW YORK CLINICAL SESSIONS

(*Continued from page 1495*)

On account of lack of space the remainder—more than half of the clinical programs—will not appear in THE JOURNAL. The complete program is available and will be mailed to those who request it, sending to the committee a stamped addressed envelope. Address 17 West Forty-Third Street, New York City.

ADMISSION TICKETS to the Clinics, Demonstrations and Exhibits incorporated in the Clinical Sessions program will be issued *only* to members and guests who register and make application at the American Medical Association Headquarters.

GUESTS other than physicians and dentists will not be admitted to the medical and surgical clinics.

SPECIAL BADGES and BUTTONS will be issued to guests (other than physicians and dentists) of the Clinical Sessions and of the American Medical Association who wish to attend the demonstrations, moving pictures and exhibits or inspect the different nursing, medical, municipal and public health institutions arranged for in the program by the Committee on Preventive Medicine and Public Health and the Committees on Allied Topics, including Trained Nursing and Training Schools, District Nursing System, Hospital Social Service, and Planning and Financing of Municipal and Nonmunicipal Hospitals.

FELLOWS OF THE AMERICAN MEDICAL ASSOCIATION may apply in advance by mail for tickets of admission to the Clinical Sessions. In writing for the three sessions (Monday afternoon, Tuesday morning and Tuesday afternoon) give first, second and third choice, as seating capacity of amphitheaters is limited. Tickets of admission will be delivered after registration at the American Medical Association Headquarters.

GENERAL CLINICAL SESSIONS COMMITTEE

Wendell C. Phillips, Chairman

Samuel G. Gant, Sec.	**D. Campbell, Asst. Sec.**
Alexander Lambert	**Floyd M. Crandall**

Marriages

A. WEISE HAMMER, M.D., to Miss Helen Daniel von Nostrand, both of Philadelphia, at Atlantic City, N. J., April 14.

MARION ARTHUR BLANKENHORN, M.D., to Miss Martha Findley Taggart, both of Cleveland, at Columbus, Ohio, May 1.

LONNIE ALFONSO COFFIN, M.D., Farmington, Iowa, to Miss Gretta Harmon of Des Moines, Iowa, at Farmington, April 19.

JOSIAH BAKER HENNEBERGER, M.D., U. S. Army, to Miss Gabriella Edilena Lassell, both of Washington, D. C., May 5.

SYLVESTER DOGGETT, M.D., Bradford, Ark., to Miss Mae Wilson Thomas of Sheldon, Mo., at Nevada, Mo., May 6.

EARL OWEN REYNOLDS, M.D., Greenfield, Iowa, to Miss Clyde Rigdon of Louisville, Ky., at Greenfield, March 22.

CLARKE WILSON MANGUN, M.D., Kansas City, Kan., to Miss Vallie Hazel Hoffman of Galena, Ill., May 10.

LIEUT. PHILIP PALMER GREEN, M. C., U. S. R., St. Louis, to Miss Juliette Loving of Richmond, Va., May 5.

WILLIAM HULBERT BANKS, M.D., Hudson, Wis., to Miss Bess Gibson of Windom, Minn., April 30.

WILLIAM JOSEPH MACMURTRIE, M.D., to Miss Marie Adèle Edelman, both of Philadelphia, April 11.

CARL TEN BROECK, M.D., Princeton, N. J., to Miss Janet Rinaker of Carlinville, Ill., April 28.

WILLIAM HAL NEEL, M.D., to Miss Terres Russell, both of Bowling Green, Ky., April 18.

ROBIN W. C. FRANCIS, M.D., to Miss Laura J. Wilson, both of Cincinnati, May 2.

FRED M. SMITH, M.D., to Miss Helen Louise Bushee, both of Chicago, recently.

FRANK MATTHEW CONLIN, M.D., Omaha, at North Platte, Neb., April 10.

Deaths

Winslow Anderson, M.D., San Francisco; University of San Francisco, 1884; M. R. C. P. London, M. R. C. S. Eng., and L. S. A. London, 1891; aged 56; a Fellow of the American Medical Association, and since 1896 a member of the General Medical Council of Great Britain; founder of St. Winifred's Hospital, San Francisco; assistant to the chair of materia medica and medical chemistry and later adjunct professor of theory and practice of medicine in his alma mater; since 1896, professor of abdominal surgery and gynecology in and president of the College of Physicians and Surgeons, San Francisco; editor of the *Pacific Medical Journal* for many years; colonel and surgeon general of the National Guard of California from 1900 to 1911; died in New York, May 7.

Roberts Poinsette Izlar, M.D., Waycross, Ga.; Medical College of the State of South Carolina, 1889; aged 50; a Fellow of the American Medical Association; a member of the Association of Military Surgeons of the United States; once president of the Florida State Association of Railway Surgeons and Florida Medical Association; consulting surgeon to the Plant System; major and surgeon of the First Florida Infantry, U. S. Volunteers, during the war with Spain; city physician of Waycross and at one time a member of the city council; died at his home, April 29.

Henry Winans Burnett, M.D., Providence, R. I.; Long Island Hospital College, Brooklyn, N. Y., 1897; aged 44; a Fellow of the American Medical Association; and a member of the Association of Military Surgeons of the United States; and New England Pediatric Society; a specialist in the diseases of children; formerly captain in the Medical Corps of the Rhode Island National Guard and Assistant Surgeon General; pediatrist to the Rhode Island Hospital, North End Dispensary and St. Vincent de Paul Infant Asylum, Providence; died at his home, May 7.

John M. Farrington, M.D., Binghamton, N. Y.; New York Medical College, New York, 1857; aged 84; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; Surgeon of the One Hundred and Thirty-Seventh New York Volunteer Infantry, during the Civil War; consulting physician to the Binghamton City Hospital; a strong advocate of temperance; died at his home, April 19.

Daniel George Reilly, M.D., Dayton, Ohio; University of Vermont, Burlington, 1894; aged 52; formerly a Fellow of the American Medical Association, a member of the Ohio State Medical Association; consulting physician to St. Elizabeth's Hospital, Dayton, and surgeon to the various traction companies centering in that city; died in his home, April 30, from heart disease.

Lee M. Nusbaum, M.D., Storm Lake, Iowa; Northwestern University Medical School, Chicago, 1893; aged 53; a member of the Illinois States Medical Society, local surgeon for the Chicago, Milwaukee & St. Paul System; trustee of Buena Vista College; a member of the Storm Lake School Board; died at his home, May 6, from erysipelas.

Neil Watson Robinson Straw, M.D., Portland, Me.; Bowdoin Medical School, Brunswick, Me., 1877; aged 63; a Fellow of the American Medical Association; physician to the Maine Eye and Ear Infirmary, Portland, and to the Cumberland County Jail; died at his home, April 29, from angina pectoris.

A. Byron Darby, M.D., Waterloo, Ind., Eclectic Medical Institute, Cincinnati, 1863; aged 77; formerly a Fellow of the American Medical Association, and at one time president of the DeKalb County, Ind., Medical Society; for more than half a century a practitioner of Waterloo; died at his home, April 27.

John H. Wetzel, Ravenswood, W. Va. (license, W. Va., 1881); aged 62; formerly a Fellow of the American Medical Association; secretary-treasurer of the Jackson County Building and Loan Association; died in a hospital at Wheeling, April 10, from a nervous breakdown.

Harry M. Lamberson, M.D., Colorado Springs, Colo.; Medical College of Indiana, Indianapolis, 1902; aged 42; formerly a Fellow of the American Medical Association, and a practitioner of Connersville, Ind.; died at his home, April 30, of tuberculosis.

James Chapman Morrow, M.D., Bellevue, Ohio; Cleveland-Pulte Medical College, Cleveland, 1902; aged 57; formerly a member of the Ohio State Medical Association; a specialist

in surgery; died at his home, April 29, from cerebral hemorrhage.

Edwin Burchett, M.D., Seymour, Ia.; College of Physicians and Surgeons, Chicago, 1903; aged 37; a Fellow of the American Medical Association; vice president of the Peoples Savings Bank, Seymour; died in the Centerville (Iowa) Hospital, April 14.

Harry F. Kilty, M.D., Shenandoah, Pa.; Medico-Chirurgical College of Pennsylvania, Philadelphia, 1911; aged 27; a member of the Medical Society of the State of Pennsylvania; was shot and killed in his office, May 5, by the husband of a patient.

James Bedle Wainwright, M.D., Manasquan, N. J.; College of Physicians and Surgeons in the City of New York, 1877; aged 61; formerly a Fellow of the American Medical Association; died at his home, February 21, from arteriosclerosis.

Charles D. Alfred Fisher, M.D., Detroit; Western University School of Medicine, London, Ont., 1903; aged 36; a member of the Michigan State Medical Society; died in his rooms in Detroit, March 25, from cerebral hemorrhage.

William Gale, M.D., Westfield, N. J.; Long Island College Hospital, Brooklyn, 1867; aged 85; a member of the Medical Society of New Jersey; died in the Muhlenberg Hospital, Plainfield, N. J., April 15, from pneumonia.

Frederick L. Pohlmann, M.D., St. Louis; Missouri Medical College, St. Louis, 1897; a Fellow of the American Medical Association; was shot and killed in front of his office in St. Louis, May 14, by a former patient.

William Edward Baker, M.D., Chicago; Jenner Medical College, Chicago, 1900; College of Physicians and Surgeons, Chicago, 1902; aged 44; died in the Frances Willard Hospital, Chicago, May 5, from pneumonia.

Frank G. G. Denebrink, M.D., Sheridan, Wyo.; University of Munich, Bavaria, 1891; aged 53; a member of the Wyoming State Medical Society; died at Long Beach, Calif., March 11, from acute nephritis.

Royal J. Kingsley, M.D., Seattle; Hamline University, Minneapolis, 1908; aged 33; a Fellow of the American Medical Association; a specialist in surgery; died at his home, May 4, from heart disease.

George Henry Burleigh, M.D., Estelline, S. D.; Trinity Medical College, Toronto, 1900; aged 46; a Fellow of the American Medical Association; a specialist in surgery; died at his home, April 30.

Benjamin M. Cromwell, M.D., Eckhart Mines, Md.; New York University, New York, 1857; aged 82; surgeon in the Confederate service throughout the Civil War; died at his home, April 30.

Samuel Derickson, M.D., Bedford, N. Y.; College of Physicians and Surgeons in the City of New York, 1890; aged 48; died at his home, April 29, from cerebral hemorrhage.

Samuel Mercer Schell, M.D., Hamilton, Ohio; Homeopathic Hospital College, Cleveland, 1865; aged 77; died at his home, April 27, from cerebral hemorrhage.

Edwin Prouse, M.D., Windsor, Ont.; Trinity Medical College, Toronto, 1879; University of Toronto, 1888; aged 67; died at his home, January 27, from nephritis.

James H. Waddell, M.D., Wauseon, Ohio; Hahnemann Medical College, Chicago, 1886; aged 63; a veteran of the Civil War; died at his home, April 21.

John Abbott Crosby, M.D., Minneapolis; Harvard Medical School, 1882; a Fellow of the American Medical Association; aged 62; died at his home, May 1.

Luke Channeller Higgins, M.D., Parsons, Kan.; University of Buffalo, N. Y., 1868; aged 71; died at the home of his daughter in Parsons, April 9.

R. C. Kennedy, Fayetteville, Tenn. (license, Tennessee, 1889); aged 61; also a druggist; died at his home, April 21, from cerebral hemorrhage.

Richmond Simmons, M.D., De Witt, Mich.; Pulte Medical College, Cincinnati, 1878; aged 70; died at his home, April 22, from heart disease.

Charles Aristides Russell Moore, M.D., Mount Jackson, Va.; Hahnemann Medical College, Philadelphia, 1870; died at his home, April 19.

John R. Porter, Lebanon, Ind. (license, Indiana, 1897); aged 69; died at his home, March 9, from cerebral hemorrhage.

Henry H. Jackson, M.D., Chicago; Homeopathic Hospital College, Cleveland, 1865; aged 77; died at his home, April 8.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE CLAIMED GALACTAGOGUE EFFECTS OF NUTROLACTIS AND GOAT'S RUE NOT SUBSTANTIATED

Report of the Council on Pharmacy and Chemistry

Specific lactagogues—drugs which stimulate the secretion of milk—are unknown to science. Yet medical publications give space to advertisements of a proprietary—"Nutrolactis"—which is said to increase the milk supply of nursing mothers. Since dependence on a preparation of this kind is likely to cause neglect of the only means of increasing a scanty milk supply of nursing mothers, this proprietary and the drug "goat's rue," (*Galega officinalis*) which the proprietors hint as being the potent constituent, were subjected to a critical study to determine their possible influence on milk secretion. For this purpose the Council secured the help of A. J. Carlson, Ph.D., professor of physiology, University of Chicago. Dr. Carlson, with the aid of A. Woelfel, M.D., and Marian Lewis, Sc.M., undertook to estimate the effect of Nutrolactis and of goat's rue on nursing dogs and goats with the intention of extending the study to nursing mothers if the animal experiments so warranted. The contribution, "The Alleged Galactagogue Action of Galega and Nutrolactis," by Marian Lewis and A. J. Carlson from the Hull Physiological Laboratory of the University of Chicago, which appears below, shows that Nutrolactis and goat's rue are without influence on the milk secretion in nursing animals.

The Council endorsed the work of Lewis and Carlson and held that the claimed galactagogue effects of Nutrolactis and goat's rue are not substantiated.

W. A. Puckner, Secretary.

The Alleged Galactagogue Action of Galega and Nutrolactis*

Marian Lewis, Sc.M., and A. J. Carlson, Ph.D.
CHICAGO

It is well established that the food best adapted to the energy and growth requirements of the infant is normal mother's milk. Any decrease in quantity or deterioration in quality of the maternal secretion is soon followed by a parallel impairment of growth, loss of weight, or lowered resistance to infection in the infant. The widespread occurrence of deficient milk secretion in mothers is a matter of common knowledge. The discovery of true lactagogues, or specific substances which increase the quantity and quality of the milk on being administered to nursing mothers, would therefore be of very great importance. In view of this great medical and economic interest in true lactagogues it is not surprising to find that the medical and biologic literature records discoveries of lactagogues, based on hope rather than demonstration, and that spurious lactagogues are on the market.

Some of the factors known to affect milk secretion are general health, food supply, psychic state and heredity. The mechanism of secretion and the method by which these factors affect it are imperfectly understood. In general it has been observed that milk yield improves both in quantity and in quality with improvement in general health, better food supply, and more favorable psychic state. The influence of heredity is taken advantage of by dairymen who are well

* From the Hull Physiological Laboratory of the University of Chicago.

* This investigation was begun in 1915 by Drs. A. Woelfel and A. J. Carlson.

acquainted with the potential milk production of the different breeds of cattle.

Among the substances which have been reported to stimulate milk secretion may be mentioned the extract of the posterior lobe of the hypophysis. But pituitary extract is not a true lactagogue, because its action is confined to the smooth musculature of the gland ducts, causing a more or less complete ejection of the milk already formed; it has no effect on the gland cells or the actual secretory process in the direction of increasing the milk yield. Extracts of thymus, corpus luteum, ovaries, uterus, placenta, fetus and the mammary gland itself have also been reported to have a temporary stimulating effect on the quantity of milk secreted, but when these extracts are given by mouth they are apparently without specific influence on the mammary gland.

Galega, or goat's rue (*Galega officinalis*), is an herb described in the National Formulary as being slightly bitter and astringent. In 1873, Gillet-Damotti,[1] in a communication to the French Academy, stated that this plant when fed to cows increases the secretion of milk from 35 to 50 per cent. Other French writers have affirmed that goat's rue is a lactagogue. In Germany, Fragner[2] made a preparation called Galegal, using galega as the active principle and combining it with lactose to give it a pleasant taste and make it soluble in water, milk, coffee and tea. This preparation was reported on favorably by Scherer,[3] who asserts that he obtained positive results in fifty-four of the eighty cases in which he used it.

More recently Huët[4] tested the effects of Theinhardt's Hygiama lactogene on four lactating women. This preparation is said to be composed of hygiama,[5] galega and anise. Analysis showed that it contains albumins, fat, soluble and insoluble carbohydrates, salts and water. Huët could not observe any influence from the use of this preparation, either on the quantity or on the composition of the milk secreted.

Nutrolactis[6] is a commercial preparation sold by the Nutrolactis Company of New York at $1 a bottle. The label states that it contains 5 per cent. of alcohol; that it contains fluidextracts of the family of "galactogogic plants," and that it is intended to "increase the supply of mother's milk." It is recommended to maintain quality and quantity until the end of normal lactation." Nutrolactis is also recommended for a mother debilitated by lactation. It is claimed that "Nutrolactis does not *force* the secretion of milk but merely assists such secretion." Years ago Millbank[7] reported good results from the use of Nutrolactis. After more than a year's use he concluded that it was more satisfactory than any other lactagogue hitherto employed by him, which is not saying very much, as specific lactagogues are as yet unknown. Nutrolactis is still (1916) extensively advertised in various medical journals as a lactagogue.

The Burden of Distrust

THE following unsolicited letter to the Advertising Department of an Indianapolis newspaper from a woman-reader clearly shows how bad advertising arouses public suspicion against all advertising:

"I have been suffering with rheumatism for the last sixteen months, have carefully read the different rheumatism 'cures' advertised, and faithfully tried many of them, but they are all 'rotten,' so *I have not much faith in any of the advertisements I read.* Of course, it is alright with the fellow that advertises his goods, he gets the money, the buyer gets worse than nothing.

"Now if you can cite me an advertised 'rheumatism cure' that really cures, I'll not only be under everlasting obligations to you, but will have more *faith in advertisements.*

"It seems to me it is up to you 'advertising specialists' to make these 'medicine men' either 'put up or shut up,' and can't something be done to keep such advertisements out of the papers which use pictures of women with goiter, boy with swollen jaw, men drawn over and walking with cane, etc. I think they are horrid enough to make one sick.

"Hoping that my opinion of *some* advertising will not offend, I am

Very truly yours,

Mrs. D. M. B.
Marion, Ind.
April 10, 1917.

ISSUED BY THE
NATIONAL VIGILANCE COMMITTEE
ASSOCIATED ADVERTISING CLUBS *of the* WORLD
MERCHANT'S BANK BLDG., INDIANAPOLIS

This is a slightly reduced reproduction of one of several leaflets sent out by the National Vigilance Committee of the Associated Advertising Clubs of the World. It is by such constructive work as this that public confidence in advertising is being restored.

METHODS OF INVESTIGATION

The alleged lactagogue action of galega and Nutrolactis was tested on lactating dogs and goats. In these animals the psychic factors, or suggestion, are largely eliminated. If the results had been positive or had indicated lactagogue action, the test would have been extended to nursing women. The puppies and kids were weighed before and after nursing, and a record kept of the amount of milk obtained at each nursing (the animals nursing from three to five times daily). The mothers were fed with varying doses of the drugs, and the milk yield compared with that of a control period during which no drugs were administered. An effort was made to keep the conditions of the experiments uniform throughout.

The galega was ground and mixed with the food. The Nutrolactis was mixed with food given by the stomach tube, or in some cases with a spoon. Galega was tested on two goats and Nutrolactis on one goat and nine dogs. The results are given herewith:

GALEGA

Goat 1: Control period, 1,600 gm., milk av. daily yield for 7 days.
Galega period (30 gm. galega mixed with oats), 860 gm. milk av. daily yield for 8 days.
Kids weaned at end of period.

Goat 2: Control period, 1,161 gm. milk av. daily yield for 9 days.
Galega period (30 gm. galega mixed with oats), 860 gm. milk av. daily yield for 8 days.
(25 gm. galega in same way), 810 gm. milk av. daily yield for 10 days.
Control period, 896 gm. milk av. daily yield for 6 days.

NUTROLACTIS

Goat 3: Control period, 896 gm. milk av. daily yield for 6 days.
Nutrolactis period (30 c.c. Nutrolactis mixed with oats), 658 gm. milk av. daily yield for 9 days.
Control period, 666 gm. milk av. daily yield for 5 days.

Dog 1: Control period, 176 gm. milk av. daily yield for 7 days.
Nutrolactis period (8 c.c. Nutrolactis by stomach tube), 55 gm. milk av. daily yield for 12 days.

Dog 2: Control period, 189 gm. milk av. daily yield for 6 days.
Nutrolactis period (8 c.c. Nutrolactis by stomach tube), 72 gm. milk av. daily yield for 11 days.

Dog 3: Control period, 93 gm. milk av. daily yield for 8 days.
Nutrolactis period (8 c.c. Nutrolactis on bread), 17 gm. milk av. daily yield for 5 days.

Dog 4: Control period, 28 gm. milk av. daily yield for 7 days.
Nutrolactis period (8 c.c. Nutrolactis by stomach tube), 47 gm. milk av. daily yield for 6 days.
(10 c.c. Nutrolactis by stomach tube), 43 gm. milk av. daily yield for 8 days.
Control period, 41.5 gm. milk av. daily yield for 6 days.
Nutrolactis period (10 c.c. Nutrolactis by stomach tube), 33.5 gm. milk av. daily yield for 4 days.

Dog 5: Control period, 67 gm. milk av. daily yield for 6 days.
Nutrolactis period (10 c.c. Nutrolactis on bread), 81 gm. milk av. daily yield for 6 days.

Dog 6: Control period, 40 gm. milk av. daily yield for 5 days.
Nutrolactis period (10 c.c. Nutrolactis by stomach tube), 33 gm. milk av. daily yield for 8 days.
Control period, 26 gm. milk av. daily yield for 4 days.

Dog 7: Control period, 283 gm. milk av. daily yield for 9 days.
Nutrolactis period (10 c.c. Nutrolactis by stomach tube), 155 gm. milk av. daily yield for 15 days.

1. Gillet-Damotti: Compt. rend. Acad. d. Sc., July 7, 1873.
2. Fragner: Wien. med. Wchnschr., 1910, **60**, 1033-1036.
3. Scherer: Wien. med. Wchnschr., 1910, **60**, 1033-1036.
4. Huët: Nederlandsch Tijdschr. v. Geneesk., 1914, **1**, 1353-1370.
5. Hygiama is said to be a food consisting of condensed milk, with (fatless) cocoa and cereals added to it (Encyclopedia and Dictionary of Medicine and Surgery, 1907).
6. The North Dakota Agricultural Experiment Station has recently published (Bulletin 22, 1915, p. 386) a complete chemical analysis of Nutrolactis. It contains only 0.60 per cent. solids (including strychnin and emodin). It has a bitter taste. The alcohol content was 3.5 per cent. The report concludes: "a little strychnin, a little alcohol, and a little laxative is about all there is to cause an increase in the milk secretion."
7. Millbank: New York Med. Jour., 1889, **50**, 544.

(15 c.c. Nutrolactis by stomach tube), 82 gm. milk av. daily yield for 6 days.
Control period, 33 gm. milk av. daily yield for 3 days.

Dog 8: Control period, 238 gm. milk av. daily yield for 8 days.
Nutrolactis period (20 c.c. Nutrolactis on bread), 223 gm. milk av. daily yield for 4 days.
(20 c.c. Nutrolactis on bread), 46 gm. milk av. daily yield for 6 days.

Dog 9: Control period 223 gm. milk av. daily yield for 6 days.
Nutrolactis period (10 c.c. Nutrolactis on bread), 178 gm. milk av. daily yield for 15 days.
(15 c.c. Nutrolactis on bread), 146 gm. milk av. daily yield for 5 days.

COMMENT AND CONCLUSION

Goat 1 had already been lactating for over two months, and the yield was gradually decreasing at the time the observations were begun. The administration of galega did not check this decrease. Goat 2 should have been a very favorable subject, for the kid was about a week old at the time the observations were begun. Both galega and Nutrolactis caused a decrease in milk yield of this animal. This decrease is perhaps partly due to the animal's distaste for the drugs and her consequent failure to eat as well as during the control periods.

Administration of Nutrolactis was accompanied by an increase in milk in only two animals, Dog 4 and Dog 5. A detailed examination of the records of these two dogs shows that in both cases *there was a progressive increase in milk yield during the control period* and that administration of the drug failed to accelerate this increase. On the contrary, the curve for Dog 5 takes a sudden drop immediately after the first administration of the drug.

The records of Dogs 6 and 7 show that the yield during the second control period is lower than that of the preceding periods. Although the administration of the drug in both cases was followed by a decrease in the yield, it may be urged that the drug has some lactagogue action, for its discontinuance was followed by a decrease in yield. This effect, however, is also apparent rather than real, for the data show a gradual falling off in yield during the period of administration of the drug, which decrease was not accelerated by withdrawing the drug.

Our data show that galega and Nutrolactis, when taken by mouth, and the elements of suggestion excluded, had no beneficial effect on lactation—at least so far as the quantity of milk is concerned.

Correspondence

ABROGATE THE PATENT ON SALVARSAN

To the Editor:—Considerable interest has been aroused in Congress concerning the abrogation of the patent rights on salvarsan. This drug was patented by Ehrlich and Bertheim, citizens of the German empire. These patents were assigned to Farbwerke vorm. Meister, Lucius and Bruening of Hoechst a. M., Germany, a corporation. No American name so far as we could learn was mentioned.

There is a branch of this firm, or an agent, in New York who has entire charge of the sales in the United States. The patents are very comprehensive and cover the process of manufacture, the chemical substance, the method of puting it into ampules, the process of preparation just prior to its being used and, finally, the name is trade-marked. Under the patent on the process of manufacture No. 986144, there are five separate claims. In order to show the breadth of these rights we cite claim No. 3:

> "The process of manufacturing new arsenical remedies, which consists in treating nitrooxyphenylarsinic acids with a strong reducing agent, as hereinbefore described."

By this it will be seen that the use of any strong reducing agent on any of the substances belonging to the group of nitrooxyphenylarsinic acids is forbidden. This is such a basic reaction and such a comprehensive claim that the manufacture of all allied processes is absolutely blocked.

Furthermore, there are eight claims on the ampules containing the substance with a nonoxidizing gas, and, lastly, there are seventeen claims on the final precipitation and redissolving with sodium hydroxid just prior to its being injected. It would appear from this that a physician would infringe the patent rights if he used this method of preparation on any salvarsan or similar compound not made by this German firm. These patents run for seventeen years, but apparently the trademark on the name "salvarsan" is permanent. It is a matter of common experience that when a substance has been known for seventeen years under one name, the rights practically become perpetual, for neither will the public nor the profession accept the same substance under another name. The practical point at issue is that while the patent has eleven years yet to run, it in effect goes to perpetuity.

There is no other country that allows the comprehensive and iron-clad protection that the United States does. In Germany the process of manufacture is patented, but not the chemical substance, so that if an ingenious individual can devise a different method of manufacture, he can make and sell the substance under its chemical name. In the United States it matters not how ingenious any one may be, he is absolutely blocked by the patent on the chemical substance. Several years ago efforts in Congress to pass a law changing these patent grants failed, and it is stated that the failure was due to the activities of representatives of German interests.

The retail price of an ampule containing 6 decigrams of salvarsan has varied from time to time. At present it sells at $4.50. While the cost of such an ampule cannot be specifically stated, it has been estimated to be from 14 to 35 cents. A well known and thoroughly responsible man, who has had practical experience in manufacturing the drug on a fairly large scale, promises to sell it after some time (in two years) at 50 cents per dose. The foregoing estimation can be supplemented by the following: So far as we have been able to learn from the description of the patents and what has been told us by chemists, the following chemicals are used: In making salvarsan the two basic substances are anilin at 50 cents a pound, and arsenic acid at 90 cents a pound. In the process of manufacture there are used, in addition, oxalic acid at 75 cents a pound, caustic soda at 40 cents a pound, nitric acid at 21 cents a pound, sulphuric acid at 16 cents a pound, magnesium chlorid at 30 cents a pound, and sodium hydrosulphite at $3.50 a pound. The price of the last named substance is normally under 50 cents a pound. The retail price of the finished product as prepared in small doses for the customer is $3,397 a pound. In justice it must be stated that there is some fairly expensive machinery to be installed and that the services of one or two expert chemists are required (the major part of the work, however, being done by technicians). Finally, a pound is divided into 624 glass ampules containing 6 decigrams, with a nonoxidizing gas. The price of the empty ampules ranges from 2 to 5 cents. The other materials which go along with it (a small pasteboard box, tiny file and printed directions) should not cost more than a few cents. This calculation does not include certain overhead charges, cost of distribution, etc., but even when a reasonable allowance for these is included, the fact remains that on this basis the final retail price of $3,397 a pound is excessive and unjustifiable.

It is needless to mention to physicians the widespread effects, both physical and social, of syphilis or its prevalence in communities, but we venture to call attention to the following facts in order that the point in question may be emphasized:

Among 1,100 patients taken at random in a large dispensary, 11 per cent. gave a positive Wassermann reaction. In 600 inmates of a jail and penitentiary, the percentage was over 20, and in some groups it was as high as 28 per cent. In 500 patients in a hospital for the insane there were 11 per cent. positive; in another similar hospital in the same state, statistics showed 32 per cent. positive. Among 400 prostitutes, 67 per cent. had syphilis. In a large city almshouse, over 30 per cent. of its inmates were syphilitic. Among the cases in a private ward of a hospital which represents a very high class clientele, there were 5 per cent. positive. In Bellevue Hospital, 40,000 Wassermann tests were made on all the patients over a given period; the average, so we were

informed by one of the staff, was over 26 per cent. positive. Among the applicants for the army over a given period, 15 per cent. were found syphilitic. It would seem, therefore, that we are justified in estimating that there are in the United States from 6,000,000 to 8,000,000 syphilitics. We are quite aware that in the rural population the disease is not nearly so prevalent as in cities and towns, but we believe that it exists there to the extent of about 4 per cent. Recent investigations have shown that aortitis is largely syphilitic in origin; that certain conditions of the heart, particularly around the aortic valve, are syphilitic; that angina pectoris is sometimes caused by this disease; that cancer of the tongue rarely develops in a nonsyphilitic individual, and that cancer of the rectum is more often found among syphilitics than among nonsyphilitics; that aneurysm of the aorta is almost always syphilitic in origin, and that locomotor ataxia and general paresis have no other known cause. There are encouraging signs of an awakening as to the need of more adequate treatment for syphilis in hospitals and dispensaries. Several of these have already organized special departments, and others are sure to follow. Certain cities are establishing free dispensaries for syphilis and gonorrhea. The army medical officers will find a large number of syphilitics in examining recruits, and the social disruption caused by the war will greatly increase the malady.

All this goes to show the great and immediate need of a large supply of salvarsan at a price within reach of hospitals and the poor. We need it not only for the period of the war, but we may need it more after the war, because then we may have to treat this multitude of recently infected individuals.

We submit that no government should permit the patenting, and therefore the private control, of an agent which is of such great value to the welfare of its people and so strikingly needed by so many of its poor. This is an instance in which property rights are held higher than fundamental human rights; nay more, where the health and even the lives of citizens are allowed to be sacrificed rather than interfere with an alien's claim. Is it not time for Congress to adjust this matter and not allow this iniquitous condition longer to survive?

We urge, therefore, that the medical societies of the country by resolutions ask Congress permanently (not merely during the period of the war) to abrogate the patent rights on this preparation; in addition, we urge that personal letters be sent to congressmen. Three of these communications should be sent, one to the representative in Congress of the territory from which the communication is sent, one to the chairman of the committee on patents of the House, and one to the chairman of the committee on patents of the Senate. It is specifically urged that permanent adjustment be requested, and not simply a war measure.

J. M. T. FINNEY, M.D.,
GEORGE WALKER, M.D.,
Baltimore.

NIGHT CLINIC ON INDUSTRIAL MEDICINE AND SURGERY AT RUSH MEDICAL COLLEGE

To the Editor:—Rush Medical College started a course on industrial medicine and surgery at the beginning of the present year. The course is conducted by lectures and a dispensary clinic, and is held at night. Several medical schools have offered courses on occupational diseases, industrial hygiene, vocational diseases, or some other branch of industrial medicine, but this, I believe, is the first school to offer a comprehensive course covering all branches of industrial medicine and surgery. The idea is also unique of holding this clinic at night, which is certainly the logical time, for the clinic is meant primarily for the poor wage earner or for the employee of the small industry who has a large family dependent on him and who cannot get proper medical care either at home or in the industry at which he is employed.

A course on industrial medicine and surgery, to be comprehensive, must include the following branches: occupational diseases—prevention, diagnosis and treatment; supervision of health of employees, including periodic medical examination of employees, medical examination of applicants for work, prevention of disease among employees, industrial hygiene and plant sanitation; care of injured employees, which must include emergency surgery, first aid, all medicolegal aspects of the result of injury, and the surgeon's part in accident prevention work; prevention of accidents, including the "safety first" movement, cooperation between the physician and the safety engineer; and socialized medicine, including the treatment of certain diseases, the class of employees who should receive free medical care, the work of the visiting nurses among employees, and the duties of the social worker.

One of the purposes is to make a general survey of the health condition of every employee who reports to the clinic. Thus, a medical examination is made of every patient, whether he reports to the dispensary on account of some minor injury or because he has a slight cold. A general physical examination is given, and then the patient is passed on for a dental examination, a nose and throat and eye examination, into the hands of the genito-urinary department, and through the orthopedic department, in order to ascertain the condition of his feet, a very important part of the survey of a working man's condition. Through the aid of the social workers a survey is likewise made of the patient's home and working conditions. With this comprehensive survey of the physical condition of the employee, his living conditions and his working conditions, we are usually able to correct all things which are proving detrimental to that employee's health. Likewise, it gives the student a broader relationship toward his patient than he has ever had before. He obtains not only the medical aspect of the case, but also the medicosociologic aspect. It is a course designed to fit the student for this new specialty, industrial medicine and surgery.

Cooperation between the night clinic and the employers of the patients will be secured through the services of a social worker, who will visit the working places of these patients and secure such changes in work or such means of prevention as have been developed by each individual case.

Frequently such agencies as the United Charities have individuals or families applying to them for aid because of real or feigned inability to work. These individuals will be referred to the department of industrial medicine and surgery for examination and recommendation as to the expected duration of such inability, if it is found to exist, and as to the kind of work the patient may do. Here again it will devolve on the social worker either to secure employment for such patients or to cooperate with the United Charities.

One of the most important functions of this clinic will be the study and treatment of occupational diseases, and, through the social worker, securing the cooperation of employers for the prevention of such diseases.

HARRY E. MOCK, M.D., Chicago.

Child Labor on the Farm.—A *Bulletin* of the National Children's Bureau gives information of the results of the employment of children on the farms of England following regulations providing for exemption from school for this purpose. The granting or withholding of exemptions has been in most places in the hands of the local educational authorities, but their policy has not been uniform, and there has been complaint in some sections. The board of education has advised the local authorities that the employment of such labor was to be considered as an unusual measure, and that exemptions should be granted after the personal investigation of each case; that they were to see that adequate wages were offered, and that in no case should children be excused from school when children past the age of compulsory attendance were available. The authorities should secure particulars of the work, the wages offered and the period for which the labor was required; the work should be light and suitable for the child. A year after the promulgation of these regulations, a stiffening of conditions was urged, and it was required that the exemptions should be reviewed at least once in three months.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.
Arizona: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.
Colorado: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
Delaware: Dover and Wilmington, June 19-21. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
Florida, Regular: Palatka, June 19-20. Sec., Dr. E. W. Warren, Palatka.
Georgia: Atlanta and Augusta, May 31-June 2. Sec., Dr. C. T. Nolan, Marietta.
Illinois: Chicago, June 14-16. Sec., Dr. C. St. Clair Drake, Springfield.
Iowa: Iowa City, June 7-9. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
Kansas: Topeka, June 19-21. Sec., Dr. H. A. Dykes, Lebanon.
Kentucky: Louisville, June 19-21. Sec., Dr. A. T. McCormack, Bowling Green.
Louisiana: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.
Maine: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
Maryland: Baltimore, June 19. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
Michigan: Ann Arbor, June 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
Minnesota: Minneapolis, June 5-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
Mississippi: Jackson, June 19-20. Sec., Dr. W. S. Leathers, Oxford.
Missouri: St. Louis, June 18. Sec., Dr. J. A. B. Adcock, Jefferson City.
Nebraska: Lincoln, May 31-June 1. Sec., Dr. E. Arthur Carr, 516 Banker's Life Bldg., Lincoln.
New Hampshire: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.
New Jersey: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, 438 East State St., Trenton.
North Carolina: Raleigh, June 19. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.
North Dakota: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.
Ohio: Columbus, June 11-14. Sec., Dr. George H. Matson, State House, Columbus.
Oregon: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.
Rhode Island: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.
South Carolina: Columbia, June 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
Tennessee: Knoxville. Memphis and Nashville, June 15-16. Sec., Dr. A. B. De Loach, Scimitar Bldg., Memphis.
Texas: Austin, June 19-21. Sec., Dr. M. F. Bettencourt, Mart.
Virginia: Richmond, June 19-22. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.
Washington: Seattle, July 3-5. Sec. Dr. C. N. Suttner, Walla Walla.
Wisconsin: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.

Connecticut Homeopathic March Report

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, March 14, 1917. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
N. Y. Homeopathic Med. College and Flower Hospital		(1916)	82.5
Hahnemann Med. College and Hospital of Philadelphia		(1916)	89.9

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
N. Y. Homeopathic Med. College and Flower Hospital		(1915)	N. Jersey

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that the following candidates were licensed through reciprocity from Jan. 9 to Feb. 23, 1917:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1912)	Colorado
Chicago College of Medicine and Surgery		(1914)	Illinois
Rush Medical College	(1908)	(1915)	Illinois
University of Louisville		(1915)	Kentucky
University of Maryland		(1915)	Maryland
University of Michigan Medical School		(1910)	Illinois
St. Louis University		(1903)	Illinois
Vanderbilt University		(1916)	Tennessee
University of Vermont		(1914)	Maine

Book Notices

A Soldier-Doctor of Our Army, James P. Kimball, Late Colonel and Assistant Surgeon-General, U. S. Army. By Maria Brace Kimball, with an Introduction by Major-General William C. Gorgas, Surgeon-General, U. S. Army. Cloth. Price, $1.50 net. Pp. 192, with illustrations. Boston: Houghton, Mifflin Company, 1917.

This book gives us a glimpse of the army surgeon of the past, when about the only reason for the existence of an army in the United States was the Indian. Certainly the principal work of the army was to protect the early settlers of the West from these "wards of the nation," and occasionally the "wards of the nation" from the enterprising frontiersman. As General Gorgas says in his introductory letter: "The army medical officer on the plains was obliged to combine the duties of surgeon, oculist, aurist, dentist, obstetrician, general practitioner, with scanty help in nursing from the enlisted men of the Hospital Corps to whom he, himself, had taught 'first aid.' He was also general health officer of the garrison; was compelled to study and inspect water supply, to plant and irrigate post gardens, and sometimes to manufacture ice. In addition, he often had a large free clinic among Indian neighbors, traders and ranchmen." The life of an army officer, and especially of the medical officer, was not altogether delightful; it was monotonous, with plenty of hardship, occasionally some danger, and usually away from civilization and society. However, it developed healthy, courageous men —men capable of meeting all kinds of emergencies that we who live in the present "civilized" condition hardly realize. Colonel Kimball had his share of this frontier life and Indian fighting, although he lived long enough to see the end of Indian troubles and the elimination of the frontier, and to spend the later years of his life in the East. His widow, who writes this brief biography, makes it a charming story, and incidentally reveals what a different life the army surgeon of the past led as compared with the life as led by the present medical officer.

A Text-Book of Histology. By Frederick R. Bailey, A.M., M.D. Fifth Edition. Cloth. Price, $3.75 net. Pp. 652, with illustrations. New York: William Wood & Co., 1916.

The general plan of this book is indicated in the statement by the author that it was primarily intended to be a laboratory and class room manual for medical students. As such it is relatively short and devoted rather to a statement of the "essentials" than to a consideration of the problems and literature of the science. The chapter on the nervous system, written for recent editions by Prof. Oliver S. Strong, is more thorough in its method of treatment. This edition has been somewhat revised, and illustrations added. The revision of the text has not been sufficiently thorough to include some important recent work. This is especially true in cytology, in which new methods of cytoplasmic fixation are omitted and mitochondria dismissed with a line or two. The same criticism applies to the account of the alimentary tract and the glands associated with it, and the glands of internal secretion. The needs of the student, who finds a thorough understanding of histology the key to a thorough understanding of physiology and pathology, will require that this book be supplemented by considerable reference to the literature.

The Education of the Young in Sex Hygiene. A Text-Book for Parents and Teachers. By Robert N. Willson, M.D., Director of the Philadelphia Hospital Postgraduate Course in Internal Medicine. Cloth. Price, $2. Pp. 319, with 72 illustrations. Cincinnati: Stewart & Kidd Company, 1917.

Dr. Willson has endeavored to collect in one volume all of the available material that will be of value for parents and teachers in the education of children in sex hygiene. While much of the material is excellent, the general effect is rather confusing since the book includes scientific chapters on reproduction, educational charts, and chapters on such variant subjects as public education, venereal diseases and heredity. Much of the material is excellent, but much also is superficial.

Medicolegal

Injunction Against a "Scientific Manipulator"—Restrictions on Masseurs and Nurses

(State Board of Medical Examiners vs. Terrill (Utah), 161 Pac. R. 451)

The Supreme Court of Utah affirms a decree by which the defendant was "restrained, prohibited and enjoined from diagnosing, treating, operating on, prescribing or advising for any person or persons within the state of Utah afflicted with any mental or physical ailment or afflicted with any abnormal mental or physical condition, from which person or persons he expects to or has received or does thereafter receive a pecuniary compensation, or from practicing medicine within the state of Utah, until said defendant shall have received a certificate from the board of medical examiners of the state of Utah permitting him to practice medicine within said state." The court says that it was claimed that the decree was too broad, in that it prohibited the defendant from doing merely ordinary massaging. Comparing the Utah statute with the decree, however, it will be seen that the decree but follows the language of the statute, and forbids the defendant from doing what the statute itself forbids. If the statute forbids mere massaging without a license, then also does the decree. If the statute does not, then the decree does not. However, the court thinks that mere "massaging," as that term popularly is understood, is not, within the meaning of the statute, "diagnosing, treating, operating on or prescribing or advising for any physical or mental ailment or abnormal condition of another." Thus, ordinary massaging is not within the terms of the decree, and hence the defendant is not forbidden doing that. Mere massaging is no more forbidden than mere nursing. It is easy enough for a nurse, or a masseur, to keep within his sphere and not encroach in the law by assuming or undertaking to diagnose, treat, operate on, prescribe, or advise for ailments. But the trouble with the defendant was this: To the public he held himself out as "a scientific manipulator," and as willing and ready to receive and treat patients suffering from all sorts of ailments, but when summoned into court he declared himself to be but a humble masseur, giving only massage treatments and nothing more. Let him be to the public what he claimed to be in court, and let him refrain from diagnosing, treating, prescribing and advising for ailments of others and confine himself merely to "massaging" as that term popularly is understood. Certainly one may employ a trained nurse, who, for compensation, and without a license, may accept such employment, and, without offending, may, in attendance on a patient, render such service as ordinarily is rendered by a trained nurse; but she may not diagnose, treat, prescribe or advise for ailments in the sense that one holding a certificate or license to practice medicine may do it. That also is true of a masseur. But the defendant, though merely a masseur, claimed the right to do, without a license, all that one holding a license is permitted to do. Though a mere masseur, professing no knowledge of the human system, or of diseases to which it is subject, the defendant, nevertheless, undertook and claimed the right to treat about all kinds of diseases. Without any knowledge of anatomy or surgery, he undertook to treat a broken or fractured bone of the foot; without any knowledge of pediatrics, he undertook to treat children for leakage of the heart and abdominal affections; without any knowledge of laryngology he undertook to treat tonsillitis, or throat affections; without any knowledge of anatomy, surgery, bacteriology, pathology or histology, or of other scientific subjects, he undertook to treat a boy for hip disease and patients for appendicitis and rheumatism. If a practice of that kind is to be permitted, then may we as well go back to the days when surgery was performed by the barber and the healing art administered by the Indian powwow. The object of the statute is to protect the sick and suffering and the community against the unlearned and incompetent who hold themselves out as being possessed of peculiar skill in the treatment of diseases, but who are ignorant of the human system and of the diseases to which it is subject.

Some Unusual Requirements in a Milk Ordinance Upheld

(City of Owensboro vs. Evans (Ky.), 189 S. W. R. 1153)

The Court of Appeals of Kentucky reverses a judgment which dismissed the prosecution on a warrant charging the defendant with the offense of selling milk in the city of Owensboro without a permit from the food inspector and failing to have his cows examined by a veterinarian. The underlying question was as to the validity of a somewhat unusual city ordinance, which, on the whole, the court concludes was a proper exercise of the police power conferred on the city. One contention, the court says, was that the city council had no power to require the oath prescribed by the ordinance as a condition precedent to the defendant engaging in a lawful business. In order to obtain a permit to sell milk in the city, the applicant is required to make oath that he has had his entire herd of cows subjected to the tuberculin test by a graduated veterinarian approved by the city; that so many head were found to be free from tuberculosis or other disease, and that so many head reacted under the tuberculin test, which latter animals he caused to be isolated or killed. He is also required to swear that he will conduct his dairy business in accordance with the laws of Kentucky and ordinances of the city, and that he will permit any officer of the city to enter on his premises at any time to inspect his dairy and cattle, his method of handling the milk, etc., and that he will permit his dairy products to be tested at any time by the city. The court concludes that, in view of the opportunities for fraud and imposition in the sale of milk, and of the necessity of great precaution on the part of municipal authorities to secure for the people milk that is wholesome, clean, and free from disease, the preliminary oath prescribed by the ordinance is not an unreasonable requirement. Another section of the ordinance requires that the milkers must thoroughly wash and wipe their hands and the cows' udders before beginning to milk; that they shall not use pails, cans, etc., until they have been thoroughly washed with hot water and soap and afterward sterilized with boiling water or steam, and shall cover their pails, cans, etc., with sterilized absorbent cotton between two layers of sterilized gauze, through which the milking shall be done. While the method prescribed may strike the dairyman who has never been accustomed to such care, not only as being unnecessary, but also as a flagrant invasion of his right to pursue the old established method, which was accompanied by so much disease and death, the court sees nothing in the foregoing requirements that would justify a holding that the provision is unreasonable and therefore invalid. The latter part of the section is: "They must refrain from milking or handling milk in anyway when in themselves or families there is even a suspicion of any contagious of infectious disease, such as smallpox, scarlet fever, diphtheria, typhoid, tuberculosis, or the like." In the court's opinion, this provision should be given a practical construction and read as if the word "reasonable" were inserted before the word "suspicion." The purpose was not to permit the dairyman to wait until he was absolutely sure that he, or some one of his family, had a contagious or infectious disease and then spread the disease throughout the municipality, but to require him to act on such premonitory symptoms as would excite in the mind of an ordinarily prudent person a reasonable suspicion that such disease had been contracted. When so construed, the court finds nothing in the provision that is unreasonable or oppressive. Still another provision was that the milk must not contain over 300,000 bacteria per cubic centimeter, or any pathogenic bacteria of any kind. The case was before this court without any evidence tending to show that it was practically impossible for the dairyman to furnish milk of the standard required; and, since the municipality has the power to prescribe the standard of quality of the milk sold, the court cannot invade its province and hold that the standard thus prescribed is unreasonable, in the absence of clear and convincing evidence that such is the case. Nor does the court deem invalid provisions that wagons used in the delivery of milk shall be furnished with covers, shall be neat and clean, kept neatly painted, their interiors scrubbed with soap and water at least twice a week, and that no vegetables or waste products shall be hauled in them.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Association Medical Milk Commissions, Brooklyn, June 1-4.
Am. Climatological and Clin. Association, Lakewood, N. J., May 29-31.
American Dermatological Association, Cincinnati, May 24-26.
American Gynecological Society, Pittsburgh, May 31-June 2.
American Laryngological Association, Atlantic City, May 28-30.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
Am. Medico-Psychological Association, New York, May 29-June 1.
Am. Ophthalmological Society, Virginia Hot Springs, May 29-30.
American Orthopedic Association, Pittsburgh, May 31-June 1.
American Otological Society, Atlantic City, May 29-30.
American Pediatric Society, White Sulphur Springs, May 28-30.
American Proctologic Society, New York, June 4-5.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Assn. of Am. Teachers of the Diseases of Children, New York, June 4.
Conference of State & Prov. Bds. of N. Amer., Washington, May 30-31.
Idaho State Medical Association, Sandpoint, June 25-26.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Montana Medical Association, Kalispell, July 11-12.
National Assn. for the Study of Epilepsy, Skillman, N. J., May 28-29.
Oregon State Medical Association, Portland, June 28-30.
Rhode Island Medical Society, Providence, May 31.
South Dakota State Medical Association, Yankton, May 28-30.
Washington State Medical Association, Spokane, June 17-19.

NEW YORK ACADEMY OF MEDICINE

Meeting held May 17, 1917

The President, DR. WALTER B. JAMES, in the Chair

This meeting was arranged in cooperation with the Public Health Committee.

Food Supply in War Time

DR. ALONZO E. TAYLOR, Professor of Physiological Chemistry, University of Pennsylvania, Associated with the Department of Agriculture, Washington, D. C.: We are urging people to produce more food, but the production of more food does not mean anything. We must produce food that actually means something in the diet of the people. We must consider the psychologic side of production, distribution and consumption. A given diet may be entirely satisfactory from the standpoint of nutrition, yet if it is of a nature to which people are not accustomed, there will be a reaction against it. Again, a diet which people pursuing the normal activities of life may tolerate, since their entire attention is not centered on food, becomes insupportable in a prison camp in which men have little to occupy their minds; the rôle of food becomes more and more important, and finally becomes an almost overwhelming consciousness.

We must bear the burden of supplying food not only for ourselves but also for the Allies. With the exception of India and Australia, the entire world is confronted with a failure of the wheat crop. Wheat has become the keystone of the diet of the civilized world; about wheat bread and milk centers the food psychology of the civilized races. The average daily consumption of wheat in grams per individual is: Austria-Hungary, 315; England, 310; France, 410; Germany, 320; Italy, 340; United Kingdom, 275; United States, 265. A failure to maintain the ordinary wheat ration was the first great mistake Germany made. The wheat ration there has been cut from 320 to 175 gm. It is highly important that the bread ration of the Allies be maintained, particularly that of France. England has learned to substitute oatmeal to a certain extent, and Italy uses large importations of maize, but France does not know how to use any substitute for wheat; the health of the French people is already greatly impaired, and it would be a great mistake to impose the use of another cereal on France. This is no time to experiment on the Allies; if an experiment must be made, the United States is in a better position to stand it.

It is essential that every person in France be provided with his full customary ration of 410 gm. of wheat daily. There are three ways in which we may stretch our wheat: by saving what is used in industries, by extracting a higher percentage of the grain in milling, or by using mixed flours. The amount of wheat used for the manufacture of alcohol for industrial purposes is insignificant, and little wheat is used in the manufacture of whisky or beer. Forbidding the use of barley in the manufacture of beer would probably result in a larger consumption of whisky. Brewers, however, have shown a remarkable ingenuity in reducing the amount of grain used in the manufacture of alcoholic beverages. Cutting down the manufacture of alcohol for industrial purposes would be a mistake. A second way of saving is by increasing the percentage of extraction in milling. In this country we extract about 72 per cent. of the whole grain for flour. The bran and middlings, the remaining 28 per cent., is utilized as food for cattle. In certain portions of the country where a substitute food for cattle is not available, a higher milling extraction would cut the milk supply as much as 18 or 20 per cent. Before taking such a step we must find a substitute food for cattle, and this may be found in the velvet and soy bean and in cottonseed; but here we have to solve the problem of transportation and of supplying these substitutes at a cost sufficiently low to permit of their being used for food for cattle. As to the third method of stretching our wheat supply, the use of mixed flours, we shall first have to have our law forbidding the sale of mixed flours abrogated. The grains that may be used in mixed flours are rice, corn, rye and barley. Rice, corn and barley cannot be used satisfactorily in proportions larger than 10 per cent., and there are many technical difficulties in the making of edible breads from these mixtures; but wheat may be mixed with 25 per cent. rye flour, and will make a bread which can scarcely be distinguished from pure wheat bread. By suspending our law and using this mixture, fully 30 per cent. of our wheat supply might be saved. A serious objection to the extraction of high percentages of whole wheat for flour is that such flours do not keep sufficiently long to permit of their sale and distribution, and hence would involve great losses from decomposition. From the point of view of price, the farmer has for his present wheat supply received $1.30 a bushel; on this basis flour should be selling for $7.25 a barrel, instead of the present price of $15.

The second great essential is the maintenance of a normal milk supply. Here Germany made her second great mistake. The German food commission fixed a maximum price on milk; the farmer found that it was more profitable to slaughter his cattle for beef, and so 1,250,000 cattle were killed and the milk ration of Germany was reduced. There is no use in trying to make anything cheap in war time, and there is no use in expecting altruism from the farmer. An allowance of about 400 c.c. of milk daily per individual is a figure that must be maintained. We are dependent on the milch cow for butter; beef cattle and swine may be slaughtered, but the milch cow must be preserved. It might be well to adapt Dr. Graham's slogan, "No housewife should buy 1 pound of beef until she has bought 3 quarts of milk." It is essential that the milk supply of France be not only maintained but that it be increased, and it is up to us to do it.

In discussing the problem of waste, I should like to speak of the economy of the French women, and I wish to urge American women to emulate their ways. In France the housewife saves even the scraps of vegetables that cannot be used; these are collected, dried, and used as food for cattle. In Germany, green vegetables that cannot be carried over to the next week are collected, dried and also fed to cattle. We must be liberal in our price to the producer. The effort to regulate the price to the buyer has been of little avail. People object to extreme control, and again we meet the racial and class psychology. If we fail to meet the problem of the food supply, we fail to fulfil our part in our world relations.

DISCUSSION

HON. JAMES W. GERARD, New York: I wish to confirm what Dr. Taylor has said of the necessity of taking into consideration the dietary customs of a people. As a protection to the food supply the card system was instituted in Ger-

many early in the war, but it did not prove very effective. For a long period ducks, geese, chickens and turkeys were not on the card, and the rich were able to obtain these until the supply was exhausted. The problem of food supply has been greatly complicated by the fact that we are feeding great numbers of people in Belgium and France, and by the action of Argentina in placing an embargo on wheat. In regard to the ration and the method of distribution and the hardships the people have undergone, in some sections the Germans seized the lands of the farmers and allowed the farmer only 10 square yards of his own land on which to raise potatoes, while the remainder was confiscated and tilled for the Germany army. To get laborers to till this land they had forcibly deported French women. When the story of Poland is written it will reveal horrors of suffering and starvation unsurpassed in the pages of human history. An attempt has been made to send food to Poland, but it was found that all was seized by the Germany army, and no agreement was reached whereby Germany would permit food to be sent into Poland. With reference to the question of a maximum price on articles of food, I feel that if it was not successful in a country like Germany where the people are disciplined to submission, it certainly would not be effective in a country like ours where the people have not learned discipline. Fixing prices will also have the deleterious effect of limiting production, so that it seems that our main attack in handling the food problem should be along the lines of preventing waste. In considering the question of diet, many have expressed the fear that the restrictions suggested will have the effect of producing tuberculosis. In Germany there has been no material increase in tuberculosis; on the other hand, there was a great increase of tuberculosis in France. One reason for this is that workers in all lines of social service work are needed in France. There has been no material increase in the infant death rate in Germany during the war, and this is because of the great number of social workers who are going about teaching people not only how to feed infants but also how to keep house. This is not done to the same extent in France; there is not a health department in any French city as efficient as ours. In considering the problem of waste, it seems that in this country the credit system and the use of the telephone were largely responsible for the high prices. The people here will not resort to a central market or carry a market basket.

GRAHAM LUSK, New York: Today the men of England, Germany and other warring nations are tightening their belts. This does not mean that they are dying of starvation. Magnus Levy has shown that a man may lose 30 per cent. of his weight and reduce his intake of food 44 per cent. and still survive. I myself know of a woman whose weight was reduced from 136 to 71 pounds and she was taking but 40 per cent. of the food she originally took and was getting on fairly well. These persons were at rest. Reasoned coldly from such facts as these it might be said that we may starve our women, our children and our old people and one may even starve himself, but the man doing work requires an extra amount of food. According to the statistics of life insurance companies, a loss of 10 pounds from the average weight of a man 55 years of aged would result in an increase of his value as a life insurance risk. Furthermore, the loss of that 10 pounds would mean that it would require less food to furnish energy to support and propel him than when he is carrying excessive weight. The man doing work needs food fuel. Meat is needed only for repair, and we could get along very well on half the amount we are now eating. We could destroy the cattle not needed for milk and we could put roast beef in the same category with canvas-back duck and serve it with champagne without serious consequences, but we must maintain our milk supply. We have taken our men from the farms and put them into munition factories and shipyards, and we are having them do the "goose-step"; it is calculated that for the latter purpose it requires 4,000 calories a day for each man. Now, how are we to produce this absolutely necessary fuel food? The farmer has no guarantee that he will be able to get men to help him harvest his crop, or that he will get a fair price for his produce. We must give bounties to men to go on the farms. Food fuel is the basis of everything. We need it for the human machines not only in this country but also in England and France. To produce this food, all political chicanery and the united power of an intelligent people are required, two things almost impossible to get in this country. The question is whether we are competent to perform the task of feeding the world or whether we are going to be; the successful accomplishment of this task is the only factor that will save the world in the present situation.

C.-E. A. WINSLOW, New Haven, Conn.: War has always brought in its train pestilence and famine. Pestilence seems to have been quite effectually controlled in the present war; famine is the problem now confronting us. A popular writer has recently said that the United States is facing a food stringency such as it has not experienced since the first winter at Plymouth. The shortage of food may be met in two ways, either by increasing the production, or also in part in the way that the problem of pestilence has been solved, by scientific advances. As an illustration, a large baking firm found that it was operating more successfully in one city than in another. Investigation showed that in the two cities the same yeast and same flour were being used; the only difference was in the water. The water used in the city that was showing the more successful results was rich in certain mineral salts, and the use of that water saved half the value of the yeast and 2 per cent. of the flour. Much may be done by the intelligent selection of foods and the avoidance of waste, but in the application of this advice we have the psychologic factor with which to contend. Oleomargarin is a perfectly satisfactory substitute for butter, but it is difficult to overcome the prejudices of people and get them to use it. We have also on our coasts an unused fish supply. The problem we have before us is to change the habits of the people, and here we can draw a lesson from that other campaign against disease. Having obtained the scientific knowledge, the problem is how to apply it. The same kind of a systematic campaign of education that has been carried on against disease must be instituted in order to carry the knowledge we have of foods into the homes. The machinery for this systematic education we already have in our health department, nursing forces, and visiting housekeepers. If we adopt such a system of education we shall reap a rich benefit; not only during the war but also in the more distant future. We at Yale have particularly felt the reality of war as we have seen our boys go to the front. We have seen the careless boy with his college shuffle leave the moving picture shows and the cafés, and in a brief space of time become a well-knit man, serious in mind and demeanor. Our whole country must go through the same experience; it too must learn what discipline means. We must learn to forego doing things simply because we like to do them, and learn the lesson of cooperation for the good of our fellows. This is the lesson that we as a nation must learn if we are going to grow up and "do our bit" in the struggle before us.

DR. HAVEN EMERSON, New York: The health department has made some small contributions to the solution of the food problem. A year ago, when we passed the ordinance permitting the use of horse flesh as food, we made it possible for many of the poor of New York to keep the soup-pot boiling during the past winter who otherwise could not have done so. We have been instrumental in having legislation passed that permits the sale of skimmed milk in this city. This milk is as free from bacteria and other impurities as any of the other grades of milk sold in this city. A matter that calls for correction is the loss of food through lack of proper facilities for transportation. Trainloads of fruits, vegetables and nuts arrive here unfit for human consumption. Provision should be made for drying such foods and using them for food for cattle. The Barren Island garbage incineration plant, which formerly ran all day and often far into the night, now usually completes its work by 3 p. m. There is a reduction of 25 per cent. in the amount of garbage handled by the garbage plant. Kitchens have been attached to the milk stations where instruction in home economics and the use of substitute foods will be given. The tuberculosis clinics

and other clinics and health department offices are being employed as education centers to teach food economy. These are the contributions the health department is making in order that we may be generous and not stingy with our national food supply.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS

Fourth Annual Meeting, held at New York, April 6-7, 1917

(*Continued from page 1504*)

Studies on the Isolation of Streptococci from Rabbits

Dr. E. T. Tsen: In investigating the relation of streptococci to poliomyelitis, we made cultures of the brains of twenty-three out of fifty-four rabbits studied. Five of these were inoculated with glycerinized poliomyelitis virus from monkeys; one was inoculated with brain emulsion of a rabbit that died after an inoculation with poliomyelitis virus; two were inoculated with streptococci from monkeys; two were inoculated with streptococci from rabbits that died after inoculations with poliomyelitis virus; one was inoculated with streptococci from a rabbit that died after an inoculation with streptococci; two were syphilitic, and nine were normal. From the brains of all that were inoculated with poliomyelitis virus, streptococci or *Spirochaeta pallida,* we have isolated streptococci and, sometimes, other gram-positive diplococci. Of the nine normal rabbits, we got the same organisms from the brains of six. Rosenow's culture methods were used. It was proved that in healthy, normal individuals, streptococci were sometimes found, and it was potentially, not actually, sterile. Streptococci had not been found in the brain of such because they had not been looked for. In tubes grown from sick rabbits, however, organisms were often present in all the tubes, while in the normal rabbits, a growth occurred in one or two out of sixteen tubes. Flexner and Noguchi, and Rosenow found these organisms, but interpreted the findings differently; Rosenow regarded them as specific causative agents in many diseases. Flexner and Noguchi regarded them as contaminations. Our interpretation differs from both. We regard these organisms as saprophytes, which, under lowered conditions of resistance, acquire power to invade the tissues extensively.

DISCUSSION

Dr. J. A. Kolmer, Philadelphia: In the recent epidemic of poliomyelitis in Philadelphia, Drs. Freese, Brown and myself found streptococci and diplococci widely dessimated in the tissues after death—in the brain and cord, and also in the internal organs. They probably are of a low grade of virulence, and occur symbiotically with the true microparasite; they also play a certain rôle in the pathogenesis of poliomyelitis, as streptococci do in scarlet fever.

Dr. Hans Zinsser, New York: I should like to support Dr. Tsen's remarks. I do not think that he meant to say that these organisms are purely saprophytic, but that they are not the etiologic factor in the disease. They probably invade the tissues of a sick animal more readily than they do those of a healthy one. Whether or not they cause symptoms, I am unable to say.

Further Observations on Local Resistance to Syphilis in Reinoculated Rabbits

Drs. Hans Zinsser, J. G. Hopkins and M. McBurney, New York: In our first series of seventeen reinoculated rabbits, some doubtful nodules were felt, and in three cases spirochetes could be demonstrated by puncture. One rabbit developed frank lesions containing active spirochetes, and reinoculation was performed less than two weeks after the healing of the original lesion. In the other animals the interval was from three weeks to one year. They were inoculated and reinoculated in groups of three or four, and normal rabbits were inoculated at the same time as controls. The same material was used and the controls were proved positive by puncture. Many other normal rabbits were inoculated at the same time. Lesions were present in 100 per cent. In reinoculation, the second lesion differed in type and site from the first. Successful reinoculation seemed to prove that the resistance was purely local. In further experiments, one testicle was inoculated and the normal testicle was used for control. In two rabbits, inoculated in one testicle and reinoculated in both, local resistance to infection seemed to have developed on both sides. Only lesions showing numerous active spirochetes were used for inoculation.

DISCUSSION

Dr. Richard Weil, New York: It seems to be a remarkable phenomenon if it indicates a localized specific immunity. I do not question the occurrence of this phenomenon; it is in keeping with what we know of localized immunity in variola, for example. Again, in making repeated serum injections one sometimes finds that the sites which had recieved the earlier injection are the ones which light up when subsequent injections are made at a distance. This seems to show excess of antibody at the site of original infection.

Dr. Hans Zinsser, New York: This was the first evidence we had of traceable immunity in rabbits. You can reinoculate rabbits on the opposite side and get a positive result. We were unable to demonstrate any antibodies against spirochetes in the serum of the syphilitic animals or human beings. Culture spirochetes are antigenically quite different organisms, and have nothing in common with virulent spirochetes, which seem to be entirely unsusceptible to serum effects. Syphilitic serum docs agglutinate culture spirochetes slightly, but there is not enough difference between normal and sypilitic serum in this respect to warrant diagnostic use of the reaction. The absence of circulating antibodies in syphilitic individuals renders our discovery of a purely localized resistance all the more interesting. Kraus' work with variola was along similar lines. He found that the skin as a whole became immune. We do not assert that this is resistance in an active sense, but merely that there is no visible lesion. It may be an *Allergie* and the tissues no longer react to invasion. Spirochetes may pass through without rousing a reaction, as suggested by Neisser. There is an inability to react on the part of cells which have once reacted directly to the virus.

Desensitization of Guinea-Pigs Sensitized to Dog's Serum

Dr. A. F. Coca, New York: One of the most constant characteristics of the anaphylactic state is the phenomenon of desensitization which may generally be produced in sensitized animals by the intravenous injection of sublethal doses of the respective antigen, or by intraperitoneal or subcutaneous injection of multiples of the intravenous lethal dose. I have deduced the following conclusions: 1. Guinea-pigs, actively sensitized to dog's serum, cannot be desensitized by (*a*) subcutaneous injections of large amounts (fifteen lethal doses) of the dog's serum, (*b*) intraperitoneal injections of one-third a lethal dose, or (*c*) the intravenous injection of one-half a lethal dose of the dog's serum. 2. The desensitization, however, can be accomplished by slow intravenous injection (fifteen minutes) of two lethal doses diluted to 2 c.c. with physiologic sodium chlorid solution.

DISCUSSION

Dr. Hans Zinsser, New York: Is there any difference between this and the method of Friedberger of slow injection for the avoidance of anaphylactic shock?

Dr. A. F. Coca, New York: The method I employed for producing the desensitization is not original. It was described by Friedberger. I am merely pointing out that it is the only available method of desensitizing guinea-pigs that have been actively sensitized to dog's serum.

Studies on Reducing Action by Bacteria

Dr. B. Aranowitz: The following points can be noted: The reducing enzyme is not secreted by the cell. The action of the enzyme is independent of the life of the cell. It is destroyed in from fifteen to thirty minutes at 60 C. It is held back by the Berkefeld filter. Chemicals, as saponin and sodium taurocholate, do not accelerate secretion of the enzyme, though making the cell membrane more transfusible. Grinding, freezing with thawing, and elimination of bacterial remnants do not isolate the enzyme. Autolytic processes and

digestion in 2 per cent. trypsin emulsion in 0.05 sodium carbonate solution does not release the enzyme from the cell protoplasm. Bacteriolytic action of immune serum and complement prove of value in separating enzyme from cell body. Proteins of the medium are not necessary for reducing activities of bacteria.

DRS. W. H. MANWARING, Sanford University, California, Y. KUSAMA and A. R. MEINHARD: Our analyses of the anaphylactic and immune reactions by means of perfusion experiments with isolated rabbit and guinea-pig tissues have shown that the hypersensitive and immune, humoral and cellular factors may coexist in the bodies of anaphylactic and immune animals in the following conditions: cellular anaphylaxis and approximately normal blood conditions; cellular anaphylaxis and humoral anaphylaxis; cellular anaphylaxis and humoral immunity; cellular immunity and humoral anaphylaxis; cellular immunity and humoral immunity, and cellular anaphylaxis and cellular immunity. It will probably be necessary to reduce anaphylatic and immune reactions to lower physiologic terms than those at present employed, before hoping to harmonize these observations with current serologic theories.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

May, XIII, No. 5

1 Nonprotein Nitrogen of Blood in Atrophic Infants. L. D. Minsk and L. W. Sauer, Chicago.—p. 397.
2 Nitrogen Partition in Urine of Normal Children. M. R. Johnston and B. S. Veeder, St. Louis.—p. 404.
3 Gestation vs. Stage of Lactation as Factors Causing Abnormal Composition of Cow's Milk. L. S. Palmer and C. H. Eckles, Columbia, Mo.—p. 413.
4 *Bacteriology of Urine in Children with Vulvovaginitis; Report of Two Cases of Gonococcus Cystitis. A. B. Schwartz, Milwaukee, Wis.—p. 420.
5 Case of Congenital Endocarditis. H. E. Tuley and J. W. Moore, Louisville, Ky.—p. 426.

4. Bacteriology of Urine in Gonococcus Vulvovaginitis.—In eighteen unselected patients with chronic gonococcus vulvovaginitis, carefully catheterized specimens of urine showed a comparative absence of bacteria. The majority of the organisms encountered were either gram-positive cocci or diphtheriod bacilli. In most instances these were in such small numbers that they could easily be accidental contaminations from the urethra. The second portion of the urine, representing the bladder flora, was shown to be as free from infecting organisms as was demonstrated in a previous series of normals. The occurrence of vulvovaginitis did not increase the tendency to contamination of the bladder. According to Schwartz gonococcus cystitis may follow previous infections of the bladder by *Bacillus coli* in patients with vulvovaginitis.

American Journal of Medical Sciences, Philadelphia

April, CLIII, No. 4

6 *Disturbance of Law of Contrary Innervation as Pathogenetic Factor in Diseases of Bile Ducts and Gallbladder. S. J. Meltzer, New York.—p. 469.
7 *Diagnosis of Gallbladder Disease. W. F. Cheney, San Francisco.—p. 477.
8 Medical Aspects and Diagnosis of Gallbladder Disease. D. Riesman, Philadelphia.—p. 492.
9 *Gallbladder Disease; Progressive Inflammation; Its Treatment; Cholecystectomy. R. S. Fowler, Brooklyn.—p. 497.
10 Pericardiotomy for Suppurative Pericarditis Following Pneumonia; Report of Case and Review of Literature. C. N. B. Camac and E. H. Pool, New York.—p. 509.
11 *Acute Pericarditis. W. H. Robey, Jr., Boston.—p. 529.
12 Nonsurgical Treatment of Gastric Ulcer. F. Smithies, Chicago.—p. 547.
13 *Operative Treatment of Hydrocephalus; Preliminary Report of Forty-One Patients. W. Sharpe, New York.—p. 563.
14 *Effect of Nuclein Injection on Leukocytes of Dogs. H. Fox and F. B. Lynch, Philadelphia.—p. 571.
15 *Limits of Bleeding Considered from Clinical Standpoint. B. M. Bernheim, Baltimore.—p. 575.
16 Main Factors Affecting Intensity of Sounds as They Pass from Interior of Lungs to Periphery of Chest. C. M. Montgomery, Philadelphia.—p. 583.

6. Diseases of Bile Ducts and Gallbladder.—Meltzer states that the law of contrary innervation is manifest in all functions of the animal body, and he believes that a disturbance of this law is a factor of more or less importance in the pathogenesis of many disorders and diseases of the animal body. The gallbladder, for instance, is well provided with muscle fibers, the contraction of which will free the gallbladder from its fluid contents. Oddi described some thirty years ago that the papilla of Vater is provided with circular muscle fibers which by their contraction close up the common duct. This contraction is strong enough to resist a pressure much higher than that which usually obtains in the bile ducts. It is clear that the muscle fibers of the gallbladder and those of the papilla are antagonists. During the storage of bile the muscle fibers in the papilla are contracted and those of the gallbladder are inhibited; during the discharge the gallbladder contracts and Oddi's muscle is relaxed; the bile has then no other way out but into the duodenum. Stimulation of the peripheral end of the splanchnic nerves causes simultaneously a contraction of the gallbladder and an inhibition of the tonus of Oddi's muscle. The vagus, on the other hand, seems to contain motor fibers for the sphincter of the common duct and inhibitory nerve fibers for the gallbladder. The physiologic discontinuous character of the flow of bile into the duodenum is regulated by a reflex mechanism, dominated by the law of contrary innervation; the integrity of the gallbladder is an important part in this reflex mechanism; the discharge of bile can be greatly curtailed by the absence or a restriction of the discharge of chyme from the stomach into the duodenum, and the discharge of bile through the papilla of Vater into the duodenum is greatly enhanced by the presence in the lumen of the latter of peptone or albumosis.

The physiologic storage of bile may be converted into a pathologic stasis and thus become the cause of a more or less serious ailment of some part of the biliary system. Psychical influences and the influences of the partaking of food and of the character of the food which is partaken may prove to be pathogenetic factors in the formation of biliary diseases. Simple infrequent feedings, say the partaking of only one meal or even two meals a day, may very gradually finally lead to pathologic consequences. The accumulation of the bile in the gallbladder and in the ducts for longer periods, and the continued repetition of these periods may gradually reduce the normal resisting power of the corresponding mucous membranes which may become a serious pathogenetic factor, in case the individual has passed or is passing through an infectious disease. Even in health it is advisable to partake of comparatively frequent meals, although they need not consist of large quantities and the meal contain foods which readily send peptone and albumoses into the duodenum.

7. Diagnosis of Gallbladder Disease.—Painstaking efforts in eliciting an orderly and complete history not only of the patient's complaint but of all other incidents in the previous health; careful and intelligent use of the eyes, the finger tips, and the ears in acquiring information about the patient; and good judgment in sifting and interpreting the facts so obtained, Cheney claims, are still the methods that surpass all others in diagnosis. The newer laboratory and Roentgen-ray aids are exceedingly valuable and never to be overlooked, but not to be relied on as short cuts and labor saving devices to supersede the other means described, as seems to be too much the tendency in this day.

9. Treatment of Gallbladder Disease.—Fowler believes that it is logical to assume that cholecystectomy is indicated in all diseases of the gallbladder whether causing mild or severe symptoms. The operation is not done for the purpose of removing stones, for these may or may not be present, but for the purpose of removing tissue diseased as a result of progressive inflammation. Just as soon as this inflammation has reached a point where the efficiency of the gallbladder is impaired and symptoms result, just so soon should the gallbladder be removed. Whether gallstones are present or not is immaterial.

11. **Acute Pericarditis.**—This paper is based on a study of the protocols of eighty proved cases of acute pericarditis and the literature particularly of the last five years. Robey regards acute pericarditis as a secondary affection. Several other lesions were found in every case in the seventy-eight necropsies. The extension from adjacent structures is probably uncommon, the vast majority of cases occurring from infection of the sac through the blood stream. Pain in the precordial area is not as common as is supposed. The difficulty in diagnosis is illustrated by the fact that acute pericarditis was recognized clinically only 100 times in 34,567 cases and twelve times in seventy-eight necropsies at the Boston City Hospital. Pneumonia is the chief agent in the production of purulent and of fatal pericarditis. Rheumatism may cause a greater number of cases of all types, but the figures are open to doubt. Pneumococcus pericarditis or myocarditis, or both, should be considered, especially in young or middle-aged adults, when the heart shows failure of compensation before the crisis or after it when there is fever and delayed convalescence. The prognosis in acute pericarditis following acute arthritis is generally favorable to life; the extent of damage to the subsequent function of the heart cannot be determined, of course, immediately. In the clinical protocols of this series, acute arthritis was not found once. Pneumococcus pericarditis is grave at any stage. Tuberculous pericarditis is not common, and is usually a late involvement in an advanced case. In mild cases of fibrinous pericarditis or of moderate effusion, especially when an accompaniment of acute arthritis, treatment of the infection and local applications to the precordia will often suffice. When the progress is unsatisfactory, the physical signs increasing, and the diagnosis doubtful, paracentesis is imperative. Frequent examinations during the infection and for some time after are very important. A thorough search for and the eradication of foci should be conducted in every case.

13. **Operative Treatment of Hydrocephalus.**—The object of the operation done by Sharpe has been to drain permanently the ventricles (in the internal type of hydrocephalus) and the subarachnoid and subdural spaces (in the external type of hydrocephalus) outward beyond the cerebrospinal canal, that is, beyond the dura into the subcutaneous tissues of the scalp. Six linen strands are inserted into the ventricles in the internal type and merely into the subarachnoid and subdural spaces in the external type of hydrocephalus and their ends brought out through the temporal muscle and temporal fascia beneath the scalp in a stellate manner. In this series of forty-one operated patients, thirteen died, all of them, with the exception of one child, within thirty-six hours after the operation; that is, they could not survive the operative shock due to the sudden loss of a large amount of cerebrospinal fluid (this loss is now controlled and greatly lessened by elevating the head of the patient at the time of the ventricular opening). Of the remaining twenty-eight patients the results have been most encouraging. With the exception of six all of them have improved and are still improving; five of them have improved mentally and physically in every way, all of these children having been operated within one year after birth; seven of the patients unable to walk before the operation are now walking although with difficulty. The different stages of papilledema and choking of the optic disks producing a secondary optic atrophy and the visual impairment in these patients have been improved in each case unless a complete secondary optic atrophy had already occurred.

14. **Effects of Nuclein Injection on Leukocytes.**—Tentative conclusions drawn by Fox and Lynch from their work on dogs are that after nuclein injection there is a reduction in the circulating peripheral leukocytes, chiefly of the polymorphonuclears, and to a much less degree of the small lymphocytes, followed by a rise in both, but very largely of the polynuclears, even to 95 per cent. of the whole count. The total leukocyte count in dogs may be increased 290 per cent. in twenty-four hours. Repeated small doses of nuclein do not cause and maintain a high tide of leukocytosis. There seems to be destruction of polynuclears because of their great decrease, and the relative and absolute increase of young forms on the left side of Arneth's formula. The appearance of these young forms, and of an increase in nucleated reds, speak for an increased activity of the bone marrow, therefore, a stimulation of the tissue, but whether by the nuclein injected, as a response to the paucity of circulating white cells, or by excitation by the detritus of destroyed leukocytes the authors have not yet determined.

15. **Limits of Bleeding.**—In cases of severe hemorrhage—it matters not what the cause, Bernheim says, a good working rule is to transfuse if the blood pressure falls as low as 70 mm. of mercury, since life is hardly possible with anything below this level. But even in these cases the rule must be somewhat elastic because one can never tell when the pressure is going to rise. In some instances if the physician or surgeon in charge of the case has not taken the steps usual in emergency cases, such as salt infusions, etc., it may be wise to delay until these can be instituted, preparations for transfusion being made in the interval. If no appreciable results occur within one hour the case is usually hopeless unless new blood is introduced, and procrastination at this stage of the game is fearfully dangerous. The blood picture itself is of little avail in severe accidental hemorrhage. Measures to stop the bleeding should be instituted immediately, and the body should be kept as warm as possible, the foot of the bed elevated, the limbs bandaged, the patient kept quiet, and water given *ad libitum*. If the bleeding has not been too great, a few hundred cubic centimeters of salt solution are all that is needed to tide a patient over. In cases of very severe hemorrhage the amount might be increased a bit, but if 1,200 c.c. do not steady a falling blood presssure or cause a slight rise, its introduction had better be discontinued. Bernheim urges that transfusion be not regarded entirely as a measure of last resort. In the acute hemorrhages, the safest guide is the blood pressure; in the chronic bleedings and the anemias it is the hemoglobin; but one must never lose sight of the fact that at times all signs fail, and there remains naught for guidance but experience and judgment. Under these circumstances Bernheim's advice is, "When in doubt, transfuse!"

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

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17 Cancer of Cervix; Cautery Amputation. R. L. Dickinson, Brooklyn.—p. 737.
18 Case of Fetus Amorphus Anideus, from Department of Obstetrics and Gynecology, Yale Medical School. J. M. Slemons, New Haven, Conn.—p. 749.
19 Fifteen Years' Experience with Intermediate Repair of Injuries of Childbirth. B. C. Hirst, Philadelphia.—p. 752.
20 Surgical Traumatism as Cause of Recurrence in Uterine Carcinoma. G. E. Shoemaker, Philadelphia.—p. 758.
21 Treatment of Eclampsia with Especial Reference to Vaginal and Abdominal Section. G. L. Brodhead, New York.—p. 762.
22 Management of Eclampsia. A. B. Spalding, San Francisco.—p. 773.
23 Case of Postpartum Eclampsia with Necropsy. R. A. Keilty and S. P. Taylor, Philadelphia.—p. 779.
24 Indications and Contraindications for Cesarean Section. W. T. Getman, Buffalo.—p 781.
25 Gonorrhea Sociologically Considered. M. Rabinovitz, New York.—p. 791.
26 Review of Three Hundred Obstetric Cases in Private Practice. G. B. Miller, Washington, D. C.—p. 798.
27 Case of Separation of Pubic Symphysis in Forceps Delivery and Treatment Employed. J. M. Allen, St. Johnsbury, Vt.—p. 808.

American Journal of Roentgenology, New York

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28 *Carcinoma of Uterus Treated by Combination of Radium and Roentgen Rays. R. H. Boggs, Pittsburgh.—p. 207.
29 *Roentgenotherapy of Hopeless Malignancy. G. C. Johnston, Pittsburgh.—p. 210.
30 *Blood in Cancer Under Roentgenotherapy. R. H. Stevens, Detroit.—p. 215.
31 Possible Roentgen Sign in Certain Types of Mesenteric Cysts. C. F. Ball, Rutland, Vt.—p. 250.

28 and 29. Abstracted in The Journal, Nov. 18, 1916, p. 1549.

30. Abstracted in The Journal, Nov. 18, 1916, p. 1548.

Archives of Pediatrics, New York

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32 Measles from Standpoint of Prevention. J. G. Wilson, Ellis Island.—p. 241.
33 Pellagra in Children. W. A. Murphy, New York.—p. 254.

34 Analysis of Preparalytic Symptoms of Infantile Paralysis. J. A. Colliver, Los Angeles.—p. 263.
35 Cardiac Diseases in Children and Cardiac Clinic. J. S. Ferguson, New York.—p. 269.
36 *Perlèche; Its Bacteriology, Symptoms and Treatment in Two Hundred and Twenty-Three Cases. A. L. Smith, Lincoln, Nebr. —p. 274.

36. **Perlèche.**—Perlèche is an infection of the labial commissures, manifesting itself, first, by a maceration of the epithelium, second, by a desquamation of this tissue, and third, by a formation of shallow ulcers and cracks. It is contagious and is essentially a disease of childhood, 93 per cent. of the cases reported by Smith being in children. Of the 1,211 children he has examined 207 were infected with perlèche in some stage of its development. It was found sixteen times in adults, and of this number seven were dispensary assistants who were intimately in contact with the disease. The anaerobic streptococcus was found in pure culture. in 135 cases. Twenty-six times the same organism was found in combination with the *Staphylococcus pyogenes-aureus;* seven times with the *Staphylococcus albus* and fourteen times in association with the *Streptococcus pyogenes.* In the later stages of the disease, the anaerobic streptococcus was not found at all, but the *Staphylococcus pyogenes-aureus* was found alone thirty-six times and was associated three times with the *Streptococcus hemolyticus.* Thus, it seems, the anaerobic streptococcus disappears after the secondary infection.

The following treatment has given the best results: The home surroundings must be rendered as sanitary as possible. The abnormal conditions about the mouth must be corrected so that the hypersecretion of the salivary fluids may be overcome. After this the local condition can be treated successfully. Paint the lesions with a 50 per cent. solution of silver nitrate (care being taken not to have too much on the applicator) and when dry apply Lassar's zinc oxid paste. If the lesions do not disappear in a few days, spirits of camphor or alcohol are applied. If the flow of saliva has not decreased in amount, tincture of belladonna should be given internally until the physiologic limit is reached. In four of the patients the lesions did not disappear after seven months of treatment by local applications, but when belladonna was given until the salivary secretions were reduced in amount, they soon healed. When pus infections are present the crusts should be soaked with a 1:1,000 solution of mercuric chlorid, then removed and the area covered with 5 per cent. ammoniated mercury ointment.

Boston Medical and Surgical Journal

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37 Clinical Observations on Three Hundred and Thirty-One Cases Presenting Symptoms of Nephrolithiasis. R. F. O'Neill, Boston. —p. 623.
38 Infection of Simple Closed Fractures. J. B. Blake, Boston.—p. 628.
39 Some Recent Experiences in Gastric and Duodenal Surgery. J. T. Bottomley, Boston.—p. 629.
40 Gastrojejunostomy Under Local Anesthesia in Two-Stage Operation in Gastric Surgery. D. Cheever, Boston.—p. 633.
41 New Bone Wiring Instruments. J. Duff, Jr., Charlestown.—p. 636.
42 *Report of Harvard Infantile Paralysis Commission for 1916. F. W. Peabody, Boston.—p. 636.
43 Eskimo "Deficiency Disease." J. M. Little, Jr., St. Anthony, Newfoundland.—p. 642.

42. **Acute Infantile Paralysis.**—The total number of cases visited by the physicians of the commission was 187. Of these the diagnosis of poliomyelitis was made in 123 and the remaining 64 were cases of other diseases. Of the 123 cases of poliomyelitis seen, 54 were first visited in the preparalytic stage, 65 were recently paralyzed cases, and 4 were cases of old paralysis. Of the total of 54 preparalytic cases seen, 51 were treated with immune serum; 35, or 69 per cent., recovered without paralysis; 11, or 21 per cent., recovered with paralysis, and 5, or 10 per cent., died. In the 11 paralyzed cases the results were slight in 6. Of the 69 paralyzed cases, 60 were treated with immune serum; 8, or 12 per cent., showed definite rapid improvement, 33, or 51 per cent., did not; 21, or 32 per cent., died. In the total of 123 cases there were 26 deaths, a mortality of 21 per cent. The amount of serum administered intraspinally was usually about 10 cm. at one injection. Only rarely was more than 15 cm. given, because the effect of raising the pressure in the spinal canal was feared. Only one treatment was given in 27 of the 51 preparalytic cases, while 16 received two treatments, 6 received three, and 2 received four treatments. Injections were usually given at intervals of twelve to twenty-four hours and whether or not treatment was repeated depended on the clinical picture. The work on the diagnosis of poliomyelitis with the aid of the examination of the spinal fluid has been of considerable importance. In all early cases the examination of the spinal fluid has shown evidence of a meningitis and the cell count has ranged from 34 to 1,980 per cubic centimeter in the preparalytic stage.

Bulletin of Medical and Chirurgical Faculty of Maryland

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44 Differentiation of Abdominal Pain. J. B. Deaver, Philadelphia. —p. 147.

Illinois Medical Journal, Chicago

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45 Postoperative Volvulus. C. A. Buswell, Chicago.—p. 291.
46 Postoperative Sequelae and Their Avoidance. G. de Tarnowsky, Chicago.—p. 293.
47 Local Anesthesia. F. G. Dyas, Chicago.—p. 295.
48 Orthopedic Treatment of Poliomyelitis Anterior. E. W. Ryerson, Chicago.—p. 299.
49 Medical Aspect of Acute Poliomyelitis. F. D. Francis, Chicago.—p. 301.
50 Indications for Decompression. W. H. Perry, Sterling.—p. 309.
51 Foci of Infection About Teeth. W. T. Clark, Fort Atkinson, Wis.—p. 312.
52 Clinical Aspect of Cardiac Incompetence. G. Richter, St. Louis. —p. 315.
53 Home Talent. G. K. Wilson, Streator.—p. 320.
54 Functions and Problems of Medical School Inspector. D. W. Day, Rockford.—p. 322.
55 Use of Massage and Exercises in Treatment of Flat-Foot. H. A. Oldenborg, Chicago.—p. 324.
56 Two Cases of Amaurotic Family Idiocy. (Tay's-Sachs' Disease.) E. F. Leonard, Chicago.—p. 327.
57 Treatment of Tabetic Ataxia by Reeducational Exercises. L. J. Pollock, Chicago.—p. 331.
58 Modern Hospital for Insane from Standpoint of Medical Service. H. D. Singer, Kankakee.—p. 334.
59 Case of Recurrent Streptococcus Viridans Endocarditis with Unusual Meningeal Complication. W. H. Nadler, Chicago and R. F. Herndon, Springfield.—p. 339.
60 Crippled Child. F. C. Test, Chicago.—p. 340.

Journal-Lancet, Minneapolis

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61 Cardiovascular Syphilis. C. L. Greene, St. Paul.—p. 289.
62 Military Preparedness. J. S. White, St. Paul.—p. 297.
63 Experiences of Allen Treatment. C. P. Robbins, Winona.—p. 300.
64 *Secondary Anemias of Doubtful Causation. T. R. Martin, Duluth. —p. 303.
65 Mastoiditis; Its Prevention Operative Indications and Operative Technic. F. C. Todd, Minneapolis.—p. 307.

64. **Secondary Anemias of Doubtful Causation.**—An analysis is presented by Martin of forty cases of profound anemia in which the symptoms did not give a clue to the causation. Eleven cases are classified under pernicious anemia, the diagnosis in seven of them being alone on the clinical course of the disease and the blood picture. In four cases this diagnosis was substantiated by examination of the duodenal contents according to the Schneider method. Eight of these patients have had the spleen removed. Five made a rapid recovery, and approximated a normal blood count within a period of about six weeks. Four of these five have since relapsed. One has maintained a better state of health than he had prior to the operation, but presents the static results of the cord lesion which partially incapacitates him. There is one death in this series following operation, due to a postoperative pneumonia. Two patients have shown little change in the blood picture, although general conditions improved somewhat. The duodenal contents were not examined in either of these two cases, and Martin concludes that they were presumably unfavorable cases for splenectomy. Twenty-five cases have been classified as secondary anemias.

Four were bleeders from the gastro-intestinal tract, two being malignant, and none giving gastro-intestinal symptoms. Three cases giving a blood picture of pernicious anemia showed segments of the dibothriocephalus in the stool. In two cases a diagnosis of probable pernicious anemia was

made from the history and the blood picture, the examination of the gastro-intestinal tract being negative. The duodenal contents in both cases did not show a pleiochromia. One of these patients has since died in the fourth relapse. In two cases, with negative urine findings, the diagnosis of chronic interstitial nephritis was made on the blood pressures and the phenolphthalein output. In three cases a careful examination did not reveal causation of the anemia. Eleven of the twenty-five patients showed repeatedly a 4 plus Wassermann reaction, and careful examination did not reveal any other cause for the anemia. The anemia was not of the splenic type; the spleen was not enlarged. Most of these patients showed rather normal looking red blood cells and the hemoglobin usually a strong one index.

Journal of Experimental Medicine, Baltimore

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66 *Experiments on Rôle of Lymphoid Tissue in Resistance to Experimental Tuberculosis in Mice. Effect of Cancer Immunity on Resistance to Tuberculosis. H. D. Taylor and J. B. Murphy, New York.—p. 609.
67 *Transplantation of Spleen Tissue into Subcutaneous Fascia of Abdomen in Rabbits. O. T. Manley and D. Marine, Cleveland.—p. 619.
68 *Production of Antipneumococcus Serums. A. B. Wadsworth and M. B. Kirkbride, Albany, N. Y.—p. 629.
69 Experimental Studies on Lymphocytes. Reactions of Lymphocytes under Various Experimental Conditions. A. M. Pappenheimer, New York.—p. 633.
70 *Normal Fate of Erythrocytes. Findings in Healthy Animals. P. Rous and O. H. Robertson, New York.—p. 651.
71 *Id. Blood Destruction in Plethoric Animals and in Animals with Simple Anemia. O. H. Robertson and P. Rous, New York.—p. 665.
72 Elimination of Iron and Its Distribution in Liver and Spleen in Experimental Anemia. H. Dubin and R. M. Pearce, Philadelphia.—p. 675.
73 *Study of Acidosis, Blood Urea and Plasma Chlorids in Uranium Nephritis in Dog, and of Protective Action of Sodium Bicarbonate. K. Goto, Philadelphia.—p. 693.
74 Cicatrization of Wounds. Mathematical Study of Extrapolation Formula and Curve of Cicatrization. P. L. Du Noüy, France.—p. 721.
75 Digitalized Dog's Heart as Affected by Amyl Nitrite or Atropin, Studied Electrocardiographically. J. T. Halsey, New York.—p. 729.
76 *Spirocheta Icterohemorrhagia in American Wild Rats and Its Relation to Japanese and European Strains. H. Noguchi, New York.—p. 755.

66. **Cancer Immunity on Resistance to Tuberculosis.**—That lymphocytosis might be a factor in causing greater resistance to infection displayed by splenectomized animals is confirmed by experiments made by Taylor and Murphy. Mice splenectomized and then exposed to repeated small doses of Roentgen ray, which had been demonstrated to affect primarily the lymphoid organs, proved to be more susceptible, instead of more resistant, to infection than were either normal animals or animals splenectomized alone. Intact Roentgen-rayed mice were likewise highly susceptible to infection with the bovine tubercle bacillus. Morton has observed also that the Roentgen-rayed guinea-pig is more susceptible to infection with the human type of the tubercle bacillus than is the normal animal. The present communication deals with the influence of a pronounced lymphocytosis induced by other means than splenectomy on the resistance of the mouse to tuberculous infection. Mice first immunized to, and then inoculated with, a transplantable mouse cancer exhibit a greater resistance to bovine tuberculosis than do normal animals. On the other hand, while animals ineffectively immunized against cancer show a definite lymphoid reaction in the blood, it is less marked than when the immunity is perfect. Four mice of this kind outlived the controls but succumbed earlier than the completely immune ones.

67. **Transplantation of Spleen Tissue.**—Not one instance of permanent homotransplantation or autotransplantation of the spleen, or of the probably closely related splenolymph and hemolymph glands is on record. Spleen autotransplants with considerable difficulty as compared with thyroid, parathyroid, ovary or suprarenal cortex. This may be due to its complex anatomic structure. An instance of a permanent autotransplant has been observed by Manley and Marine. None of their attempts to homotransplant were successful beyond the usual taking and persistence for two or three weeks, common to all homografts. The successful permanent subcutaneous autotransplantation had all the morphologic characteristics of a fully differentiated and functionally active spleen.

68. **Production of Antipneumococcus Serums.**—A horse immunized by Wadsworth and Kirkbride with Type III (*Pneumococcus mucosus*) developed serum having a slight degree of protection for mice against the corresponding organisms. This serum was sufficiently potent, however, to cause prompt and complete agglutination when combined with fresh, untreated, homologous organisms, thus avoiding the preliminary treatment to remove the capsule which has previously been held necessary. As a diagnostic aid in the differentiation of pneumococcus strains, the serum has proved of distinct value.

70. **Normal Fate of Erythrocytes.**—The phagocytosis of red corpuscles, while frequent in the normal dog, rat and guinea-pig, according to Rous and Robertson, is slight in man, the rhesus monkey, and many rabbits. By a special method, it has proved possible to search the body, organ by organ, and the circulating blood also, for disintegrating red corpuscles. Shadows of red cells are not present anywhere, nor are hemolyzing red cells found. A hemolytic process, in the ordinary sense of the term, can scarcely play an important part in normal blood destruction. Instead, it is certain that some red corpuscles, at least, are destroyed in another way; namely, by fragmentation. Normal blood regularly contains small numbers of fragmentation forms—microcytes and poikilocytes—and accumulations of them are regularly present in the spleen, but are found only inconstantly in the other organs. The fragments are in evident process of further subdivision. They occur not only in species in which phagocytosis as a means of cell destruction is negligible (cats), but also in animals in which it is an important process (dogs, some rabbits).

71. **Blood Destruction in Plethora and Simple Anemia.**—Robertson and Rous state that the increased destruction of red cells in animals rendered plethoric by transfusion takes place predominantly by a fragmentation of the corpuscles without loss of hemoglobin. The microcytes and poikilocytes observed in animals with a severe anemia due to hemorrhage are not put forth as such by the bone marrow, but are portions of cells fragmented while circulating. The cells thus fragmented are for the most part those new formed to meet the exigencies of the situation. Such cells are in large part unable to withstand the wear and tear of function. There results a vicious circle. The anemia renders the bone marrow unable to put forth proper cells, and those it does produce are soon destroyed, thus prolonging the condition. A similar state of affairs probably exists in many human anemias. The occurrence of large accumulations of microcytes and poikilocytes in the spleen of anemic and plethoric animals indicates that the organ exercises some important function in connection with these forms. The same is true of normal animals, for the findings in them are similar, though less striking. The normal fate of red corpuscles, in those species in which phagocytosis is negligible, is to be fragmented one by one, while still circulating, to a fine, hemoglobin containing dust. The cell fragments are rapidly removed from the blood, but their ultimate fate remains to be determined. The facts indicate that they are removed from the blood by the spleen, and under exceptional conditions, by the bone marrow.

73. **Acidosis in Uranium Nephritis.**—The presence of an acidosis in dogs with experimental uranium nephritis, Goto says, is demonstrable by the Van Slyke-Stillman-Cullen method and that of Marriott. It is detected more readily by the former method. This acidosis is associated with increase in the blood urea and plasma chlorids and with the appearance of albumin and casts in the urine. The oral administration of sodium bicarbonate diminishes the acidosis, the increase in plasma chlorids, the amount of albumin and casts in the urine, and, to a lesser degree, the increase in the blood urea following the administration of uranium. It also diminishes the severity of the changes produced by uranium

in the kidneys. The oral administration of sodium bicarbonate to normal dogs raises the carbon dioxid content of the plasma, as determined by the Van-Slyke-Stillman-Cullen method.

76. **Spirochete Icterohemorrhagia in Wild Rats.**—The principal points brought out by Noguchi are the following: 1. Wild rats captured in this country carry in their kidneys a spirochete which possesses the morphologic and pathogenic properties characteristic of *Spirochaeta icterohemorrhagica*, discovered by Inada in the Japanese form of infectious jaundice. 2. Cultures of the American, Belgian and Japanese strains of the spirochete were obtained by a special technic described, the first two strains having been cultivated artificially for the first time. 3. Animals actively immunized against the Japanese strain resist inoculation, not only of the same strain, but also of the Belgian and American strains. The Belgian strain produces immunity equally effective against all three strains. Experiments to ascertain whether the immunity afforded by the American strain also protects against the Japanese and Belgian strains are in progress. These findings warrant the conclusion that the spirochetes designated here as the Japanese, Belgian and American strains are probably identical. On account of its distinctive features, a new genus, *Leptospira*, has been suggested as the designation of this organism.

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77 Congenital Cerebrocerebellar Diplegics; Their Training Treatment. L. P. Clark, New York.—p. 751.
78 Surgical vs. Tuberculin Treatment of Renal Tuberculosis. L. Buerger, New York.—p. 760.
79 Report of Thirty-Five Cases of Perisinus and Extradural Mastoid Abscess. H. B. Blackwell, New York.—p. 763.
80 Obstruction of Appendix. W. H. Barber, New York.—p. 766.
81 Home Convalescence. F. Brush, White Plains.—p. 768.

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82 Types of Delinquent Careers. B. Glueck, New York.—p. 171.
83 Efficiency and Inefficiency—Problem in Medicine. P. Bailey, New York.—p. 196.
84 Standardized Fields of Inquiry for Clinical Studies of Borderline Defectives. W. E. Fernald, Waverly, Mass.—p. 211.
85 Educational Methods and Fundamental Causes of Dependency. C. M. Campbell, Baltimore.—p. 235.
86 Some Criteria for Evaluation of Mental Tests and Test Series. F. Mateer, Waverly, Mass.—p. 241.
87 How May We Discover Children Who Need Special Care? R. M. Yerkes, Boston.—p. 252.
88 Feeblemindedness as Seen in Court. V. V. Anderson, Boston.—p. 260.
89 Community Value of Outpatient Department of Hospital for Insane. J. B. MacDonald, Hathorne, Mass.—p. 266.
90 Subsidizing Mental Deficiency—"Pauper Idiot Act" of Kentucky. T. H. Haines, Columbus.—p. 274.
91 Care and Treatment of Insane in County Institutions of Pennsylvania. W. C. Sandy, Columbia, S. C.—p. 279.

Modern Hospital, St. Louis

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92 Model Hospital Established and Managed by Chinese. W. Lien-Teh.—p. 241.
93 Hospital Work in Island of Porto Rico. E. R. Hildreth, San Juan, P. R.—p. 245.
94 How a Real Hospital Started and Grew. L. O. Wight, New York.—p. 247.
95 Story of Institutional Library. M. H. Burgoyne, White Plains, N. Y.—p. 251.
96 Skim Milk as Food. J. P. Street, New Haven, Conn.—p. 253.
97 Standardization of Hospitals; Introduction and Classification. J. A. Hornsby, Chicago.—p. 256.
98 Architecture and Equipment of Jordan Hospital, Plymouth, Mass. C. G. Mixter and H. F. Kellogg, Boston.—p. 258.
99 Hospital Organization in Rural Pennsylvania. H. L. Foss, Danville, Pa.—p. 275.
100 What Sisters Should Contribute to Team-Work. M. Esperance, Minneapolis.—p. 276.
101 Diagnosis of Heart Cases. A. Bacon and F. M. Smith, Chicago.—p. 279.

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103 Cardiac Remedies. P. H. Markley, Camden.—p. 141.
104 Sleep and Proper and Improper Methods of Sleeping in Relation to Health and Disease. J. A. Maclay, Paterson.—p. 144.
105 Infantile Paralysis. M. Frank, Bayonne.—p. 147.
106 Case of Myocardial Exhaustion Producing Angina Pectoris. D. W. Scanlan, Atlantic City.—p. 152.

New Orleans Medical and Surgical Journal

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107 Symptoms of Measles. S. F. Braud, New Orleans.—p. 739.
108 Ear, Nose and Throat Complications of Measles. H. Dupuy, New Orleans.—p. 741.
109 Ocular Complications of Measles. C. A. Bahn, New Orleans.—p. 745.
110 *D'Espine Sign Valuable Aid in Diagnosis of Pulmonary and Tracheobronchial Glandular Tuberculosis in Childhood. C. J. Bloom, New Orleans.—p. 748.

110. **D'Espine Sign in Diagnosis of Tuberculosis.**—Bloom reports seventeen cases, in which the "d'Espine sign" was positive, and the diagnosis made before these respective cases were diagnosed as such by Roentgen ray. The tuberculin reaction proved positive in three of the seventeen cases.

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111 United States Naval Hospital and Medical School. R. C. Ransdell, Washington, D. C.—p. 817.
112 Roentgen Findings in Upper Right Abdomen. A. J. Quimby and W. A. Quimby, New York.—p. 821.
113 Stenosis and Stricture of Ureter. L. Buerger, New York.—p. 826.
114 Study of Drug Action. T. J. Mays, Philadelphia.—p. 832.
115 Is Epilepsy Bacterial Infection? J. F. Munson, Sonyea.—p. 836.
116 Warning About Rickets, B. Robinson, New York.—p. 837.
117 Some Considerations in Diagnosis of Gastro-Intestinal Diseases. H. Weinstein, New York.—p. 838.

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120 Extraction of Cataract from Vitreous. E. S. Thomson, New York.—p. 169.
121 Health Center Field Work. A. C. Schaefer, Buffalo.—p. 176.
122 Atrophic Vascular Cirrhosis of Liver with Ascites. W. L. Duffield, Brooklyn.—p. 178.
123 Medical Gynecology. R. G. Loop, Elmira.—p. 180.
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126 Importance of Diagnosis to Vital Statistics with Special Reference to Cancer Problem. J. S. Lewis, Buffalo.—p. 187.

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131 Infant Feeding. M. B. Springer, Tulsa.—p. 143.
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134 Gas Infection. G. D. McLean, Oklahoma City.—p. 152.

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136 Smith-Indian Cataract Operation. A. S. Green and L. D. Green, San Francisco.—p. 406.
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138 "Old" and "New" Cataract Operation. M. Corry and H. Shanker, Delhi, India.—p. 420.
139 New Operation for Ectropion. D. W. White and P. C. White, Tulsa, Okla.—p. 425.
140 Internal Secretory System and Eye. R. S. Lamb, Washington, D. C.—p. 434.
141 Practical Value and Limitations of Tonometer. E. Jackson, Denver.—p. 437.
142 Art of Refraction. H. S. Gradle, Chicago.—p. 447.
143 Dumb Bell Keratitis. L. H. Buxton, Oklahoma City.—p. 450.
144 Clinical Study of Three Cases of Sarcoma of Chorioid and Ciliary Body. H. H. McGuire, Winchester, Va.—p. 454.

South Carolina Medical Association Journal, Greenville

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145 How to Increase Individual and Collective Efficiency of Medical Profession of South Carolina. C. B. Earle, Greenville.—p. 498.
146 Vaginal Cesarean Section. G. F. Wilson, Charleston.—p. 501.
147 Study of Medicine. W. F. R. Phillips, Charleston.—p. 504.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

January-March, XIV, Nos. 157-159

1 Malformation of Esophagus. E. Cautley.—p. 1.
2 *Infective Theory of Acute Leukemia. G. Ward.—p. 10.
3 *Isolated Nasal Diphtheria. J. D. Rolleston.—p. 21.
4 Cerebral Diplegia with Abnormal Flexibility (Atony or Hypotonia) of Ankle Joints. F. P. Weber.—p. 31.
5 Case of Cyclic Vomiting with Acetonemia (Acidosis). Nondiabetic Acetonuria and Diaceturia. F. P. Weber.—p. 33.
6 Case of Heart Failure During Operation for Removal of Tonsils and Adenoids; Heart Massage Through Abdominal Incision; Recovery. W. M. Mollison.—p. 42.
7 Retrospect of Otology. M. Yearsley.—p. 47.

2. **Infective Theory of Acute Leukemia.**—The evidence presented by Ward is almost entirely against the infective nature of leukemia, the established facts being: (1) There is a congenital form of leukemia which occurs in children whose parents are not leukemic; (2) leukemic parents have never been known to transmit the disease to the new-born child; (3) instances in which actual infection of one person by another might seem to have occurred are very few, although not necessarily devoid of significance; (4) in having a marked preference for a particular sex and age, leukemia differs from the infective class of diseases, and resembles the metabolic diseases and cancers.

3. **Isolated Nasal Diphtheria.**—Among 3,000 cases of diphtheria under Rolleston's care there were only fifty-five cases or 1.5 per cent. examples of isolated nasal diphtheria, that is, diphtheria starting in the nose and remaining confined to that site, as compared with 620 cases, or 20.6 per cent., in which nasal diphtheria was associated with diphtheritic angina. The diagnosis in each case was confirmed by bacteriologic examination. With the exception of four infants who were suffering from congenital syphilis, all the patients had been in good health until the time of their attack of diphtheria. None had been recently suffering from scarlet fever or measles which so frequently precede nasal diphtheria.

British Medical Journal, London

April 14, I, No. 2937

8 *Mouth Washes in Health and Disease. H. P. Goodrich.—p. 473.
9 Treatment of Fractures by Splints. C. A. Morton.—p. 475.
10 *Recent Results in Serum Treatment of Cerebrospinal Fever. A. G. Robb.—p. 478.
11 Etiology of Dysentery. C. J. Martin and F. E. Williams.—p. 479.
12 Metastatic Gas Gangrene. J. N. J. Hartley.—p. 481.
13 Skin Grafting. D. G. Greenfield.—p. 482.
14 Another Wandering Shrapnel Ball. H. I. Gregory.—p. 482.

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15 Wounded as We See Them at Home. W. C. Allardice.—p. 501.
16 *Metabolic Changes Produced by Allen Treatment of Diabetes Mellitus. P. J. Cammidge.—p. 503.
17 Variations in Weight of Tubercuious Under Sanatorium Treatment. J. H. Smith.—p. 505.
18 *Method of Anesthetizing Soldiers. W. J. McCardie.—p. 508.
19 Multiple Severe Injuries from Bomb Explosion; Operation; Recovery. N. Davidson.—p. 509.
20 Value of Feeding During Operation as Preventive of Surgical Shock. H. H. Brown.—p. 510.
21 Case of Cerebral Abscess of Otic Origin. H. Bodkin.—p. 510.
22 Treatment of Trench Feet by Subcutaneous Injection of Oxygen. H. O. Smith.—p. 511.

8. **Mouth Washes in Health and Disease.**—The experiments made by Goodrich show that a saturated aqueous solution of thymol is a very good antiseptic for ordinary mouth bacteria. Boric acid has given disappointing results. A saturated solution must act for more than two minutes to be effective, and was by no means always satisfactory in five minutes. Iodin would obviously not make a satisfactory mouth wash for general use. Hypochlorite solutions are not suitable for general use owing to their instability. Hydrogen peroxid solutions are too readily reduced to be successful in the hands of an ordinary patient. Potassium permanganate, another oxidizing agent and deodorant, is sometimes used as a mouth wash. It is by no means ideal, being only a weak antiseptic, and, in addition to staining the teeth, has an unpleasant taste. With zinc sulphocarbolate, a 10 per cent. solution, Goodrich never once obtained complete sterility.

10. **Serum Treatment of Cerebrospinal Fever.**—The most hopeful line of treatment in Robb's opinion is by lumbar puncture, drainage, and the intrathecal injection of carefully prepared polyvalent antimeningitis serum; and the most important factors which make for success are early treatment and sufficient dosage.

16. **Allen Treatment of Diabetes Mellitus.**—Some 8,000 specimens from over 500 cases of diabetes, including fifty-four treated by Allen's method, have been examined by Cammidge. One of the most striking results has been the frequency with which indications of chronic catarrh of the upper intestinal tract were found (71 per cent.). Signs of some interference with the digestive functions of the pancreas were met with in 72 per cent. In most of them (67 per cent.) there were also indications that the functions of the liver were being imperfectly carried out, while in 27 per cent. the hepatic disturbance was more pronounced, apparently, than the pancreatic. Cammidge, therefore, recognizes three types: (1) the pancreatic, (2) the hepatic and (3) the pancreo-hepatic. The outlook for patients with a cirrhotic pancreas is fairly good, provided a suitable diet is adopted. They are not materially benefited by starvation, and as their digestive powers for all three classes of foodstuffs are defective it is more important to ensure adequate nourishment than to worry over the traces of sugar they generally pass.

Cammidge does not look on Allen's fasting treatment as the best for all forms of glycosuria, but considers that it marks a great advance in the available methods, and gives results that can be obtained by no other means in many instances. It must be used with judgment, however, and one should always bear in mind that the keynote of the treatment is undernutrition. A practical question that sometimes arises is, whether a controlled, and may be mild glycosuria with an adequate diet and reasonable enjoyment of life, is not preferable to the theoretical ideal of permanently sugar free urine, which can only be secured by a diet that will not satisfy the pangs of hunger, and requires constant close supervision. The answer will depend on circumstances and the temperament of the patient. These should be considered carefully before advising the treatment, as once it is begun it must be persevered with, since a return to an ordinary carbohydrate free diet always brings about a rapid increase in the acidosis, with excessive tissue waste and death from diabetic coma.

There is more danger of serious acidosis during the starvation of fat than thin diabetics; when acidosis is present the patient should be prepared for starvation by a fat-free, protein-poor, diet for several days; an initial increase in the acidosis is to be expected in most cases, but should not put a stop to the treatment unless it assumes threatening proportions. When this occurs the fast should be terminated for the time being and the treatment directed to the acidosis. A restricted diet and alkaline therapy for a few days will generally serve to control the condition, when a further fast will usually result in improvement in carbohydrate metabolism without increasing the acidosis. During the fasting period as much exercise as practicable should be taken, as it shortens the duration of the fast. After feeding is commenced the exercise should be continued, short periods of vigorous exercise after meals being preferable to long walks. Excessive fatigue should be avoided. Mental occupation is also most desirable, and patients should be encouraged to continue, or resume, their ordinary work if possible.

18. **E-C Method of Anesthetizing Soldiers.**—The best all round mixture would be one in which the respiration and circulation are very slightly stimulated by the addition of a little more ether, thus ensuring safety and counteracting any shock arising from the operation. McCardie's idea is to take ether as the standard of safety and so to dilute or modify its action as to obtain some of the advantages of chloroform anesthesia. Ether thus modified by chloroform, is said to possess practically the safety of pure ether. The author uses 16 parts of ether to 1 of chloroform. He terms this mixture "mitigated ether." As a preliminary to the administration of ether, or $E_{16}C_1$, McCardie prefers a few drops of E_2C_1 to ethyl chlorid. For maintenance of anesthesia E_2C_1 or chloroform

are preferable to even "mitigated ether," owing to the prevalence of respiratory irritability among soldiers.

Lancet, London

April 21, I, No. 4886

23 War Surgery of Abdomen. C. Wallace.—p. 597.
24 *Studies in Wound Infections; Question of Bacterial Symbiosis in Wound Infections. S. R. Douglas, A. Fleming and L. Colebrook.—p. 604.
25 Clinical Types of Subtertian Malaria. A. W. Falconer and A. G. Anderson.—p. 607.
26 Symptomatology of Paratyphoid Fever. J. M. Fortescue-Brickdale.—p. 611.
27 Improved Method for Estimation of Sugar in Urine and Blood. P. J. Cammidge.—p. 613.

24. **Studies in Wound Infection; Symbiosis.**—The experiments described by Douglas and his associates show that the proliferation of *B. perfringens* is much more rapid when it is grown in symbiosis with streptococcus, staphylococcus, various diphtheroid bacilli, *B. proteus, B. pyocyaneus,* and a coliform bacillus. All strains of diphtheroid bacilli, commonly isolated from wounds, were found to be practically equally efficient in stimulating the growth of *B. perfringens.* Not only were a much larger number of *B. perfringens* found in the cultures grown in symbiosis with these various bacilli after a certain period of incubation, but it was also found that an almost infinitely smaller number of *B. perfringens* would proliferate under these conditions than when pure cultures were made. When *B. perfringens* and streptococci are grown in symbiosis, a much more abundant growth of both microbes results. These experiments indicate that bacterial symbiosis may play a very important rôle in wound infections.

Medical Journal of Australia, Sydney

March 24, I, No. 12

28 War Surgery at Front. C. MacLaurin.—p. 241.
29 Milk Curdling Properties of Pancreatic Juice, H. G. Chapman and A. H. Moseley.—p. 243.
30 Vasomotor Disturbances in Raynaud's Disease. A. W. F. Noyes.—p. 247.

March 31, No. 13

31 Healthy House Building. J. Nangle.—p. 265.
32 Prolapse of Female Bladder. A. J. Nyulasy.—p. 272.

April 7, No. 14

33 Developmental Cysts of Ureter and Renal Pelvis in Case of Unilateral Pyelonephritis. S. H. Harris and D. A. Welsh.—p. 291.

Archives des Maladies du Cœur, etc., Paris

March, X, No. 3, pp. 97-144

34 Character of the Heart Murmurs with Congenital Cyanosis. (Des caractères des souffles cardiaques dans la maladie bleue.) L. Bard.—p. 97.
35 *Possibility of a Reflex Arterial Systole. R. Wybauw.—p. 107.
36 Successful Extraction of Bullet in Wall of Left Ventricle. J. Duvergey.—p. 122.

35. **Theories in regard to the Circulation of Blood in the Vessels.**—Wybauw recalls that, according to the accepted theory of the circulation, the blood is impelled by the systole of the ventricles and the elasticity of the arteries stores up some of this expulsive force of the heart and restores it. The muscular fibers are not supposed to do much more than to maintain the regular lumen of the vessel. His experience at Spa, noting the effects of carbonated baths on hundreds of patients, soon convinced him that these prevailing views do not harmonize with the phenomena he was constantly encountering. We know that circulation occurs in some living beings without a differentiated heart, and in the embryo before the heart has been formed. Certain research workers have reported that the blood pressure may be higher in the rear than in the front legs or carotid of animals, especially the differential pressure. Another argument in favor of the conception of an active systole of the arteries is that the blood pressure in the portal vein may be higher than in the vessels that precede it. Wybauw gives an illustrated description of an apparatus which reproduces the conditions of the natural circulation, and confirms the necessity for assuming the existence of certain still unsuspected factors in the circulation and the probability of an active systole in the arteries. He gives tracings obtained with it and from experimental research, commenting that it is very improbable that a 1 : 40,000 dose of epinephrin or 1 : 10,000 of morphin could instantaneously modify the elasticity of the arteries enough to explain the effects observed, while they are easy to comprehend by assuming the existence of a muscular contraction exaggerated or diminished under the influence of substances increasing or reducing the tonus of the vessel wall. Everything, he says, seems to sustain the assumption of a reflex arterial systole following immediately on the shock of the pulse beat. In this connection he mentions that Richat and Benjamins, in the research laboratory of the University of Utrecht, have recently demonstrated the existence of waves of peristalsis in the lacrimal canal.

Archives Médicales Belges, Paris

March, LXX, No. 3, pp. 193-288

37 *Rarity of Sympathetic Ophthalmia after War Wounds. L. Weekers.—p. 193.
38 Icterohemorrhagic Spirochetosis; Forty-Seven Cases. L. Wilmaers and E. Renaux.—p. 207. Conclusion.
39 Advantages of Wright's Physiologic Method of Treating War Wounds. Goormaghtigh.—p. 225.

37. **Sympathetic Ophthalmia in Wounded Soldiers.**—Weekers remarks that one of the unexpected happenings in the war is the extreme rarity of sympathetic ophthalmia, notwithstanding the great frequency of war wounds of the eyes. In his personal experience he has encountered only one instance of it among 800 cases of war injury of one eye. He recalls that during the Franco-Prussian war of 1870 fully 55 per cent. of the wounds of one eye were followed by sympathetic ophthalmia, and even during peace times it averages 11.6 per cent. according to Hobby's statistics, and 21 per cent. after unsuccessful cataract operations, according to Steffen. He has found only a very few cases mentioned in accessible literature during the war, while many comment on the rarity of the sympathetic involvement of the other eye. These facts justify conservative treatment of the wounded eye, unless one's hand is forced by irritation and pain. It is much better, he thinks, to retain the eyeball, even with vision entirely lost, than to be forced to depend on a complete prosthesis. He is inclined to ascribe the rarity of sympathetic ophthalmia nowadays to the asepsis and antisepsis which are now so generalized, adding that the day when operators will take as many precautions before opening an eye as for a laparotomy, postoperative sympathetic ophthalmia will very nearly disappear completely. All the wounded in the war are placed at once in hospitals where the discipline of asepsis reigns, and there is no need to remove a wounded eye for the sole reason of warding off sympathetic ophthalmia. There is no hurry; one can at least wait a few days. If the eyeball has to be sacrificed, he advises exenteration as giving a better stump while it offers fully as many guarantees against sympathetic ophthalmia as enucleation.

Bulletin de l'Académie de Médecine, Paris

March 27, LXXVII, No. 13, pp. 409-423

40 *Radiotherapy for the Sequels of Skull Wounds. G. Bonnus, M. Chartier and F. Rose.—p. 418.
41 Anomalies in First Ribs. A. Clerc, R. Didier and J. Bobrie.—p. 421.

April 10, No. 15, pp. 481-510

42 *Relations between Diabetes and Cancer. A. Robin.—p. 481.
43 *Pedunculated Grafting Operations from Donor to Recipient: Four Siamese Grafts of Femur or Humerus. O. Laurent.—p. 488.
44 *The Rôle of the Thyroid and Parathyroids in Uremia. A. Rémond and Minvielle.—p. 504.
45 Necrosis and Gangrene after Subcutaneous Injection of Quinin. (L'abcès quinique.) Prat-Flottes and H. Violle.—p. 507.
46 Opaque Drains to Aid in Roentgenoscopy. O. Pasteau.—p. 509.

40. **Roentgenotherapy of Disturbances Left from Wounds of the Brain and Spinal Cord.**—Bonnus and his co-workers report favorable experiences from Roentgen exposures in treatment of localized or reflex phenomena from irritation of the dura, sequels of wounds of the skull. Also in motor or sensory jacksonian epilepsy, in the phenomena of reflex epilepsy, and in certain cases of spastic paralysis from superficial injury of the brain. Some months ago they published a favorable report on roentgenotherapy in treatment of trau-

matic affections of the spinal cord and peripheral nerves. If adhesions are not too extensive and too stout, the Roentgen exposures facilitate their absorption. They also act beneficially on cicatrices left by small hemorrhagic lesions. These cicatrices in the meninges or brain are the cause of incessant irritation of cells and motor fibers, and any tendency toward a return to normal conditions is a great gain. Of course the exposures are unable to restore destroyed tissues, so the cases must be selected with care.

42. **Relations between Diabetes and Cancer.**—Robin cites Boas to the effect that in 55 cases of cancer of the digestive tract he found that 12 of the patients were diabetics. In Robin's own experience among 144 fatal cases of diabetes, 12 of the patients had cancer, a proportion of 8.3 per cent. In his cases the cancer was of rapid development, from fifty days to five months in 5; from six to seven months in 4, and only in 3 instances was the interval before death from thirteen months to two years. Some connection between the intensity of the diabetes and the rapidity of the development of the malignant disease seems manifest in both Robin's and Boas' series. He does not know of any record of diabetes developing after the onset of cancer, except possibly in the rare cases of cancer of the pancreas. Two cases published by Verneuil suggest the possibility that intercurrent diabetes may transform a benign into a malignant tumor. Robin noted that obtaining control of the diabetes seemed to check the rapid growth of the cancer. In his one case of cancer of the rectum the subsidence of the glycosuria under proper treatment was followed by an increase in weight and the cancer did not prove fatal until the end of the second year. The records show further that operations for removal of the cancer are liable to have serious results on account of the tendency to fatal coma thereafter. It is better, he declares, to refrain from operating if the urine contains acetone products and the diabetic patient is much debilitated. On the other hand, removal of the cancer is justified with incipient cancer even when the diabetes is severe. Especially in cases of cancer of the breast, the removal of the cancer permitted long survival. He adds in conclusion that six of the twelve cases in his practice were hospital patients. Others have encountered cancerous diabetics only in private practice.

43. **Siamese Grafts.**—Laurent reports four cases in which he repaired an extensive gap in the femur or humerus by a pedunculated graft from another person, the donor and recipient fastened together for eight or ten days. In one case a gap in the femur was thus restored by a stretch of the femur from a man whose leg had been amputated, and it required shortening of the excess of femur left. In the second case the gap in the humerus was repaired by the fibula with the periosteum from the tibia. In each case the redundant bone after amputation was used for the graft, and the results obtained confirmed in every respect the anticipations derived from his previous experimental research in this line of symbiosis grafts. To date the results in his four clinical cases are satisfactory. Consolidation is complete in the first case and nearly complete in another. One of the recipients is obese and has eczema, which renders the outlook dubious in his case. Each case is described in detail, each representing a different type of technic. The wounds had been severe and it was a question of amputation otherwise.

44. **Influence of Thyroid and Parathyroids on Uremia.**—Rémond and Minvielle here report further research on the rôle of the thyroid and parathyroids in uremia. They found that the animals survived longer after nephrectomy when the parathyroids had been removed with the thyroid than after thyroidectomy alone. Removal of the thyroid and of the kidney did not seem to affect the suprarenals particularly, but when the parathyroids had been removed along with the thyroid, the suprarenals showed evidence of intensely increased functioning. In six animals an interval of forty-eight or seventy-two hours was allowed to elapse before the kidney was removed after the thyroid-parathyroidectomy. The kidneys were invariably pathologic and the uremia was more intense. The data related apparently demonstrate that the endocrine glands have something to do with the development of uremic accidents. Their influence may be shown by an improvement (thyroid) or by a lowering of the resisting powers (parathyroids).

Journal de Médecine de Bordeaux

April, LXXXVIII, No. 5, pp. 83-100

47 *Surgical Experiences at the Front with the More Severely Wounded. (Une ambulance de grands blessés à Verdun.) J. Lalesque.—p. 83.
48 Paralysis from Pressure on Facial Nerve after Fracture of Petrous Bone. Operative Correction and Cure. Brindel.—p. 87.
49 An Epidemic of Dysentery. P. Mauriac.—p. 89.
50 Camp Garbage Incinerators. P. Lande.—p. 95.
51 Minute Proportions of Copper in Vegetables and Meats. (A propos du cuivre dans les tomates.) P. Carles.—p. 97.

47. **Treatment of Wounded Unable to Be Moved.**—Lalesque relates that during his seventy days' work in charge of an ambulance at Verdun he made a practice of getting the severely wounded to bed at once, with Mencière's balsam to the wound, giving warm drinks and stimulants, keeping the body warm and injecting saline and camphorated oil, resisting the temptation to operate first. Then watching over him he was ready to operate at the first feasible moment, five, eight, ten hours after his arrival. Men with wounds of the chest were placed seated in bed, with plenty of dressings, and were sent to the base hospital early, no attempt at operation being made in the field station. His experience with abdominal wounds was that the men would either recover without intervention or were irremediably doomed, and he never operated in this class of cases during his Verdun days. Some of those supposed to be doomed finally recovered or were able to stand an operation later. When amputation was necessary, he aimed to do it as rapidly as possible, striving to keep the shock down to the minimum. He found metal retractors for the soft parts indispensable in amputating; no other means of guarding and saving the soft parts answered the purpose in these amputations when it was a question of saving life rather than of making an elegant stump. The stumps thus obtained were functionally excellent. He never cut flaps, but saved as much of the skin as possible, and the wounds kept a good aspect under compresses wet with Dakin's solution. No attempt at suturing was made as there was no assurance of asepsis in those hurried days of carnage, and he did not have the equipment for Carrel treatment.

Paris Médical

April 7, VII, No. 14, pp. 261-292

52 Tuberculosis Suspects. E. Sergent.—p. 263.
53 Welfare Work for Tuberculous Soldiers during and after the War. L. Bernard.—p. 268.
54 Pleurisy and Tuberculosis. Morichau-Beauchant.—p. 272.
55 Early Operative Treatment of Wounds of the Thorax and Lung. A. Latarjet.—p. 275.
56 Extraction of Foreign Bodies in the Lungs. J. Guyot.—p. 280.
57 The Working Capacity of the Tuberculous for Outdoor Work. A. Vigné.—p. 284.

Presse Médicale, Paris

March 29, XXV, No. 18, pp. 177-184

58 *Is Chronic Renal Tuberculosis Ever Curable? N. Hallé.—p. 177.
59 *Prophylaxis of Infection in War Wounds by Powdering with Calcium Hypochlorite. H. Vincent.—p. 180.
60 *The Blood Count After War Wounds. (Quelques enseignements cliniques fournis par l'examen du sang après les blessures.) P. Govaerts.—p. 180.

April 2, No. 19, pp. 185-200

61 *Dehydration of Blood and Organs in Diabetic Coma. A. Chauffard, Le Conte and Dorie.—p. 185.
62 Polyvalent Serotherapy in Treatment of Wounds. E. Leclainche and H. Vallée.—p. 187.
63 Meningitis in Icterohemorrhagic Spirochetosis. S. Costa and J. Troisier.—p. 189.
64 Present Status of Our Knowledge of Action of Epinephrin on Cardiovascular Apparatus. L. Binet.—p. 191.

58. **Curability of Renal Tuberculosis.**—Hallé declares that an anatomic cure of tuberculous processes in the kidneys has been definitely established as a fact only in one form of chronic renal tuberculosis, namely, closed parenchymatous tuberculous processes. With other forms it may be possible, but it has not been proved to date. Tubercles in the kidney may shrivel into hard bunches with loss of substance and

more or less complete fibrous scars. This form of healing occurs, he says, in about 33 per cent. of the cases. The various stages of this shriveling and loss of substance, deforming the kidney, are shown in a number of illustrations. Spontaneous, medical healing cannot be counted on with any certainty, however, so that nephrectomy is still as ever the most reliable means of curing renal tuberculosis.

59. **First Treatment of War Wounds.**—Vincent reiterates here his plea for dusting war wounds thick with a dry powder consisting of calcium hypochlorite and boric acid in the proportions of 1 : 10. This prophylactic treatment is particularly useful when the wounded are coming in in large numbers. The powder can be applied again the next day, if there is delay in getting the wounded to the hospital. This powder has a powerful sterilizing action and seems to ward off gas gangrene. It has been called the ideal dressing for the battle field.

60. **The Blood Findings in the Wounded.**—Govaerts reproduces some charts which show that after a serious wound the red and white counts are both high. If in the six hours after the wound the reds have dropped to 4,000,000 or below, while the whites have climbed to 30,000, we can be sure there is a serious hemorrhage and the outlook is grave. Saline infusion is not enough in this case; transfusion of blood is called for. If internal hemorrhage is suspected, high leukocytosis confirms the necessity for operative intervention. In one such case, the number of reds was normal but the whites numbered 31,600. The laparotomy revealed complete rupture of the spleen. In the course of treatment of a wound, if the reds increase suddenly in numbers, a reaction on the part of the peritoneum or effusion in some serous cavity can generally be found to explain it. When the number of reds shows a gradual decline through four days, infection is usually installed. In a typical case described, the arm had been torn out by a shell. The reds numbered 4.800,000 at once, but the third day only 2,780,000 were found. The man seemed to be doing well, but the next day the reds had climbed to 4,700,000 and the whites began to show an upward tendency, having dropped previously from 31,000 to 11,000. The man died the next day from peritonitis, a scrap of the shell having injured the liver.

61. **Dehydration of Blood and Organs in Diabetic Coma.**—Le Conte and Dorie comment on the evident signs of dehydration which are common in diabetic coma, but they do not regard them as the cause of the coma. They appear only after the latter is under way. The dehydration shows most in the eyeball. In two typical cases related in detail, the necropsy findings corresponded to the degree of dehydration evidenced during life. The specific gravity of the blood was 1.064 and 1.068, while the reds in the woman of 31 numbered 8,340,000. In the other patient, a man of 66, the composition of the blood had been modified by copious drinking of water and the reds dropped nearly to half their original figure. The pressure in the arteries may be so low as to amount to actual heart failure, with suppression of urine secretion. The coefficient of dehydration in the two cases was for the liver 15 and 20 per thousand; for the brain 30 and 5; for the kidneys 60 and 40 and for the pancreas 95 and 45 per thousand. The dehydration is evidently most pronounced in the parenchyma of the kidneys and pancreas. The data presented warn that in treatment of diabetic coma it is wise to avoid hypertonic solutions of sodium bicarbonate on account of the extreme concentration of the blood. A hypertonic solution would dehydrate the blood still more, and this might leave a clump of corpuscles to plug the vein.

Beiträge zur klinischen Chirurgie, Tübingen

XCIX, No. 2, pp. 233-474. Last indexed Aug. 7, 1915, p. 563

65 *Grafts of Normal Tissue between Blood Relations. G. Schöne.—p. 233.
66 Volvulus with Ileus from Strangulation by Persisting Omphalo-Enteric Duct. Meissner.—p. 265.
67 *Fistula of the Anus. E. Göz.—p. 268.
68 Morphology of the Stomach after Resection. C. Göcke.—p. 294.
69 Disinfection of the Skin with Pure Alcohol. J. Strauss.—p. 383.
70 Restoration of Larynx and Trachea. (Ueber plastischen Ersatz von Kehlkopf-Luftröhrendefekten.) W. Capelle.—p. 403.
71 Intestinal Polyposis. Borelius and Sjövall (Lund).—p. 424.
72 Tuberculous Stricture of the Small Intestine. P. Carlsson (Lund).—p. 455.

65. **Homoplastic Transplantation of Normal Tissues.**—Schöne's extensive experience with transplants of normal skin between rats, mice and rabbits of the same families showed that occasionally the grafts from blood relations healed in place and grew, although many of the implants were finally cast off. The grafts between parents and young were not successful so often as between the young of a litter. There was also often a difference in the outcome between grafts on the parents from different ones among the young. This suggests that possibly the Mendelian or other laws regulating heredity may influence the outcome of the graft. The occasional success of grafts on the young from the male parent or vice versa shows that the suckling of the young is not indispensable to the transplantation. Schöne knows of only one other worker who has experimented in this line with normal tissues. He regards it as a most promising field for further research, and suggests that a tentative preliminary graft of skin might be utilized in the clinic to ascertain the prospects for successful implantation of thyroid, kidney or other important tissues in special cases. Four colored plates and a few other illustrations reproduce some of the successful grafts. One shows the almost normal growth of the fur on the large patch of grafted skin on the back of a mother mouse nineteen months later. The graft had been taken from a 3 months old mouse from her last litter.

67. **Fistula of the Anus.**—Göz has been able to trace to date 55 of 95 patients with fistula of the anus given operative treatment in Angerer's surgical service in the ten years before 1913. No operation was attempted in 4 cases and the outcome is not known in 40 others. The entire 95 cases are reported in detail. Of the 55 followed to date, 27 were cured; 13 not cured, and 5 have died from unknown cause and 6 from the progress of their tuberculosis. Fully 43 per cent. of all those patients seemed to be tuberculous, but the recovery of 8 in this group showed that the anal fistula was a local process. Other causes are injury from a foreign body and hemorrhoids. Diabetes and typhoid seem to have been a factor in some of the cases, the former indirectly by favoring tuberculosis. Severing the sphincter at one point does not entail incontinence, but if it is cut at more than one point incontinence is almost inevitable. Cauterizing the fistula with the actual cautery cured the fistula in 67 per cent. of the cases. A supplementary operation was required to accomplish this in 14 per cent. of the others. Statistics from other clinics are compared with these, all emphasizing that tuberculosis reduces the chances for recovery and recurrence is not infrequent unless the fistula is merely a local process, in which case a complete cure after excision can be counted on.

This copy of the *Beiträge* and another—review to follow—were brought from Germany by one of the physicians of an American unit that has recently returned to this country. He presented the copies to the medical reference library (Crerar Library) in Chicago.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 7, XLVII, No. 14, pp. 417-448

73 *Sudden Death from Insufficiency of the Epinephrin Producing System. (Sogen. Minutenherztod.) O. Steiger.—p. 418.
74 Anicure Prophylaxis and Treatment of Hemorrhoids. F. Fortmann.—p. 431.
75 *Eclampsia without Convulsions or Loss of Consciousness. F. Chatillon.—p. 434.
76 Small Epidemic of Infectious Sore Throat with Eruption. C. Fischer (Montana).—p. 437.

73. **Sudden Death from Insufficiency of the Epinephrin-Producing System.**—Steiger has had a personal experience of four cases of sudden death which he ascribes to this cause. There were no symptoms suggesting Addison's disease in the first case, but necropsy revealed cheesy degeneration in both suprarenals, as also in the suprarenals of the second and third patients who both presented the typical picture of Addison's disease, one with persisting thymus at the age of 26. The others were men of 70 and 41. The sudden death

followed some special physical exertion. The fourth patient was a man of 42 with pigmentation of exposed regions but none elsewhere. He came to the hospital under the diagnosis of cardiac insufficiency. The blood pressure was 95 mm. mercury during systole and 65 during diastole. The diagnosis of Addison's disease was made. The next day he was up at 10 but became much excited during the visit of some relatives, and was seen to walk up and down, gesticulating. At 11 he was put back to bed for a further test of the blood pressure. Suddenly, while preparations for this were being made, the patient fell back, as if struck by lightning, absolutely pulseless, but he kept on breathing for seventy or eighty seconds. The whole thing was over in from sixty to ninety seconds. Cheesy nodules were found in both suprarenals.

Steiger explains these cases by assuming that although the suprarenals were much damaged, the chromaffin system was yet able to supply the usual physiologic demand for epinephrin. The defective functioning of the suprarenals was manifested in the low blood pressure in all. Some special physical exertion or emotional stress, using up large amounts of epinephrin, upset the precarious balance; the insufficient chromaffin was not able to supply enough epinephrin to compensate, and the blood pressure consequently dropped suddenly through the entire cardiovascular apparatus. In experiments on animals such a sudden drop in the blood pressure entails instantaneously the collapse of the heart, and usually through fibrillation of the ventricles. In the fourth case above described this mechanism seems obvious; the heart action stopped entirely in thirty seconds, respiration keeping up for fifty seconds longer. The case is thus a typical instance of Hering's minute-heart-death (*Minutenherztod*).

In these cases of sudden death in the midst of apparent health, the epinephrin-producing system may be diseased alone or in combination with other glands with an internal secretion (status thymicolymphaticus, exophthalmic goiter, or pituitary trouble). The only reliable symptom of epinephrin deficiency is the extremely low blood pressure. Persons with this permanently low blood pressure should be given epinephrin systematically. It might be possible in this way to ward off sudden death from this cause. In any event, absolute physical quiet is imperative for them. He discusses the literature on the subject, and calls attention finally to the rare cases of a tumor in the chromaffin system stimulating the suprarenals to exaggerated functioning. The mass of epinephrin thus poured into the blood may induce such excessively high pressure in the cardiovascular system that it is unable to bear the strain, and acute heart failure may result. The outcome is the same, but the cause is an excess instead of a deficit of epinephrin. The persistence of the respiration after all signs of life from the heart have suddenly stopped is characteristic of these sudden fatalities from a deficit of epinephrin.

75. **Eclampsia without Convulsions.**—A primipara of 40 had passed through an apparently normal pregnancy and delivery, but five minutes after expulsion of the placenta she grew pale, the pulse rapid and weak, the extremities cold and she died in an hour and a half. There had been no convulsions or loss of consciousness, but necropsy revealed extensive hemorrhages in the liver and under the serosa of the gallbladder, with minute hemorrhages numerous elsewhere. The uterus had been pressing on the ureters, which had become dilated, the right in particular, with dilatation of the pelvis above. The child was in white asphyxia when born, and could not be revived; Chatillon says that he knows of only six cases on record in which eclampsia without convulsions occurred after delivery. The mortality in the children seems to be 100 per cent. Schmid in twenty-four cases was unable to find records of any infants having survived.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 11, XXXVIII, No. 20, pp. 305-319

77 *Treatment of Mutism from Shell Shock. G. Saraceni and S. Bonelli.—p. 308.

77. **Traumatic Mutism of Long Standing.**—Saraceni and Bonelli report a case of hysteric mutism in a soldier with antecedents showing a tendency to hystero-epilepsy. The aphasia had lasted for over six months and treatment of all kinds in various hospitals had failed to break it. It resisted a long application of hypnosis, but finally yielded on a second application of hypnosis through an hour and a half.

Policlinico, Rome

April 8, XXIV, No. 15, pp. 473-504

78 Turning Over of Bullets. (Sul rovesciamento dei proiettili austriaci da fucile.) I. Scalone.—p. 473.
79 *Inflatable Rubber Tube Tourniquet. (Il laccio emostatico Pomponi.) V. Calo.—p. 476.
80 Present Status of our Knowledge of Dysentery. V. Forli.—p. 477.
81 Reforms Suggested for the Insane Asylums. (La riforma dei Brefotrofi.) M. Flamini.—p. 482.
82 Decayed Teeth as Affecting Military Service. A. Chiavaro.—p. 486.

79. **Pneumatic Tire Tourniquet.**—The rubber tube in a stout woven cover is inflated, like a bicycle tube, after it is in place. Among the various advantages of this form of tourniquet are that more air can be let in or air let out at any moment, without disturbing the patient. The pressure is even throughout, and no skill is required to apply this method.

Riforma Medica, Naples

March 24, XXXIII, No. 12, pp. 309-336

83 What Is To Be Done for the Tuberculous? A. Pirera.—p. 309.
84 *Etiology and Pathogenesis of Acne Rosacea. (Couperose.) P. F. Arullani.—p. 314.
85 *Factitious Affections of Arms or Legs Imposing as Sequels of War Wounds. A. Mori.—p. 319. Commenced in No. 11, p. 288.

84. **Acne Rosacea.**—Arullani has investigated with special care seventy-two cases of acne rosacea in order to determine the share of the cardiovascular system in the affection. He here gives the details of twenty-four cases all of which sustain his conviction that it belongs in the category of chronic constitutional affections. The predisposed are born with a heart that becomes dilated easily, while the blood pressure is low. Digestive disturbances, pregnancy, etc., tend to render the circulation still more sluggish, especially in the head. The capillaries in the skin become dilated, and as all modifications in the circulation are reflected preeminently in the face, the capillaries here become permanently enlarged and acne rosacea is the result. On account of their more sedentary life, it is more common in women, and everything that favors vascular congestions tends to aggravate it. Local measures of treatment are futile, except massage. The logical treatment is with tonics and other means to raise the hemoglobin percentage and render the circulation more active, with local massage by an expert.

85. **Factitious Affections of the Limbs.**—Mori describes sixteen cases, with eight illustrations, showing various lesions induced to avoid military service or obtain workmen's compensation. Malingering of this kind was described by Hippocrates, and all the ages have witnessed it, but it assumed epidemic proportions at the time of the Crusades and Napoleonic wars. In workmen it is the hand that is disabled; in soldiers, the leg. The workingman has only a mercenary purpose in view and the laws cannot be made too strict to repress and punish this. But in soldiers there are many extenuating circumstances. The forms he has encountered are edema from a constricting band, traumatic pseudarthritis of the knee, hard edema of the ankle and foot, and twisted foot—all closely resembling disability left by some war wound of the leg. In fifteen of his cases a constricting band had been applied to the leg just below the knee or above the ankle. In some, constriction was applied both above and below the knee. In every case there had been some gunshot or shell wound of the leg which had healed, and the factitious edema had been induced to simulate serious consequences.

All were on the left leg, with one exception. The man can apply the constricting band easier on the left leg, and can pretend to limp with it more easily. No permanent disturbance resulted in any case. The edema was always massive and terminated above at a circular line where a groove may show the imprint of the constricting band or, if not,

certain changes in the skin suggest that there has been constriction in this region. One of the illustrations shows edema of the left hand. The hand measured 38 cm. around at the base of the fingers, and 30 cm. at the wrist and forearm. The man had at the same time applied some irritating substance to a small wound on the forearm that kept it from healing. He had maintained this factitious lesion for a year, until Mori recognized its character and cured the whole in less than two weeks. He dressed the arm in a wire netting tube, preventing the man's further manipulations, and once a day had a nurse apply a hot mud bath to the arm. In a week the hand had returned to normal size. This factitious edema once installed can be kept up without further constriction by gravity, etc. On suspicion of simulation the man should be closely watched and examined at unexpected times, stripping off all the bed and other clothing, as constriction may be applied higher up. The edema subsides spontaneously when the limb is kept raised and, possibly, wound from the end upward.

Brazil-Medico, Rio de Janeiro

March 24, XXXI, No. 12, pp. 97-104

86 *The Venomous Fishes of Brazil. (Sobre os peixes venenosos.) O. O. R. da Fonseca.—p. 97. Commenced in No. 11, p. 90.
87 Some Helminths from the Collection in the S. Paulo Bacteriologic Institute. L. Travassos.—p. 99.

86. **Venomous Fishes.**—Fonseca says that the *Lagocephalus levigatus* is considered by the fishermen as the most poisonous of the fishes of Brazil. It frequents the southwestern Atlantic and has also been found in the Mediterranean, off the coast of Cuba, Florida and the Guianas. It has been found at a depth of 200 meters. (It is about 3 feet long, and is known as the smooth puffer.) The poisonous fishes of the spheroides family frequent shallow waters and seem to be restricted to the American Atlantic. Fonseca made 114 tests of the poisonous fishes, the results indicating that the blood, spleen and the kidneys of the *Spheroides testudineus* are not toxic while the other organs, muscles and skin are highly poisonous: 0.05 or 0.1 c.c. of an extract, representing 0.01 or 0.02 gm. of the fish liver, killed guinea-pigs in a few minutes. Young animals injected with extracts of them showed greater resisting power than the older animals. The poison has a paralyzing action on the nervous system. The poison dialyzes and seems to be thermoresistant.

Prensa Medica Argentina, Buenos Aires

March 10, III, No. 28, pp. 297-304

88 *Treatment of Anthrax in Man with Normal Serum. J. Penna, J. B. Cuenca and R. Kraus.—p. 297. Conclusion.
89 Changes in the Vesicular Murmur at the Apices of the Lungs. P. M. Barlaro.—p. 299.

Supplement, pp. 97-104

90 Influenzal Pneumonia. I. Allende.—p. 97. Conclusion.
91 Chronic Sigmoiditis. M. R. Castex.—p. 101.

88. **Effectual Serotherapy of Anthrax.**—Penna and Kraus here conclude their report of the excellent results obtained in anthrax or malignant pustule by intravenous injection of normal beef serum. At first they used prepared immune serum, but found to their surprise that normal beef serum was actually fully as effectual. All the fifty patients given this treatment promptly recovered. These results in the clinic corroborated the assertions of Kraus and Beltrami to the effect that normal beef serum protects rabbits against malignant pustule just as promptly and effectually as the immune serums. In the clinical cases the injection was made intramuscularly or subcutaneously in eighteen cases and the curative effect was equally pronounced. Among the typical cases described is that a man employed in a slaughterhouse to remove the hides of the cattle. A small itching pimple developed on the left wrist which rapidly spread and in five days had become transformed into a malignant pustule, the arm swollen, with high fever and pulse of 130. He was given two subcutaneous injections of normal beef serum, a total of 60 c.c., the fifth and sixth days, and improvement was evident in two days. By the thirteenth day he had quite recovered except that the glands in the axilla were still enlarged. The anthrax bacillus was cultivated from the vesicles.

Semana Medica, Buenos Aires

XXIV, No. 5, pp. 121-148

92 Pathology of the Placenta. (Estudio de los llamados polipos placentarios.) E. Zarate.
93 Progressive Facial Hemiatrophy. J. M. Obarrio.—p. 125.
94 Lymphocytosis in Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 134. Continuation.
95 Filling Children's Teeth. E. Zawels.—p. 139.

No. 6, pp. 149-190

96 *Extraperitoneal Cesarean Section. (Operation de Ritgen-Latzko-Döderlein.) T. A. Chamorro.—p. 149.

No. 7, pp. 191-218

97 Gastrulation in Mammals. S. E. Parodi and V. Widakowich.—p. 191.
98 Present Status of Treatment of Puerperal Infection. P. V. Cernadas.—p. 195.
99 History of Public Health and Hospital Service in Argentina. E. R. Coni.—p. 199.

96. **Extraperitoneal Cesarean Section.**—Chamorro expatiates on the advantages of a combination of the Latzko and Döderlein technics as providing the ideal method for extraperitoneal cesarean section. Infection does not contraindicate it, and the cicatrix stands the strain of pregnancies later without harm. He gives an illustrated description of five cases in which he extracted the fetus safely by this method with contracted pelvis.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

March, XVII, No. 1, pp. 1-185. German Edition

100 *Etiology of Tsutsugamushi Disease. VIII. M. Ogata.—p. 1.
101 *Pathogenesis of Epithelioma. K. Yamagiwa and K. Ichikawa.—p. 19.
102 Behavior of Blood Corpuscles in Experimental Rabies in Rabbits. T. Koyano.—p. 69.
103 *The Larvae of Filaria Live Longer in Blood Impregnated with Carbon Dioxid. M. Yamada and T. Yamamoto.—p. 87.
104 Behavior of Sugar in the Blood after Ligation of Pancreatic Duct in the Rabbit. (Ueber die Bedeutung der Langerhansschen Inseln für den Kohlehydratstoffwechsel. I.) N. Kamimura.—p. 95.
105 The Cytolytic Immune Serum of the Islands in the Pancreas. (II.) N. Kamimura.—p. 127.
106 Epinephrin Scanty in the Blood during Glaucoma. K. Kusama.—p. 137.
107 Arcus Corneae Juvenilis Due to Fatty Degeneration of the Cornea. K. Kusama.—p. 159.
108 Microchemical Determination of Epinephrin. (Ueber die Menlesche Chromreaktion der sogen. chromaffinen Zellen und den mikrochemischen Nachweis des Adrenalins.) T. and A. Ogata.—p. 173.

100. **Tsutsugamushi Disease.**—Two colored plates show the biologic details of the fungus which Ogata has cultivated from this disease and with which he has reproduced it in rabbits and guinea-pigs.

101. **Experimental Cancer.**—Two tables filling four-page inserts and fourteen plates, one colored, show the details of the experiments with which epitheliomas were induced at will by repeatedly painting the inside of the rabbit ear with tar. The illustrations show the various steps of this malignant degeneration resulting in the anarchy of the epithelial cell. In some of the animals the emancipated epithelial cells proliferated into lymph or blood vessels, but no metastasis in internal organs was realized. In two cases, however, metastases developed in lymph glands not far away. The experiences related confirm the assumption that the mere continuance of the irritation suffices to induce malignant disease on the precancerous modified soil, without the intervention of any specific factor.

103. **The Filaria Lives Longer in Blood Containing Carbon Dioxid.**—This fact was apparently demonstrated by the research reported, and it is suggested as possible that this may be the reason why the filaria larvae are found in the blood at night rather than in the daytime.

Hospitalstidende, Copenhagen

March 28, LX, No. 13, pp. 297-320

109 *Oxyuris Vermicularis in Denmark. S. Müller.—p. 297.

109. **Oxyuris Vermicularis in Denmark.**—Müller examined 200 cadavers from the public hospital at Copenhagen and tabulates the findings, along with those from another hospital embracing likewise 200 cases. Müller's research included the appendix, and he found the oxyuris in 51 per cent. of the eighty-two men; in 42.8 per cent. of the seventy women, and

in 62 per cent. of the forty-eight children (under 15). The trichocephalus was found in 104 of the total 400 cadavers; in over 58 per cent. of the children between 5 and 10. The percentage declined with age, but even after 60 they were present in over 15 per cent. Müller is convinced that his findings indicate that at least 61 per cent. of the inhabitants of Copenhagen harbor the oxyuris, and that the proportion is probably much higher as the illness preceding death had probably reduced the numbers of the oxyuris. The trichocephalus was found in 71.4 per cent. of the patients from rural districts and only in 36.8 per cent. of the town patients.

Ugeskrift for Læger, Copenhagen

March 15, LXXIX, No. 11, pp. 409-438

110 *The Tongue as the Mirror of the Stomach, especially with Achylia and Pernicious Anemia. (Tungen som Mavens Spejl.) A. Faber.—p. 409.

March 22, No. 12, pp. 439-474

111 *Abdominal Symptoms with Cardiovascular Disease. V. Scheel. —p. 439.

112 *Mineral Substances in connection with Nutritional Disturbances in Infants. C. Friderichsen.—p. 446.

110. **The Tongue Mirrors the Stomach Lining.**—Faber comments on the revival of interest of late in the pathologic antecedents with stomach trouble, instead of relying too exclusively on the findings with test meals. The latter have recently demonstrated anew the influence of nervous factors in both the motor and the secreting functions of the stomach; for example, a patient may present achylia at one test meal and hyperchylia at a later one. But among all the numerous articles that have been published on these subjects in the last decade he has sought in vain for any study of the tongue. The case records mention merely dry, coated or raspberry tongue. Our fathers used to say that the tongue is the mirror of the stomach, but no one seems to heed this now, and Faber declares that by so doing we are closing our eyes to much valuable information. The mucosa of the tongue shares in the general gastro-intestinal atrophy with pernicious anemia. This atrophy of the tongue mucosa is even an early symptom of the latter and also of cancer, tuberculosis and other pathologic processes which entail atrophy of the stomach lining. In short, he affirms, atrophy of the mucosa of the tongue is a sign always of atrophy of the mucosa of the stomach. On the other hand, a coated tongue, with normal or large papillae, is a sign that hydrochloric acid is being secreted in normal or excessive amounts.

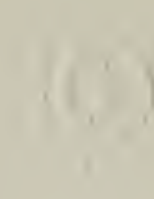
His research has also demonstrated that the saliva generally gives a strongly acid reaction in conditions which are accompanied by atrophy of the stomach. He reviews the literature on the tongue findings with various gastro-intestinal disturbances, and remarks that Boas has had little to say on this subject, dismissing the diagnostic significance of the aspect of the tongue as of "extremely subordinate import." Faber tabulates his findings in a total of 106 patients with stomach trouble repeatedly examined with test meals, etc., the saliva reaction tested, and the aspect of the tongue recorded. The tongue was found with a thin epithelium layer and few or no papillae, smooth, shiny, and never coated, in all the cases in which atrophy of the stomach mucosa was evident. In another group of 130 patients with various internal or constitutional diseases, the tongue showed no signs of atrophy except in five cases of pernicious anemia, one of cancer in the abdomen and one of granulomatosis. One patient had gastric achylia or retention, but the tongue was lightly coated and did not seem to be atrophied. This points to a nervous element in the achylia in this case rather than to organic atrophy of the stomach lining.

Faber cites Hunter's statement in 1913 that in 150 cases of pernicious anemia so many of the patients had a sore tongue that he ascribed diagnostic significance to this. He described it as "infective vesicles between the epithelium and the substance of the tongue, with marked neuritic and atrophic changes in the muscle fibers beneath." Faber gives a microscopic section of the mucosa of a normal tongue, with its crowd of high projecting papillae, and contrasts with it a section of an atrophic tongue with its smooth level surface. The aspect is like that of the gastric mucosa in cases of chronic gastritis, with or without cancer, and in cases of pernicious anemia. He cites a few cases to illustrate the diagnostic importance of atrophy of the tongue. In one, for example, a woman of 37 had not much over 3 million reds and 50 per cent. hemoglobin. The spleen was enlarged, the saliva acid, the tongue clean and atrophic. On the tongue findings, achylia was diagnosed, with pernicious anemia, and the course of the case confirmed the correctness of both assumptions. In another case the reds and hemoglobin figures were the same but the saliva was neutral and the tongue coated, with normal papillae. The diagnosis here was simple anemia, and the rapid recovery confirmed the diagnosis. In all his thirteen cases of pernicious anemia the tongue was invariably smooth, clean and atrophic. This finding is not peculiar to pernicious anemia but forms part of the general picture of progressive gastro-intestinal atrophy. Only two cases in his total material were encountered which conflicted with this general statement; the two women had chronic dyspepsia or hour-glass stomach. It is possible that the tongue findings warn of impending achylia. He remarks in conclusion that when we find marked atrophy of the tongue we can dispense with the test meal, unless future research upsets his deductions from his study of the tongue.

111. **Abdominal Symptoms with Cardiovascular Disease.**—Scheel reports a case of cardiac insufficiency in which repeated vomiting was the most prominent symptom. The patient was a woman of 49 and the vomiting had developed about five weeks before. There was occasionally some pain in the upper abdomen, possibly traceable to the enlarged liver and spleen. The Wassermann test was positive, and there were signs of myocarditis. The vomiting kept up to the end, independent of the meals, and necropsy disclosed no abnormal conditions in the stomach. The myocarditis was a diffuse sclerosis, of typically syphilitic character. In another case a man of 70 had abdominal pains, meteorism and constipation, but the bowels were not obstructed. The pains were restricted to the region of the cardia and hypochondrium but there was no dyspnea. The pains were so severe that morphin had to be given. They spread finally through the abdomen and the pulse grew weak. The diagnosis wavered between angina abdominis, arteriosclerosis and myocarditis, but necropsy after death the third week revealed a dissecting aneurysm of the abdominal aorta, without myocarditis. In a third case the main symptoms were vomiting, independent of meals, and pain in the left hypochondrium, with hematemesis. For some time the man of 66 had had a cough and some shortness of breath. The diagnosis wavered between myocarditis and infarction of the lung, but necropsy revealed both these and also coronary sclerosis. Death occurred two days after admittance to the hospital. The patients with such abdominal symptoms from their cardiovascular disease are liable to get treatment on an erroneous basis. The abdominal symptoms may be of the angina abdominis type or merely repeated vomiting. The prognosis with angina abdominis is favorable, as a rule. The spasm of the vessels causing it generally relaxes in time to ward off hemorrhagic infarction. In the young, spasm alone, with or without arteriosclerosis, may induce the angina abdominis. He advises abstention from tobacco and regulation of the diet to avoid overabundant meals. The drugs useful in angina pectoris can be given, including nitrites and iodid.

112. **Mineral Metabolism in Sick Infants.**—Friderichsen reviews the most important contributions to this subject that have been published in the last few years. They have deepened our knowledge of the importance of mineral salts for the infant organism, and the dangers when they are being washed out too freely in diarrheic stools. Some of the elements of the ash soon predominate over others, the output surpassing the intake. This shows that the organism is being drained of part of its own mineral content. In the mildest form of nutritional disturbances it is the earthy alkalies that suffer; in the next place, alkalies and chlorids, and in the severer forms we see calcium and phosphorus predominating over the other mineral elements in the demineralization process. This sequence is manifest in all the four forms of the Finkelstein system (acute intoxication; subacute gastro-enteritis; chronic decomposition, and fat dyspepsia).

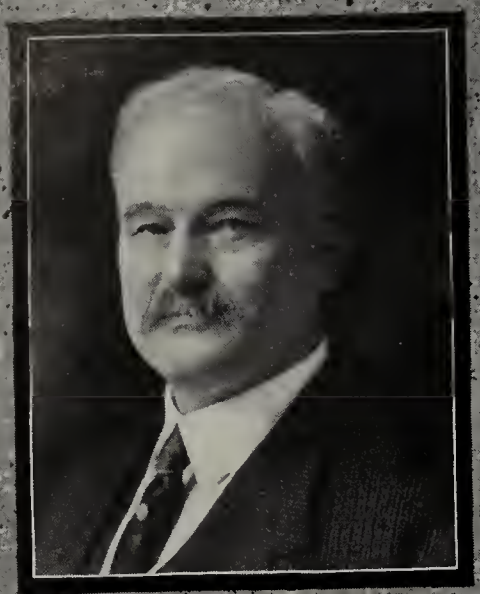






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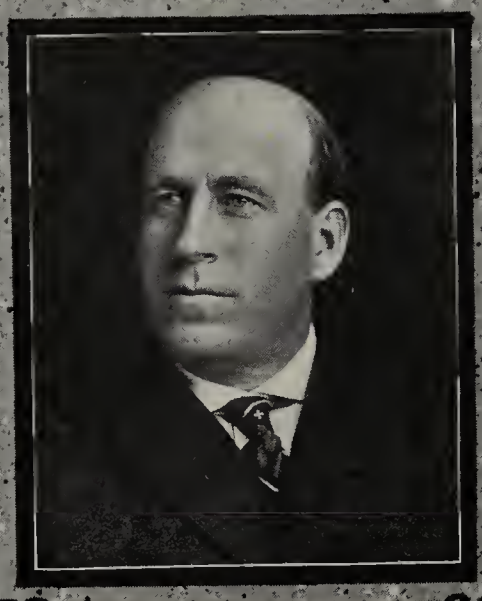
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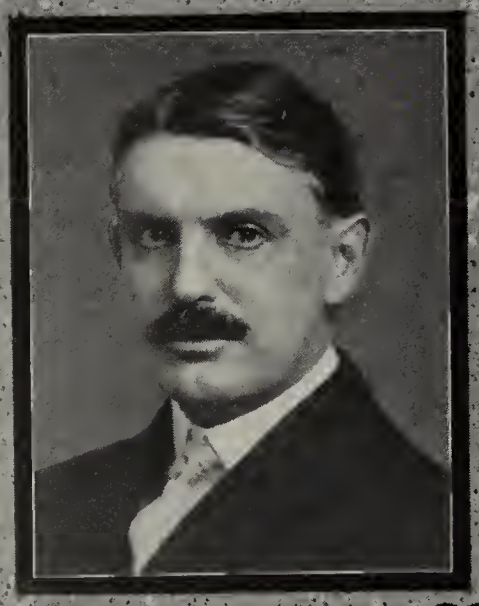
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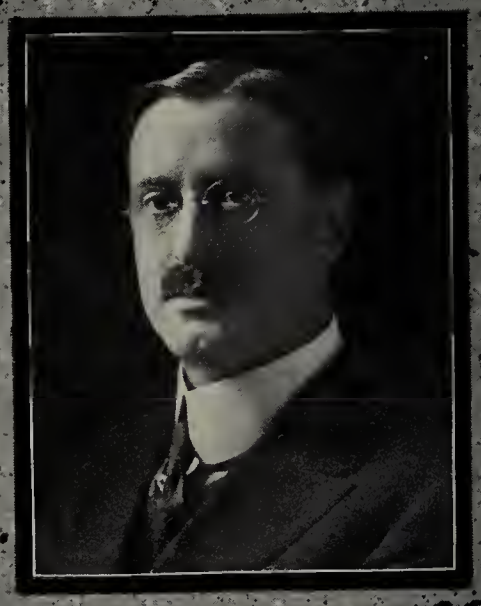
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PSYCHANALYSIS AND THE PRACTICE OF MEDICINE

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WASHINGTON, D. C.

The most difficult concept to grasp is that our psyche bears within itself the records of its hundreds of thousands of years of evolution and development just as does our body. Just as the body has remnants of a tail and gill slits which bear silent testimony to the path along which it has traveled to reach its present estate, so does the psyche bear similar evidences of its origin; and just as the body in its development has brought into its present structure only these vague reminders of its past, but is what it is today only because of that past, so the psyche, while it, too, contains vague reminders of what has been, is what it is only because of its past, a past on which the present has been constructed. This past, the historical past of our psyche, is always growing, for as soon as the material of the present has been used as material in our growth, as soon as it takes its place in the path of our development by being used as a resting place for further superstructures, then it enters into our historical past. This is the unconscious.

THE UNCONSCIOUS

As man has developed he has had progressively to give up more and more of his primitive, instinctive tendencies as the price for a higher civilization with all of its inestimable benefits. As these instinctive tendencies have been overcome, they have been relegated to the unconscious; and out of the successes attained in the overcoming have been forged the weapons with which to win a new victory. That these cravings simply have been overcome and buried in the unconscious does not mean they have ceased to exist or that they have ceased to be able to influence the individual. Like long forgotten events which a chance association brings flashing into the memory, they may be stirred to activity at any time; or, forgotten and apparently nonexistent, they may nevertheless exercise a continuous but subtle effect on the conscious activities. The poet Grillparzer ceased to be able to write poetry at 28 following the suicide of his mother. He was in the midst of his composition of the "Golden Fleece." He picked up the thread of his lost art again, however, on the occasion of playing Mozart's Symphony in G minor with a mother substitute, a woman who reawakened his mother associations. This was the last piece he had played four-handed with his mother before her death,[1] and so served to give him access again to those sources of energy which had been cut off by her death.

In the unconscious, then, we find the instinct motive for conduct, which is the motive of the familiar, the usual reaction (habit), the easiest way, in short, the pleasure motive. At the level of clear consciousness, reason and judgment hold sway; here the motive is the reality motive, a clear-cut, conscious, intelligent relating of the individual to the facts of existence, which involves, among other things, impressing of instinct in the service of reality and therefore effort, work. Psychanalysis is essentially a study, by a special technic, of the unconscious for the purpose of learning the part the instinctive motives play in the life of the patient. In the words of Freud:[2]

> Psychoanalysis originated on a medical basis as a method of treatment for certain nervous maladies which are called functional and in which there is recognized with constantly increasing certainty the result of disturbances of the affectivity. It attains its object of removing the expressions of such disturbances, the symptoms, by presupposing that *these symptoms may not be the only possible and final outcome of certain mental processes,*[3] and with that in view, exposes the history of the development of the symptoms in the memory, reawakens the processes lying underneath these symptoms, and affords them a more favorable outlet under the guidance of the physician. . . . For, today, we know that the pathological symptoms are often nothing else than substitute formations for bad, i. e., unsuitable, tendencies, and that the conditions of the symptoms are established in the years of childhood and adolescence—at the same time in which the individual is the object of education—whether the maladies actually appear in youth or only in a later period of life.
>
> Education and therapy now appear in a reciprocal relation to each other. Education will take care that from certain dispositions and tendencies of the child, nothing harmful to the individual or society shall proceed. Therapy will come into play if these same dispositions have already caused the unwished-for result of a pathological symptom.

Here is the key to the situation. An analysis is for the purpose of reconstructing the psychologic history of the patient so far as that history bears on the formation of the symptoms. As soon as we do this we invariably find the symptoms represent, symbolize, a form of instinctive activity which belongs to the period of infancy and should have been renounced as the child grew to adulthood, but which, because of some special emphasis it then received, has been retained. Common examples are the difficulty with which some children give up the bottle, and adults the habit of nail biting which has been carried over from infancy.

In both of these examples it is quite evident that the activities give pleasure and also that they should be renounced. In other words, they are infantile. They

1. Pfister, Oscar: The Psychoanalytic Method, translated by C. R. Payne, New York, Moffat, Yard & Co., 1917, p. 120.

2. Pfister: The Psychoanalytic Method, p. V.

3. Italics mine.

are both interesting, too, as belonging, the first to a real, the second to a symbolic nutritive or self preservative activity, as opposed to a plainly sexual or race preservative form of activity, these being the two forms of expression into which all others are ultimately reduced. The implication is that a given individual may retain evidences of his infancy only in certain zones of his conduct, his gastro-intestinal, mouth, ear, eye, skin, genital or other zone. These are the so-called partial trends. If the tendencies of the individual as a whole, that is, all of his energies, are called by a single name, we may use the term "libido." Then these partial manifestations would be called partial libido trends.

THE LIBIDO

An analysis of the patient will disclose, then, that one or more of the libido areas has remained at its infantile level of development, has retained its infantile ways of instinctive reaction, of pleasure seeking, has refused to grow up or, to sum it all up, has failed to socialize its libido. That is, it has failed to use some of its energies to the larger ends. Let me give an example of such infantile and asocial ways of using, let us say, the ear libido. From the standpoint of the usual social evaluation, the type of person who is always listening to hear scandal of his associates is despicable. He does not listen to hear something good but always to hear something bad, and the worse the better. This is a somewhat less obvious pleasure-seeking device than that of the person who is all attention at the telling of every obscene story; but the principle is the same because it is the obscene for which he is really listening. Such a person is a pedler of gossip, a besmircher of reputations, and in all sorts of ways, at the level of ear libido (listening) an asocial, destructive member of the community and incidentally a very unhappy and unfulfilled person himself. As far as his function of hearing is concerned, he has not grown up. He is still using his ear to minister to a low level type of curiosity. His ear has not been adequately integrated as a part of a socially useful member of society, and therefore is not used to further socially useful, constructive ends. It remains at the instinctive, pleasure seeking level. How much better he could use his proclivity to listen by going to lectures, readings or concerts and thus socializing his trend by using it for bringing him into contact with his fellows at socially useful levels.

PSYCHOGENIC DISORDERS

Before discussing such character traits as this, though, let me read a list of psychogenic disorders culled from recent writers who were practitioners in various specialties, not psychanalysts, for the purpose of emphasizing the interest in the psychogenesis of apparently physical disorders which has recently arisen, and also because many or most of these ailments would be apt at least to be treated by other than psychologic methods. This list includes many forms of asthma, sore throat, difficult nasal breathing, stammering, headache, neurasthenia, backache, tender spine, "weak heart," fainting attacks, exophthalmic goiter, aphonia, spasmodic sneezing, hiccup, rapid respiration, hay-fever, gastro-intestinal disturbance (constipation, diarrhea, indigestion, colitis, gastric ulcer), ptosis of kidney, diabetes, disturbances of urination (polyuria, incontinence, precipitance), menstrual disorders, autointoxication (from long continued digestive disturbances), nutritional disorders of skin, teeth and hair, etc. The list might be indefinitely prolonged. Let me only briefly add examples of apparently physical disorder for purposes of illustration.

Of the vasomotor disorders I cite the case[4] of a girl, aged 15, who, during analysis, exhibited swollen lips. This had occurred once five years before when a student had tried to kiss her but she had successfully resisted him. A similar attempt had been made before the later recrudescence of the symptom.

An example of a skin eruption is the case of a young woman[5] who had areas of erythema on both forearms. These areas did not tan on exposure to the sun as did the rest of the skin. Analysis showed that the erythematous areas were the places which had been grasped by the mother-in-law in an emotional scene between them. The erythema disappeared following the analysis, and the skin in that area then tanned on exposure.

Certain cases show well that disturbances of menstruation, dysmenorrhea and suppression may be purely psychogenic, due often to a timid, prudish, neurotic mother who scares her daughter to death over the onset of the new function, or leaves her in ignorance to conjure up her own fears on its appearance. Subsequent local treatments, curettage, ventral suspension, etc., not only may not help but may even aggravate the anxiety and make the patient decidedly worse, because, of course, they do not go to the root of the trouble but deal only with results.

I have cited these examples for the purpose of showing that psychogenic disorders are by no means confined to such types as the familiar hysterical aphonias and hysterical palsies, with which all are perfectly familiar and which are easy to recognize. On the contrary, they frequently produce disorders much more subtle in their manifestations, and, what is more, may involve not only deep seated character defects but also metabolic disturbances in which we are not accustomed to look for signs of psychic causation, for example, visceroptoses caused by psychic disturbances, depressing emotions, acting by way of the vegetative nervous system.

Even, however, in instances of such evident hysterical reactions, the mere dealing with the symptom and causing it to disappear is inadequate treatment, for it does not touch the underlying trouble; it leaves the character defect as it was, only, as a rule, to manufacture new symptoms. A boy of 17 had for some days a strange feeling in his left arm. This feeling was contemporaneous with the desire of his father to take him from his present school and send him to another. The boy did not want to go. Analysis revealed the fact that when as a child he was about to be vaccinated he struggled so violently that he succeeded in avoiding the disagreeable experience. This experience was entirely unknown to the patient until brought out by analysis.[6] The interpretation becomes easy if we will use the formula for such cases. The symptoms mean a wish that things might be "as they were then" on that other occasion when they tried to vaccinate him. That is, he wishes that he may succeed, by his obstinacy, in thwarting the desires of his father as he succeeded before. The treatment of such a condition by causing the disagreeable sensation in the arm to disappear by suggestion on the theory that that is the disease can at once be seen to be entirely inadequate to the situation. It leaves untouched the char-

4. Pfister: The Psychoanalytic Method, p. 32.
5. Personal communication to the author by Dr. E. J. Kempf.
6. Pfister: The Psychoanalytic Method, p. 44.

acter defect, which is to react by obstinacy to disagreeable situations. In this respect the boy is retaining an infantile way of dealing with things he does not like, and needs to be helped to grow up, to develop on this side of his character. Unless the treatment is directed to such ends, it misses its goal.

PRACTICAL PSYCHOLOGY

The difficulty has been, in the past, that psychology has never employed itself with such questions. Entrenched in its laboratories it has carried on its work far removed from the every-day life of "the man in the street." But now that is exactly what psychanalysis is demanding of it. Why John Smith does not get along with his wife has always been a matter of absorbing interest to the neighborhood, but psychology has never dignified such a problem with its attention. It is through just such facts, however, it is because we do not get along with our wives, because we are not interested in our work, because we are not appreciated by our chief, or are imposed on by our associates, because we get too tired, sleep too little or drink too much, because our salary is too small, or we cannot save, or the other fellow who does not do as good work as we do gets more, or a thousand other reasons, none of which for a moment cause the sufferer to seek the advice of a physician, that we are finally coming to see what makes the difference between a happy life, filled with usefulness, and failure. Of such problems from the point of view of the educator, Pfister[7] says:

> Of the analytic educational work with pupils, who, without being really ill, still, because of inner inhibitions, make themselves and their families unhappy, there is almost no mention anywhere. How the hitherto unobserved impressions of childhood control the whole later development of the normal individual, even to the peculiarity of his style, his choice of a vocation and of a wife, as well as the most insignificant subordinate affairs, finds too little discussion. The enormous loss of love for fellowmen and of power for work which many individuals suffer, mostly without knowing it, as a result of unfavorable educational influences, have not, up to the present time, been given their proper weight in the literature. . . . Countless numbers of persons who bring heart-breaking grief to their parents and other people and cannot help bringing it because they are under neurotic obsessions can by the aid of analysis be changed into agreeable useful individuals.

Unless psychology is willing to busy itself with such problems, it may well be called on to justify its existence.

Psychanalysis is essentially an educational procedure. Its object is to clear away the rubbish which is obstructing the pathway of the patient so that he may have a chance to go forward. This is precisely what education tries to do. Most emphatically neither should try to impose ideas on others; they should simply make the way free to permit the fullest development of the personality.

HEREDITY

It is, of course, the fashion in some quarters to emphasize heredity as the responsible agent for all childhood anomalies and deviations from later normal development. This is surely the easier way. The cry of the eugenists for sterilization laws reminds me of the Queen of Hearts in "Alice's Adventures in Wonderland" with her "Off with their heads"—a simple solution and seductive, but like all such things, too easy. We find that we must really come back to a constructive program that involves work, the expenditure of effort, if anything of value is to be accomplished.

The psychanalysts believe there are shorter cuts to the neuroses than by way of heredity. Here are a couple of remarks by parents which recently came to my attention: One mother says that a child has no morals until after 9 years of age. Before that they are just little animals and so of course there is nothing to do about it—a fine formula to relieve the parent from all responsibility and sanction a program of do-nothingness. Another parent believes in teaching children absolute obedience—a fine thing for the parent surely, but what of the child? How can one expect a child in either one of these households to develop? How is it going to be possible to get any chance at all? As a result must it not almost surely happen that, thwarted in its natural avenues of expression, it will seek the by-ways? That is the stuff out of which the neuroses and future inefficiency and unhappiness are built.

I cannot refrain from mentioning a recent experience. A woman of splendid qualities but with certain childish reactions of a difficult, surly, inaccessible type, which were wrecking her happiness, had all sorts of difficulties with her little boy. She and he were in constant conflict. One day, toward the end of the analysis, she came to me with this incident: She was busy with some photographs when the little boy came in the room. He at once started to make things rather lively, whereupon she said, "Now my dear, if you will be quiet you may stay with mother." This was an altogether new reaction on the part of his mother, and so he responded by saying, "Really, mother, may I stay?" She answered in the affirmative, and he proceeded to compose himself and became interested in the pictures; but before finally sitting down, by way of reassurance, looked up and said, "Really, mother, do you mean it, may I stay?" A response of love had been met in kind, and when the analysis was completed, she and her little boy were rapidly getting on a basis of real friendship and comradeship.

These illustrations show clearly that it is often not the apparently sick person who needs the attention. As in the case of these children, for example, it is often of much more importance to straighten out the mother; without that it might well be impossible to help the child materially. The lesson from such cases is that the field of medicine is broadening tremendously. We are on the verge of admitting all sorts of problems which a generation ago we did not even know existed. The problem of psychanalysis in such instances as these has to do not only with the individual who may come or be brought to the consultation room, but also with the whole family and their social setting. Its breadth of application is sufficiently evident without further elaboration.

From the cases thus far adduced it will be evident that the theory which accounts for the later neurosis assumes that the trouble began in the early years of childhood, not as the result of some concrete sexual trauma, as many people still think, but as the natural consequence of a fixation of certain areas of the child's interest, so that in this particular respect he does not grow up. The cause of this fixation, which, for our present purposes, we may call detention of the libido or interest on the road of development, is that the child's interest is too strongly attracted because of the undue pleasure premium which this particular area

7. Pfister: The Psychoanalytic Method, p. 14.

of interest offers. In the case of the asocial ways of using the ear libido already mentioned, for instance, it would probably be found that the child was early attracted to listening ways of pleasure seeking because of having heard or been told about forbidden sexual matters which he found absorbingly interesting. Only by finding such things in the history can the later development be understood. That the matter was sexual is ventured only because that is what would be expected from experience. That all pleasure founds in the last analysis in sex pleasure is a hypothesis forced on the analyst by his daily experience; it is not an arbitrary hypothesis into which he tries to make every fact fit. The hypothesis that all pleasure, in its ultimate analysis, is reducible to that quality of emotion which is associated with the most important act in the life of the individual, from the point of view of the welfare of the race, is not a whit more surprising or more radical than the generalization that all of the attributes of life are traceable to the single property of protoplasm—irritability. After all, it is of less practical importance to answer the question "Whence?" than to answer the question "Whither?" It is only a matter of detail how we reply to the query "Whence?" for in any case we have all traveled the same evolutional pathway. To the individual, however, it is of the greatest importance that he should be able to make the best use of his opportunities, that he should be able to answer the question "Whither?" in a satisfactory way. But there is another aspect of the matter which I think of especial importance.

All along the biologic pathway progress has been possible only because each unit, besides preserving its own integrity, has been willing, so to speak, to give something to the larger unit of which it formed a part. Each cell, besides preserving its own life, must give up part of its activities to help in the activities of the organ of which it is a part; the organ must do likewise with respect to the larger unit, the individual, and the individual must repeat the process as a member of society—the herd. The liver, for example, besides preserving itself as liver, stores up glycogen to be used by the muscles when the individual is in danger, and gives of this store for the larger whole; the man pays his taxes and similarly helps the problem of society, of which he is an integral part. It thus comes about that in the process of the successive integrations to progressively larger ends, what we call personality or character issues as an end-result, depending, however, on all those bodily processes which underly it. Therefore, according to Adler, character traits ultimately are reducible to terms of organic structure, and so defects of character depend on organ inferiority.

ADLER'S CONCEPTS

The adlerian concept would substitute for the freudian theory of "libido fixation" as an explanation for a given defect of character the theory of an inferior organ. He believes that an inferior organ gives a sense of insecurity, inferiority, against which the neurotic tries to protect himself by so ordering his life, so regulating his every act, that he may find that security of which the feeling of inferiority has robbed him. This effort to find security is the fictitious goal of the neurotic who fails in attaining the maximation of his ego because his efforts are directed along this false path. He is not free to deal with reality at his best, but must always subordinate the demands of reality to the inner need of satisfying his craving for security. The neurosis or psychosis is therefore a constructive creation, a compromise, a compensation product, which, however, fails because of its false direction. His theory, summed up in a few words, reads: The neurotic constitution founds in an inferior organ; the inferior organ produces a feeling of inferiority; the feeling of inferiority creates the fictitious goal of the neurotic, whose symptoms result from an effort to mold reality along the false pathway that leads to safety.

From this point of view our asocial listener would receive a somewhat different interpretation than we have thus far given, namely, it would be expected that an examination of his ears would show that they were in some way inferior organs. In confirmation of this I may say that in an examination of a number of sense organs in hallucinated patients I never found one that could be considered normal.[8] Let me add as serving to bring the adlerian and the freudian theories together that Adler asserts that wherever such organ inferiority can be demonstrated he has never failed to find also an inferiority of the sex organs.

To come back to our listener: Not only should we expect him to show inferiority of the organ of hearing, but also we should expect him to feel a sense of inferiority which would manifest itself in the zone of ear libido. We might expect him to feel frightened, for example, if he was unable to hear what people were saying and consequently to feel that they might have been saying something about him, something not pleasant, of course, hatching up a plot to injure him, or the like. The picture is familiar enough, and at the pathologic level gives us at once the suggestion of the paranoiac with his hallucinations of hearing and his delusions of persecution.

The inferior organ, in this case the organ of hearing, can therefore be seen to be asocial in its tendencies because it hangs on to infantile ways of pleasure-seeking which should be abandoned as the individual grows to adulthood in favor of activities that minister more to the larger good. The individual, after all, can include only what is under central control, the dynamic or metabolic gradient, Child calls it,[9] speaking of the physiologic individual. A group of cells may establish their own independent gradient and so break off from the main body and set up a government for themselves. This we recognize as one of the determiners of tumor formation. A similar independence at the psychologic level makes the individual, in the particular region involved, asocial. Asocial conduct may therefore found in organ inferiority.

Adler's theories are helpful in orienting the physician toward the larger problems which the patient presents, whether he approaches it from the point of view of the internist or that of the psychologist. His theories are admirably calculated to help the internist to grasp the possibilities of organ inferiority as they may affect the psyche and to help the psychanalyst to grasp the origin and meanings of the neurosis as he sees it at the psychologic level, and perhaps to see more clearly on what his limitations are based. In any event the two groups of physicians, heretofore separated all too far, both in theory and practice, may find in Adler's views a common ground on which to meet.

8. White, W. A.: Hallucinations, Proc. Am. Med. Psychol. Assn., May, 1904.
9. Child, C. M.: The Basis of Physiological Individuality in Organism, Science, April 14, 1916.

SOME APPLICATIONS

I have used illustrations which I have picked with care because I thought them simple and easily understandable. I might add a great many more of mistaken diagnosis, surgical procedures for mental states, etc. For example, we have a boy in the hospital now on whom a partial thyroidectomy was done for a hysterical globus, and I need only mention the delirium of ovariectomies less than a generation ago, a delirium which bids fair to be replaced today by a delirium of colectomies. All are familiar with such instances. Perhaps it is not appreciated, however, how insistent many patients are for operation, how they will argue most ingeniously for it, and seek surgeon after surgeon until one complies. Such patients are a positive menace, especially to the young surgeon who would like to operate anyway. The desire for operation may probably have many causes. I have in mind the case of a young man with a hysterical paralysis of the left leg.[5] The leg in its paralyzed state was only a nuisance, and he wanted it amputated. Analysis showed the paralyzed leg to be a masturbation symbol. He wished to get rid of his masturbation by a species of sacrifice and penance. The paralysis disappeared as the result of a single psychanalytic talk. I recently saw a woman who had had three laparotomies, all more or less exploratory in character, because of pain, and so far as I could determine none of them showed any condition surgically removable. It was plain from my talk with her that the operations were engineered in order to maintain a childlike relation of dependence on the surgeon, of whom she was very fond.

The practice of medicine can no longer neglect the psyche; it must take into consideration the larger issues. A too refined medical specialism concentrates its attention on the particular organ and so is often blind to the meaning of the symptoms as they refer to the whole individual. The old medical specialism considered the organ out of its setting in the rest of the economy; the new specialism must consider the organ in its setting, and in this new specialism the psyche will have a considerable place.

Every once in a while one sees an ordinary illness, more especially some disease of the respiratory organs, "cold," bronchitis or pneumonia, which investigation will indicate was intentionally acquired. Such illnesses are pretty apt to show on analysis that they are suicidal attempts. Such cases suggest that, when one finds a patient suffering from a disease due to exposure and the history shows a degree of carelessness out of all proportion to the patient's usual habits, it would be worth while to look deeper for motives. I am also reminded that some surgical injuries, such as broken bones from falls and the like, may have a similar origin, either as an attempt at suicide or a form of penance. Time does not permit me to elaborate this motive. I can only say that it is universal. A good illustration of its present day forms is seen in the "conscience fund" of the United States Treasury to which annually thousands of dollars are anonymously contributed. I need not speak of the importance of these facts when taken into consideration in connection with workmen's liability acts, accident insurance, sick benefit claims, health insurance, etc.

TECHNIC OF PSYCHANALYSIS

To acquire even a reasonable degree of proficiency in the technic of psychanalysis, as in any other department of medicine, requires careful study and much thought. There is no royal road. Work is the password. But if I counsel work it is not to avoid the issue and have psychanalysis shrouded in mysticism. The analytic results, often, perhaps usually, seem strange, sometimes grotesque. This is perhaps true of the last instances I cited, especially the young man with the paralyzed leg, and the examples of intentional surgical injuries. This is only because they are not formulated in familiar symbols. I have no doubt that many a medical student at his first clinic has looked on the lecturer, who could put his ear to the patient's chest for a minute and then talk for an hour on what he heard, as little else than a wizard, and has felt himself so incapable of ever being able to do likewise that he then and there has felt that after all he was afraid he could never be a doctor. Devote as much time and attention to psychanalysis as this medical student had to devote to the study of percussion and auscultation and pathology and one will find oneself on quite as familiar ground.

If one wishes to enter the field of analysis, the first requisite is to be able to listen to what the patient says. It requires infinite patience and must be fortified by the conviction that everything psychic has a meaning just as truly as does everything physical. A physician would not let a patient sidetrack him from a physical symptom or explain it away. Similarly on the mental side. There must be a reason for everything, although the patient, often with great ingenuity, will slight over the important, emphasize the unimportant, and in every way unconsciously try to mislead. Naturally it requires some experience to deal with such behavior. The way to get the experience is to try it. No adequate attitude toward psychanalysis can be reached by reading alone; it is absolutely necessary to come into intimate personal contact with the problems in an actual, living patient. Before trying it, however, one should take a sufficient course of reading so as to have some idea of what one is trying to do. One will not have to try long before beginning to get a glimpse of what is going on behind the scenes, but it will be some time before one can cope with any real difficulties. As soon as one begins consciously to try to learn something of a patient's psyche, it is surprising how much information can be obtained which will be of value.

Even if one is not disposed to do analytic work, let me suggest that, as psychanalysis is met in the literature from time to time, one's attitude toward it should be that of Leibnitz toward a new book. He said:

> It is characteristic of me to hold opposition as of little account, exposition as of much account, and when a new book comes into my hands I look for what I can learn from it, not for what I can criticize in it.

SEXUALITY IN PSYCHANALYSIS

The reader may be wondering by this time why I have said almost nothing about sexuality. It is because I have not wanted to overemphasize it in presenting what I believed to be large, fundamental considerations. It certainly is not because I in any way minimize its importance, for I do not. Whether or not all pleasure founds in sex, as I have suggested, is a matter of hypothesis. At any rate the problem will be encountered among patients, and must be dealt with and not run away from. With regard to this matter I can do no better than quote Pastor Pfister of Zurich, who says:

Psychoanalysis is not only compatible with the highest ethical and religious demands but absolutely presupposes them. . . . The analysis has strengthened me in the conviction that the human being is in no way merely a sexual being of the highest order (which no psychoanalyst has ever asserted) but that the varied mental wealth and noble characteristics which the idealistic philosophy has found in him really belong to him. To be sure, I could not avoid the insight that the sexual life possesses a far higher significance in our mental household than the traditional psychology . . . is willing to admit.

It is objected that the psychanalytic procedure takes so much time that it is unpractical. This complaint comes from the physicians, not from the patients. Perhaps it does take a long time and perhaps some way may be found to shorten it; but in the meantime we must make the best of it, and after all that is no argument against the validity of the positions set forth. For my part I doubt very much if the time can be materially shortened; the problem is too difficult, it means overcoming prejudice, instinct. To make the patients see themselves with intelligence is of necessity a long and tedious task, but no longer than the task of dealing with tuberculosis, although I grant it does demand more time of the physician. But after all, what we are trying to do is to rebuild a personality. It is a problem in character reformation; and if we succeed in making a person over from a useless invalid into a useful citizen, who shall say that the time was not well spent? Remember, we must "give to the diamond its ages to grow."

EPIDEMIC ULCEROMEMBRANOUS STOMATITIS (VINCENT'S ANGINA) AFFECTING TROOPS

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During the four months, October, 1916, to February, 1917, 129 cases of this hitherto rare condition have passed through our hands. In this article we endeavor to give the results of our routine, laboratory and ward observations, which though incomplete may be of value in Canada and the United States after the conclusion of the present conflict, whither doubtless the infection will be carried by the returning troops.

Until the beginning of the war, it was in Europe one of the rarest diseases, and in America practically unknown, at least so far as medical literature was concerned. It seems to have first become prevalent in France, where it was known as trench mouth, and believed to be caused by overindulgence in cigarets, etc. Now, however, it is so prevalent that it may be classed as among the commonest of disabilities among the troops. As usually seen the condition is not such as to confine the patient to bed, but the accompanying depression and the inability to masticate properly causes a serious lowering in efficiency.

Vincent's angina is an infectious disease of the mucous membrane of the mouth, throat, bronchi and prepuce. By far the most frequent site of infection is in the mouth and throat. Next in frequency are the bronchial cases. The preputial cases are rare.

VINCENT'S ANGINA OF THE MOUTH AND THROAT

Type 1.—The largest percentage of cases are of tonsillar type. Here the patient on being admitted usually is found to have a yellowish-gray membrane covering one or both tonsils. The breath is extremely fetid, the odor differing markedly from that of diphtheria. The patient complains of some difficulty in swallowing and of enlarged and tender cervical lymph glands. But absence of headache, myalgia and marked prostration is characteristic of angina as contrasted with diphtheria or acute tonsillitis. The temperature is slightly elevated, although in some cases it may be as high as 103.5 F. The pulse and respiration are but slightly elevated.

In the early cases there are only small whitish patches situated in the crypts. If the trouble is not treated these patches may spread until the membrane covers the whole tonsil; they may extend over the soft palate, uvula, and even the posterior wall of the pharynx. In a well developed case the membrane is yellowish gray, resembling a diphtheria membrane so closely that a differential diagnosis can be made only by a microscope. In the early stages it is the superficial destruction of the epithelium.

On being removed, it leaves a freely bleeding surface, as in diphtheria. In more advanced stages there is an ulceration of the deeper structures so that the tonsil may almost be entirely eaten away. In two of our cases the membrane had formed a pocket in the tonsil, eating away the glandular tissues to such an extent that only the supporting tissues and capsule remained.

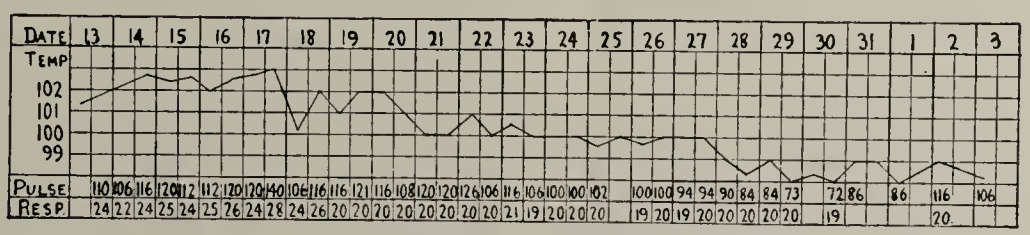
Type 2.—The next most frequent type is a deep ulcer on the ramus of the lower jaw, immediately behind the last molar tooth. In many cases the posterior edge of the ulcer is swollen so that it projects over the crown of the tooth, making mastication practically impossible. In untreated cases, infection spreads along the margin of the gums, causing pyorrhea about the molar teeth.

Type 3.—Pyorrhea caused by Vincent's organisms is also frequent. Usually in an otherwise healthy mouth, it is at first limited to the region of the upper and lower incisors. The gums are swollen, spongy and tender, and bleed easily. On pressure there is usually a copious flow of pus mixed with blood, the alveolar surface of the gum being eroded and covered with a yellowish membrane. In advanced cases the teeth become loose and may even drop out. Any condition, as mercurial treatment, tending to lower the vitality of the gums predisposes to a speedy infection with Vincent's organisms. A number of our severest cases followed inunction of mercurial ointment for the removal of pediculi. A number of advanced cases were found in men who were undergoing antisyphilitic treatment with mercury, the lesions being taken for mercurial gingivitis or syphilitic lesions. These cases cleared up quickly under arsenic. Decayed teeth or any mechanical injuries to the gums frequently form a nidus for infection. The frequency of pyorrhea about the incisors is in our opinion due to injury of the gums in biting.

Type 4.—General infection of the mouth is the severest type of all, and the patient is acutely ill. The membrane extends over the cheeks, tongue, fauces, pharynx and palate, and even to the lips. Ulcerations occur on the cheeks where they are in contact with the teeth. The tongue is greatly swollen, making speaking and swallowing difficult, and the margin is deeply

indented with ulcers corresponding to each tooth. The infection may extend along the ducts into the parotid and submaxillary glands, sometimes causing chronic enlargement of them. A description of a recent case may be of interest:

L., admitted to the hospital, Jan. 13, 1917, with membrane covering both tonsils and extending on the uvula, was feeling acutely ill. The temperature was 100.4 F., the pulse 110, and respirations 24. He said his throat got sore two days before. Microscopic examination of a smear from the membrane revealed an almost pure culture of the fusiform bacillus with a few spirochetes and cocci. By the following day the membrane had extended over the entire mouth and tongue and to the lips. January 17, the patient developed a peculiar rash, mostly on the extremities, both the palmar and dorsal surfaces being affected. The spots, about a dozen on each forearm and leg, were about one-quarter inch in diameter, sharply raised, copper colored, and the center of each contained a small oblong vesicle. His temperature went up to 103 F., pulse 140, respiration 28. He was immediately put on intensive arsenical treatment, with salicylates. As the accompanying chart shows, a speedy improvement in his condition followed. A Wassermann test performed at this time was negative. The vesicles dried and the elevations had almost disappeared at the end of a week, leaving copper-colored marks in the skin, which are gradually fading. With the fall in temperature the mouth condition began to improve, the swelling decreased, and the ulcers began to heal, the membranes becoming, as is usual, thin, semiopaque and bluish white, in appearance almost identical with the mucous patches of syphilis. January 28, swabs taken from these patches failed to show the presence of any Vincent's organisms. This case was quite exceptional in its severity.



Temperature, pulse and respiration chart in a case of Vincent's angina in which there was general infection of the mouth.

BRONCHIAL INFECTION

Seven cases have come under our notice in which the clinical picture was a moderately severe bronchitis, with copious expectoration, general depression, and very slight but definite elevation of temperature. These cases ran a course of about three weeks. The sputum in all was loaded with Vincent's organisms, these being the principal organisms present. There were no visible lesions in the mouth or throat. As yet none of these patients have returned to the hospital, and as some of them were treated merely with a simple expectorant mixture, the infection in this situation must be considered to be self limiting with a course of about three weeks. The manner in which the organisms disappeared from the sputum is described further on.

BALANITIS

Four cases were seen in men with long prepuces. There was considerable edema of the foreskin, the inner surface of which was covered with the typical membranous ulcers, some of which had spread to the glans. Infection was due to the lack of cleanliness and to chafing. All cleared up in four or five days under treatment.

BACTERIOLOGY

In about 50 per cent. of all swabs taken from the throats of troops here, a few Vincent's organisms are found. The large number of cases of Vincent's angina can be understood when the effect of injury or lowering of vitality of the tissues is taken into account. In lesions the two organisms, namely, the fusiform bacillus and the spirochete, are invariably present at the same time. In early cases the bacilli are practically always much more numerous than the spirochetes, but in more advanced cases the spirochetes are usually the predominant organisms. Various forms of staphylococci and diplococci are always present, and in long standing cases of pyorrhea, the *Bacillus ramosus* and the *Endamoeba buccalis* are frequently found. Carbol-gentian violet is the most satisfactory stain for use in looking for these organisms, the bacilli taking the stain readily and the spirochetes fairly well. Both organisms are usually gram negative.

Various forms of the bacilli are seen: (*a*) large, with from two to four pale bands traversing them; (*b*) smaller, with one pale band in the center, giving the appearance almost of very long diplococci and (*c*) small, and evenly stained throughout. In old cases spirochetes are frequently seen to contain granules.

In mouth and throat lesions undergoing active treatment, the organisms disappear in a few days. But several of our bronchial cases gave opportunity for more lengthy observation. When first examined the sputum contained about equal numbers of the organisms. After about a week the spirochetes were much more numerous and had become granular, from four to eight darkly stained granules being distributed throughout the length of each. At the end of another week or ten days the organisms were greatly diminished in number, being practically all spirochetes. Many of them were swollen and straightened, looking like a sausage with the tip at one end cut off. Some were empty; others were seen with the granules dropping from the open end. Shortly after this the patients were discharged from the hospital as cured. We have observed the same changes in the organisms when grown anaerobically in ascitic broth containing a piece of tissue. If the cloudy growth be examined after three or four weeks it is found to consist of a few living spirochetes, very numerous granules, and numerous empty shells of spirochetes.

The incubation period of the disease is as yet unknown. We have seen two cases in men who on landing here from Canada, three weeks before, had perfectly healthy mouths.

DIFFERENTIAL DIAGNOSIS

From diphtheria the tonsillar type of Vincent's angina can be distinguished with accuracy only by a microscopic examination of a smear, as the membranes would otherwise be identical in characteristics, namely, location, color, toughness and the fact that when removed they have a freely bleeding surface. However, the patient with Vincent's angina is never so acutely ill as a diphtheritic with the same amount of membrane. He has as a rule no headache, sore back or great depression, his complaints being a sore throat which has come on one or two days previously, difficulty in swallowing, and enlarged and tender cervical glands. In a few of our cases the two infections were found together, these patients on admission being quite ill. This combination is rare. Patients, how-

ever, with a Vincent's angina, when in contact with a Klebs-Loeffler bacillus carrier, readily become infected.

Microscopic examination is of still greater importance when the patient gives a syphilitic history, especially when he is undergoing mercurial treatment, for this undoubtedly favors the development of Vincent's angina. As stated elsewhere, many of our severest cases were found in syphilitics undergoing intensive mercurial treatment, the lesions being completely cured in a few days by the application of an arsenical solution. The presence of a positive Wassermann reaction does not exclude Vincent's angina, nor does the fact that a mouth lesion clears up quickly under arsenic exclude syphilis. In cases of Vincent's angina with no syphilitic history, however, the Wassermann reaction is always negative. A healing ulcer about the mouth or throat will almost invariably be mistaken for a syphilitic mucous patch by any one who is unacquainted with the case.

In pyorrhea the onset is often given as from two to three days before admission, and in such cases is usually limited to the upper and lower incisors. When the condition is general, the history is usually given of a long standing pyorrhea, and the *Endamoeba buccalis* is frequently found along with Vincent's organisms. In bronchitis and balanitis, the diagnosis can be made only by microscopic examination of a smear.

TREATMENT

Many forms of treatment have been recommended, including the use of arsenic, iodin, silver nitrate, trichloracetic acid, hydrogen peroxid, tincture of ferric chlorid, and potassium permanganate. In slight lesions any of these will bring about a cure. Arsenic, however, is undoubtedly the most useful remedy, especially in the form of salvarsan or neosalvarsan. As these drugs are expensive and difficult to use, their employment is infrequent. For ulcerations about the mouth and tonsils, our routine treatment is liquor arsenicalis (liquor potassii arsenitis) swabbed on three or four times a day. Where the ulcer is deep and spreading rapidly it is first well swabbed with 10 per cent. silver nitrate solution, and the treatment continued with liquor arsenicalis.

In pyorrhea we employ the mixture recommended by Bowman:[1] vinum ipecacuanhae, ½ ounce; glycerinum, 1 dram; liquor arsenicalis, sufficient to make 1 ounce. A few drops are poured on the patient's toothbrush and the gums are well brushed two or three times a day. It is surprising how quickly the lesions will disappear under this treatment, a severe acute pyorrhea being completely cured in five or six days. In general stomatitis and gingivitis the patient should be given large doses of liquor arsenicalis internally, sodium cacodylate hypodermically, or salvarsan. He also should frequently use a soothing antiseptic mouth wash until the condition is sufficiently under control to permit of local treatment. The great majority of cases are cured in from four to seven days. We have had few returns of patients discharged as cured.

1. Bowman: Proc. Roy. Soc. Med., 1915, **9**. For treatment see also Ramond: Progrès méd.

Medicine Must Be a Progressive Art.—The practice of medicine, like the practice of every other profession, must improve in character largely as the result of opposing principles, and our methods of practice, like the methods of any other art, must change to meet the ever-changing conditions of a progressive age.—G. Hudson-Makuen, M.D.

COMPLEMENT FIXATION TESTS IN TUBERCULISIS

A COMPARISON OF THE AUTOLYSATE ANTIGEN AND MILLER'S BACILLARY ANTIGEN *

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AND
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In scanning the literature on complement fixation for tuberculosis, one is astonished at the number of substances used as antigen for this test and the great diversity of results obtained, some authors asserting only a 50 per cent. efficiency for the test, and others that the test even outclasses the Wassermann reaction, with 95 or more per cent. positive reactions in active cases. Some are so bold in their contention as to hold a positive complement fixation test as an indication of the presence or absence of tuberculosis which requires treatment against all other findings.

There seems to be no uniformity in the findings and contentions of any two observers, owing probably to the facts that each observer is working with his own new antigen, and that only a few go far enough into the work to compare a number of different antigens. Elizabeth Fraser[1] stands out preeminently as one of these; her conclusions are conservative, and seem to the trained mind to be well controlled and closely approaching the facts in the case. As a result of examinations made with a number of antigens, she concludes that of all those tried by her, the one which gives the clearest cut specific reaction and is most reliable is an emulsion of living virulent tubercle bacilli.

It is also noteworthy that in the methods of preparation of the various antigens described by various authors, these descriptions are often found wanting in details and are frequently impossible of constant preparation. This is especially true of the egg medium antigen of Besredka[2] and the alcoholic antigen of Craig.[3] Even Bronfenbrenner,[4] who did a great deal of work with the former, states in one of his papers that he had to rely on Besredka for the preparation of the antigen, and that no two preparations were identical. Alcoholic extracts as used in Craig's work have innumerable times been proved unpractical and worthless, and a recent paper by Lucke[5] corroborates these earlier findings.

Recently those of us who have been working on complement fixation were startled by the wonderful results reported by Miller,[6] whose antigen[7] seemed to us to be no more nor less than a bacillary emulsion. Wherein lay the discrepancy in these new findings and those of previous experienced investigators? Fortunately the preparation of Miller's antigen was clearly given so that the comparisons were possible by the same observer using other antigens. The method of preparation is: Twenty milligrams of moist tubercle

* From the Laboratory of the City of Chicago Municipal Tuberculosis Sanitarium.

1. Fraser, Elizabeth: Ztschr. f. Immunitätsforsch., 1913, **20**, 291.
2. Besredka, A.: Compt. rend. Acad. d. sc., 1913, **156**, 1633.
3. Craig, C. F.: Am. Jour. Med. Sc., 1915, **150**, 781.
4. Bronfenbrenner, J.: The Complement-Deviation Test with Besredka's Tuberculin, and the Occurrence of Tuberculosis Among Syphilitics as Diagnosed by This Test, Arch. Int. Med., December, 1914, p. 786. Bronfenbrenner, J., and Rockman, J.: Biochem. Bull., 1914, **3**, 381.
5. Lucke, Baldwin: Jour. Immunol., 1916, p. 457.
6. Miller, H. R.: The Clinical Value of Complement Fixation in Tuberculosis, THE JOURNAL A. M. A., Nov. 18, 1916, p. 1519.
7. Miller, H. R., and Zinsser, H.: Proc. Soc. Exper. Biol. and Med., 1916, **13**, 134.

bacillus mass is weighed out, placed in a conical 15 c.c. centrifuge tube, and to it are added 90 mg. of table salt. With a glass rod filed to roughness at the end, this paste is ground by hand for about one hour. Distilled water is then added to isotonicity; that is, 10 c.c. to the quantities described above. This is the antigen. Just before it is used it is shaken up, and the heavier particles are allowed to settle in the course of a few minutes. Except for the removal of these larger elements, the suspension is used as a whole without centrifugation and without filtration.

As the result of his work, Miller concludes that the reaction with his antigen is practically always positive in active tuberculosis. Out of 284 pulmonary cases, 275 were positive. Nontuberculous and normal patients react negatively; 144 cases were all negative. The serums of syphilitics who have no clinically active tuberculosis are negative; the test is, as a rule, negative in arrested cases; out of 113 serums only ten were positive.

In previous communications on complement fixation in tuberculosis,[8] an autolysate antigen was described, and the results obtained by means of a monovalent autolysate antigen compared with those obtained with the same monovalent bacillary emulsion. The former had a decided advantage over the latter in giving more clear cut reactions, being more stable and more constant of preparation, giving more permanent reactions, and being practically free from anticomplementary influences, the range of antigenic dose being very wide. The number of positive reactions did not differ greatly from those obtained with the bacillary emulsion, and in percentage efficiency was corroborative of the findings of Fraser, being positive in about 30 to 40 per cent. of all clinically definite cases of tuberculosis, both active and inactive, active cases giving slightly higher percentage results than inactive cases. More recent work, to be reported in full later, also indicates that a polyvalent antigen increases this efficiency only slightly, but by no means to 80 or 90 per cent., and that it is always advisable to do a Wassermann reaction on the same serum with a standard antigen (not cholesterinized or reinforced); if this is positive, no conclusions can be drawn as to the value of a positive tuberculosis test. On the other hand, a positive tuberculosis test in the absence of a positive Wassermann reaction is significant. As far as differentiating activity from inactivity is concerned, this is impossible, even though active cases give slightly higher percentage reactions than inactive cases.

With the foregoing disagreements in results obtained by different observers using practically, as far as specificity of the antigen is concerned, the same substances—in one case the bacillary body and in the other the autolysate therefrom—it seemed highly advisable to compare these two, all operations being carried on by the same worker and with all the cases classified in the same way. It is easy to appreciate that all the differences in percentage findings may be entirely due either to a difference in classification of cases, to faulty clinical records, or to incorrect classification of such records. There is in tuberculosis, when we consider the pathology of the disease, its wide spread, and the inefficiency of present day clinical methods of diagnosis except in advanced cases, a fair chance of making such errors of classification. For instance, how many cases of tuberculosis of the tracheobronchial glands are actually found in the course of the ordinary clinical examinations? This is easily appreciated when comparing Roentgen and clinical findings. For this reason, conclusions as to the value of a test of this type can be drawn only on the basis of a large number of cases of tuberculosis tested, and only conservatively on the basis of results obtained on supposedly normal persons.

Unfortunately, all the patients reported on in this paper were residents in a tuberculosis sanatorium, and therefore the normals may not be so in the strict tuberculosis sense of the word but only so far as clinical findings are concerned. For the same reason the number of clear cut clinical cases of syphilis obtained are few, and in the majority of cases can be considered only as Wassermann positive cases; the latter were not included in tabulating the results.

An ideal antigen to be of practical value in complement fixation must have a definite even though small range between the anticomplementary and antigenic dose, and the reaction must not be too transient. That this is not the case with the Miller bacillary antigen, at least in many instances, is shown in Table 1, in which the antigenic dose and anticomplementary dose

TABLE 1.—TITRATION OF ANTICOMPLEMENTARY AND ANTIGEN STRENGTH (MONOVALENT)*

		Antigen, C.c.								
		0.002	0.003	0.005	0.007	0.01	0.015	0.02	0.03	0.05
1305A	A	—	—	—	±	++	+++	++++	++++	++++
	AC	—	—	—	—	—	—	—	—	—
1305M	A	—	—	±	+	++	++	++	++	++
	AC	—	—	—	—	—	A	AA	AA	AA
1563M	A	—	±	±	+	++	++	+++	+++	+++
	AC	—	—	—	A	AA	AA	AA	AA	AA
2417M	A	—	—	±	±	+	++	++	++	++
	AC	—	—	—	—	—	—	A	AA	AA

* Readings after thirty minutes at 37 C. in the water bath.

of Monovalent Autolysate Antigen 1305, and Miller's antigens 1305, 1563 and 2417 (monovalent), and in Table 2, in which a polyvalent Miller's antigen[9] are titrated. In these tables the amount of antigen used in each test is given in cubic centimeters, and the results, hemolysis (—) or absence of hemolysis (+) is given after A, the antigen test, which was done with a strong (++++) tuberculosis serum, and after A C, the anticomplementary test, which was done with the hemolytic system and antigen alone (the absence of hemolysis is here designated by "A" instead of "+," as above). All readings of results in Tables 1 and 2 were made after thirty minutes in a water bath at 37 C. To obtain titers of Miller's antigens for use in the subsequent tabulated results it was necessary to use a dose as indicated, which would be serviceable by only a fifteeen minute incubation at 37 C. In all the titrations and tests the Noguchi antihuman hemolytic system was used. From these titrations it is to be concluded that, when Miller's bacillary antigen is used, the reactions are transient and the results must be read before from twenty to thirty minutes' incubation at 37 C. in a water bath, and even then the range of use of the bacillary antigen is only small. On the

8. Corper, H. J.: Jour. Infec. Dis., 1916, **19**, 315; Bull. Nat. Assn. for Study and Prevention of Tuberculosis, 1916, **12**, 205.

9. This polyvalent Miller's antigen, Parke, Davis & Co. 0.092090, was prepared from eighteen strains of human tubercle bacilli, and was furnished to us by Drs. W. E. King and F. W. Baeslack, to whom we wish to acknowledge our appreciation.

other hand, the range of use of the autolysate is much greater and the reactions are more permanent, comparatively speaking, being readable even after from thirty minutes to one hour at 37 C. in the water bath.

It is also to be noted from these titrations, especially of the antigenic strength, that while in comparison the autolysate antigen gives ++++ reactions, the Miller bacillary antigen gives only a ++ or +++ reaction with a strong tuberculosis serum. The complete negative reactions are also not as sharp with a heavy emulsion of Miller's antigen, on account of the turbidity produced by the antigen added.

It is difficult to understand how Miller's antigen differs greatly from a simple bacillary emulsion, and

sity in the manifestations of the disease and its frequent appearance in clinically questionable form. It is easy enough to diagnose a case of intrathoracic tuberculosis with tubercle bacilli in the sputum, but glandular cases and those with concealed foci are not so easily diagnosed. It is often of great importance then to say whether an individual's symptomatology is due to disease in a focus which has been discovered on physical or Roentgen examination, or due to absorption of toxins from some nontuberculous crypt, such as tonsils, teeth, sinuses, kidney pelves, tubes, gallbladder or appendix. It may also be possible that the reactions given by so-called nontuberculous cases can be explained on the ground that these persons had

TABLE 2.—TITRATION OF ANTICOMPLEMENTARY AND ANTIGEN STRENGTH (POLYVALENT)*

		Antigen, C.c.											
		0.01	0.015	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.15	0.20
Polyvalent autolysate antigen.....	A	—	—	—	±	+	+	++	++++	++++	++++	++++	++++
	AC	—	—	—	—	—	—	—	—	—	±	±	A
Polyvalent Miller antigen..... P. D. 0.092090	A	—	—	±	±	±	±	+	++	++	+++	+++	+++
	AC	—	—	—	A	A	AA	AA	AA	AAA	AAA	AAA	AAA

* Readings after thirty minutes at 37 C. in water bath. The small amount of complement in the serum has evidently caused the P. D. antigen tests to hemolyze more than the A. C.

TABLE 3.—COMPARISON OF RESULTS WITH AUTOLYSATE ANTIGEN AND MILLER'S BACILLARY ANTIGEN

Stage of Disease	Activity	Sputum Negative†				Sputum Positive‡			
		A 1305	M 1305	M 1563	M 2417	A 1305	M 1305	M 1563	M 2417
Nontuberculous	.....	6+ 25—	0+ 31—	5+ 26—	2+ 29—				
Questionable tuberculous	.....	30+ 39—	20+ 49—	26+ 43—	25+ 44—				
Incipient	Inactive.....	6+ 3—	3+ 6—	3+ 6—	4+ 5—	2+ 6—	1+ 1—	1+ 1—	1+ 1—
	Active.....	5+ 8—	5+ 8—	4+ 9—	4+ 9—	5+ 10—	6+ 9—	6+ 9—	7+ 8—
M. A.	Inactive.....	0+ 1—	0+ 1—	0+ 1—	0+ 1—	1+ 2—	0+ 3—	0+ 3—	0+ 3—
	Active.....	8+ 2—	5+ 4—	7+ 3—	7+ 3—	35+ 16—	25+ 26—	30+ 21—	32+ 19—
F. A.	Inactive or chronic fibroids.....	0+ 3—	1+ 2—	1+ 2—	1+ 2—	8+ 9—	5+ 12—	4+ 13—	6+ 11—
	Active.....	1+ 0—	0+ 1—	0+ 1—	0+ 1—	62+ 40—	54+ 48—	59+ 43—	60+ 42—
Total cases	Inactive*.....	42+ 71—	24+ 89—	35+ 78—	32+ 81—	11+ 11—	6+ 16—	5+ 17—	7+ 15—
	Active.....	14+ 10—	11+ 13—	11+ 13—	11+ 13—	102+ 66—	85+ 83—	95+ 73—	99+ 69—

* This includes nontuberculous and questionably tuberculous.
† Either an absence of sputum or a negative sputum.
‡ At some time during observation, tubercle bacilli were found in the sputum.

in order to satisfy ourselves that the antigenic properties were mainly inherent in the bacilli held in suspension in the salt solution, the filtrate from Miller's Antigen 1305 was tested for antigenic strength and was found to be practically nil. This fact was also corroborated by noting that as the Miller antigen was allowed to settle out on standing, its antigenic titer gradually and markedly dropped.

With this introduction to the antigens used, and in view of the difficulties encountered in the use of the foregoing antigens, it is now possible to consider the results obtained in examining the serums of 327 patients and presented in Table 3. Of course, as previously stated, the classification and tabulation of tuberculosis cases is difficult on account of the diversuch mild symptomatology from small nonrecognizable foci, which disappeared quickly while the patient was under observation, that there was a question whether active tuberculosis ever existed and the case was classified nontuberculous. The term "nontuberculous" is used advisedly with full consciousness of its inaccuracy. No attempt is made to differentiate between the infected and noninfected persons, but those who have not and never have had discoverable evidence of active tuberculosis are called nontuberculous. In the class of questionably tuberculous are included all cases which give definite signs of clinical tuberculosis either in the glands, the joints, or similar places, but in which there is no pulmonary involvement or in which tubercle bacilli have not been demonstrated. The rest of the

cases are all with pulmonary involvement and are classified by the National Association Classification.

The table speaks for itself. As a general summing up, however, it may be stated that the percentage results obtained with the autolysate antigen, though slightly higher, do not differ greatly from those obtained with the bacillary Miller's antigens (the lower percentage in the latter case being easily accounted for by the transient nature of this reaction, and in tests run side by side with the more permanent reactions with the autolysate antigen, may easily have disappeared before being read). As far as differentiating active from inactive cases by either Miller's or the autolysate antigen, this is impossible. On account of the high percentage of positive reactions in the definitely tuberculous positive sputum cases, and in the absence of a positive Wassermann reaction with a standard antigen, this reaction seems to be definitely of value when positive for differential diagnostic purposes, as previously noted. It is noteworthy that in a large series of complement fixation tests (1,290 different serums) carried on in residents of a tuberculosis sanatorium, there were obtained ninety-two positive Wassermann reactions, and of these sixty-five gave cross fixation with all the bacterial antigens used. In the presence of a positive Wassermann reaction, therefore, any of the standard antigens (not reinforced or cholesterinized) being used, the presence of a positive complement fixation test for tuberculosis is of no practical value. In a series of tests in which a polyvalent autolysate antigen and the Parke, Davis & Co. polyvalent Miller's antigen 0.092090 were used for comparison, no appreciable differences in the percentage positive results were noted, corroborating the findings with the monovalent antigens cited above.

SUMMARY

A comparison of complement fixation tests for tuberculosis on 327 serums, the autolysate and Miller's bacillary antigen being used, revealed that:

1. There is not a great deal of difference between the positive results obtained by means of these antigens, probably because the same basic substances are used in the two antigens.

2. It is impossible by means of this test absolutely to differentiate active from inactive tuberculosis, the former cases giving a slightly higher number of positive reactions than the latter.

3. The autolysate antigen is to be preferred in performing these tests on account of the more transient nature of the results obtained with Miller's bacillary antigen and the difficulties encountered in obtaining a satisfactory antigenic unit.

4. It is advisable to run a Wassermann reaction on the same serum, using one of the standard antigens (not reinforced or cholesterinized), and in the presence of such positive reaction to draw no conclusions from the tuberculosis test.

5. The positive complement fixation test for tuberculosis in the absence of a positive Wassermann reaction is mainly of differential diagnostic value, and, taken with other findings, aids in making a definite diagnosis of tuberculosis.

Ptomain Poisoning.—That convenient refuge from etiological uncertainty, "ptomain poisoning," is a diagnosis that unquestionably has been made to cover a great variety of conditions, from appendicitis and the pain caused by gallstones to the simple abdominal distention resulting from reckless gorging.—E. O. Jordan.

THE PRESENT STATUS OF PITUITARY EXTRACT IN LABOR*

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ANACOSTIA, D. C.

Last year[1] I reported 3,952 cases in which pituitary extract had been used. In round numbers there was one maternal death in 565 cases and one fetal death in 146 cases. We shall see what the last year's experience with pituitary extract has brought forth.

I have collected reports on 1,293 additional cases, making a total of 5,245 cases. There are also numerous articles in which the number of cases is not given. Of course, it is realized that statistics here, as in all such subjects, are not to receive too great consideration, but still they certainly do give some idea of the rôle pituitary extract is playing.

One of the most striking points brought out is that the contents of an ampule, 1 c.c., is much too strong to be given in a single dose. It seems to be the consensus of opinion that the dose should be ⅓ c.c., which may be repeated frequently. Many of the serious consequences that have been reported probably would not have occurred had smaller doses been used. I have observed that the first dose usually produces the best reaction, and, when succeeding doses have been required, the results have not been so good. It may be repeated every thirty to fifty minutes. Its action is to promote and augment the normal rhythmic contractions of the uterus, being unlike ergot, which produces a long continuous contraction.

Occasionally there are failures. These are explained by the facts that sometimes, for some reason, the contents of an ampule are inert, and sterilization of the hypodermic syringe in alcohol is said to counteract the action of pituitary extract.

Its action on the blood pressure is to cause a slight temporary rise which is not great and does not last long. However, it is inadvisable to administer it in conditions which are associated with increased blood pressure, nephritis, eclampsia, toxemias, etc. To produce abortions and to induce labor it practically always fails. Bandler, who is its strongest advocate, uses it to distinguish false from true labor pains, asserting that after an injection if the pains do not increase in frequency and severity they are false pains.

It is generally conceded that to give pituitary extract in the first stage of labor is bad obstetrics. Its field of usefulness is in secondary inertia during the late stages of the second stage of labor in multiparas. Used here in properly selected cases, after due consideration by one who has good obstetric judgment, its results are usually happy, and it is a boon to the tired mother and her attendants. An ideal case for its use would be a healthy multipara with a history of previous normal labors, late in the second stage of labor, when the pains have become slow and weak, owing to uterine inertia, with a normal presentation and with the bag of waters ruptured, with the cervix fully dilated, and with the head molded and through the brim just above a relaxed perineum. In such a case the baby will usually be born in a remarkable manner after its administration. This may seem to be a narrow field, but we frequently run across just such cases. It is in this type of cases that pituitary extract frequently replaces the low forceps operation.

* Read before the Georgetown Clinical Society, Dec. 19, 1916.
1. Mundell, J. J.: Am. Jour. Obst., 1916, **73**, 306.

The placenta, as a rule, is detached more quickly than usual, and not quite so much blood is lost.

The administration of an anesthetic when the extract begins to act is a wise measure, and it is well to be always prepared to deliver with forceps. Occasionally, even in these well defined cases, delivery may not be immediate, and in such cases the result may be bad for the baby. To step beyond these narrow confines of indications is indeed entering on dangerous territory. Especially is this true as regards the life of the baby. It is recommended in small doses by some good authorities and is frequently used in cases of slight contraction at the brim with sometimes very good results if the birth occurs within a few minutes, but frequently with disastrous results to the baby if delivery is delayed. In such cases, forceps are urgently indicated. Its use in such cases is risky beyond question. Pituitary extract is recommended in cases of postpartum hemorrhage, but ergot is undoubtedly to be preferred.

As to the contraindications, it would seem to be plain that any case which does not come in the category of the indications described above would be an unfit case for pituitary extract. It should never be used in normal labor. Its use in primiparas, under any circumstance, is not without danger. They are more apt to have tetanic contractions, which may become alarming, with their attendant danger to the child. The fact that once injected there are no means of controlling its action, violent and tumultuous as it is on occasions, should be a bar against its indiscriminate use.

All means should be exhausted to arrive at a definite diagnosis, and the dangers of its use should be fully appreciated and due consideration given before its administration in any case, for such a powerful drug, used indiscriminately, will surely produce sad results to mother or child or both. That the use of pituitary extract must always be preceded by the use of the pelvimeter should be an ironclad rule.

During the past two years a number of untoward effects and consequences of severe character have arisen. As far as the maternal accidents and complications are concerned, I firmly believe that were the slogan of the hour "safety first" borne in mind, a number of them could have been prevented, for beyond question this drug has been greatly abused, as it has been given in too large doses, in cases in which its use was strongly contraindicated, and often, I am sorry to say, for no reason other than the accoucheur's expediency. Its use has been reckless and careless. The many reports of its rapid and safe action have been one of the greatest dangers. DeLee says, "It provides for the physician and his brother gynecologist a lot of chronic sufferers, often incurable, even after mutilating operations."

Lacerations of the perineum of varying degrees are common, and there are a number of reports of severe lacerations of the cervix well up into the body.

I have collected the reports of twelve cases of rupture of the uterus, out of 1,293 cases given. Thus we have a ruptured uterus in about every 106 cases in which pituitary extract is used. I admit that this is not accurate; at the same time I doubt whether it is far from wrong and perhaps it occurs oftener than this.

RUPTURES

Espent reports one case after two injections.

Rowland[2] reports a case of Dr. Dobbins of Baltimore.

Zullig reports a case in an elderly tredecipara with a narrow pelvis. The child was abnormally large. Pituitary extract and forceps were used. There was a history of premature delivery and perforation.

Knoof reports a case in a quintipara after one injection.

Stocker[3] reports two cases. One patient, a secundipara, had a generally contracted pelvis. The other had a normal pelvis; previous labors had been normal; the cervix was patent; there was history of recent abortion and curettage, and general poor health.

S. J. Druskin reports a case in which there was disproportion between the fetal head and the pelvis. There were rupture, laparotomy and death.

Mosher[4] reports the case of a colored woman, an ambulance case, in which repeated doses had been given. The fetus was in transverse presentation. The patient died within a few minutes after admission to the hospital. Necropsy revealed the fetus in the transverse position, with head and arm protruding through the rent.

R. Y. Sullivan[5] reports two cases, in each of which there was a contracted pelvis. One patient was a primipara and the other a multipara. One patient received two doses of 0.5 c.c. In each case a laparotomy was performed, revealing a large rent in the lower uterine segment. Hysterectomy was performed in each case, and both patients recovered, but the fetus in each case was dead. Dr. Sullivan is convinced that pituitary extract was the factor causing the rupture.

R. R. Huggins of Pittsburgh reports a case in which the measurements were normal, the os was dilated fully, and the head was in the pelvis. One c.c. was given, and within twenty minutes the patient was in state of extreme shock. Laparotomy two hours later revealed complete supravaginal amputation of the uterus. The child was in the peritoneal cavity.

McNeile[6] reports one case, in a quadripara. There were indications for use of the drug; the head was well engaged, there was complete dilatation, the membranes were ruptured, and there was decrease in the strength of the uterine contractions. A slight oblique contraction was not recognized. One c.c. of pituitary extract resulted in tetanic contraction and rupture in about seven minutes. A 7½ pound stillborn child was delivered by an easy forceps operation. Laparotomy revealed transverse rupture of the lower uterine segment from one broad ligament to the other. Supravaginal hysterectomy was done. The patient recovered.

An analysis of the detailed reports of all these cases of ruptured uterus with one or two exceptions reveals the fact that pituitary extract was abused, being given to patients who should not have had it. To my mind, to give a dose of pituitary extract to a woman who has a contracted pelvis, mild or severe, when the head has not passed through the pelvis, is criminal and, if the obstetrician is not aware of the contraction, he is still little short of being a criminal.

Even though the majority of these cases of rupture were due to its misuse, there were one or two cases in which the extract was apparently clearly indicated, Huggins' case, for instance, with normal measurements, fully dilated os and the head in the pelvis; yet rupture followed within twenty minutes after the injection of 1 c.c. Therefore, it would appear that when used in well indicated cases it is not without danger to the mother. However, I feel that when its indications and dangers are more fully recognized by the profession and much smaller doses are given, the dangers to the mother will be reduced to a minimum.

The effect on the child, however, presents quite a different phase of the subject. Numerous cases of asphyxia and fetal death have been reported when the diagnosis was definite and indications clearly defined.

2. Rowland, J. M. H.: South Med. Jour., 1915, **8**, 394-410.

3. Stocker, S.: Cor.-Bl. f. schweiz. Aerzte, 1914, **44**, 1658-1663.
4. Mosher, G. C.: Surg., Gynec. and Obst., 1916, **22**, 108.
5. Sullivan, R. Y.: Personal communication to the author.
6. McNeile, L. G.: Am. Jour. Obst., 1916, **74**, 432.

Moran[7] says that the action of the drug is to produce at times strong contraction but not retraction of the uterus, and thus is dangerous and may possibly act as a "medical cranioclast."

I have collected from the literature of the past two years reports of thirty-four cases of fetal deaths and forty-one cases of asphyxia pallida in which resuscitation was effected only after prolonged and vigorous efforts.

FETAL DEATHS

Johnson[8] reports four cases. The first patient was given three doses, 3 c.c. She was in labor fourteen hours. A high forceps operation was performed. The cord was twice around the neck. The child was born in asphyxia livida and revived in the usual way. In twelve hours it had a severe convulsion but was revived. There was no trace of injury due to forceps. The child died in a convulsion. The second patient, a primipara, aged 26, had a slightly contracted pelvis (general). Labor was induced at the end of the twenty-seventh week with bougies and pituitary extract. Two doses, 2 c.c., were given. The cord was around the neck; it appeared to have a true knot. The child was born in asphyxia pallida. The third patient, a secundipara, aged 32, with a contracted pelvis, in whom labor was induced at the end of the thirty-sixth week, received 2 c.c., two doses. Forceps were applied with great difficulty, and the child was born to live only a few minutes. The fourth patient, a primipara, aged 20, received 1 c.c. The child was born forty minutes later in asphyxia pallida. The cord was around the neck and was not pulsating. The scrotum of the child was much cyanosed, and the glans penis protruded through the prepuce. The child was stillborn. There were severe after-pains.

Bubis[9] reports two cases. The first patient, a multipara, received 1 c.c. A 10 pound baby was born in a few minutes. The head was not molded. There was a profuse serosanguineous discharge from the nose, and the child died six hours later, probably from fracture of the base. The second patient, a multipara, five minutes after receiving 1 c.c., gave birth to a 7½ pound baby, cyanosed, which died ten hours later in a convulsion.

Ingraham and Chase[10] report one case in a primipara who received 2 ampules following rupture of the membranes six minutes earlier. Slight meconium had appeared, though the fetal heart was normal, the cervix fully dilated, and the head just above the perineum. Pituitary extract had apparently no effect on contraction, but thirty-four minutes later the child was born. It was dead. One loose coil of cord was around the neck. There possibly may have been an occult prolapse of the cord, or the pituitary extract was at fault.

R. Y. Sullivan reports two cases of ruptured uterus (mentioned above).

Matheson[11] reports one case, in a primipara, aged 25, proceeding slowly with moderate pains. As conditions were not favorable for the application of forceps at the stage of full dilation, 1 c.c. of pituitary extract was given. The pains increased in strength and frequency. Progress was rapid, and when the head was on the perineum, the pains were almost continuous. There was a bad tear of the perineum, and the child was stillborn, both of which Matheson attributes to the pituitary extract.

George Mosher Clark reports the death of seven infants in private practice of good men. Pituitary extract was used early in labor, and no other apparent cause for stillbirth existed.

J. M. H. Rowland reports two cases. The first patient, a primipara, aged 38, had a normal pelvis. The fetus was in right occipitoposterior presentation. The patient received 1 c.c. The pains increased in strength, becoming quite violent. The head descended rapidly until the perineum was reached, when it was delivered slowly, owing to the extreme rigidity of the perineum. The child, which had been in good shape half an hour before, was dead. All efforts at resuscitation failed. The placenta followed immediately, and there was more than the usual amount of bleeding. The child was lost in the last few minutes owing to too early separation of the placenta. The second patient, a primipara, aged 24, had a slightly contracted pelvis. She was in labor twenty-four hours. The fetus was in the posterior position. The os was two-thirds dilated. No fetal heart was heard. The head was attempting to engage. The patient received 1 c.c. There was advance from partial engagement to the level of the ischial spine. In about three quarters of an hour, examination revealed prolapse of the cord beside the head but inside the cervix. Craniotomy was followed by delivery.

McNeile reported the case cited above.

FETAL ASPHYXIA, REVIVED, FORTY-ONE CASES

Ingraham and Chase report six cases of slight asphyxia and five of extreme asphyxia. One child, born ten minutes after the administration of pituitary extract when the head was just above the perineum, developed convulsions.

Ziegler reports one case of extreme asphyxia.

Seeley[12] reports three cases of extreme asphyxia.

Brockman[13] reports one case of severe asphyxia.

Rowland reports three cases of slight asphyxia and six cases of severe asphyxia.

Miller[14] noticed that in nine cases there was more asphyxia than was made necessary by the other conditions present. There were six cases of severe asphyxia, with considerable trouble in resuscitation.

Reginald Johnson reports eight cases with cyanosis and rigidity. The latter condition was marked in some cases for a number of hours. In a few cases there were convulsions. All the patients had a wide-awake appearance. There was one case of severe asphyxia pallida. One baby 4 weeks old was very sickly, and hardly capable of sucking the breast.

McFarlane[15] reports two cases. There was marked asphyxiation, and there was no other apparent cause than the use of pituitary extract.

In all of the cases the reporters felt that pituitary extract, if not the sole factor, was certainly a very potent factor in the production of the asphyxia. The majority of all papers on the subject noted that in the cases in which pituitary extract was used the babies presented more asphyxia than the conditions ordinarily would call for. Meconium is frequently seen in liquor amnii after administration of pituitary extract.

Of course, there are numerous writers who state that they have seen no deleterious action on the fetus.

The explanation of the asphyxia is that in all probability it occurs late, probably in the last several minutes of labor when the placenta is about ready to separate from the uterus. The tumultuous and prolonged contraction with the shortened intervals constrict the placental site, limiting the amount of blood going to the placenta. The blood, therefore, is not properly oxygenated. There is also the possibility of a partial premature separation of the placenta, shown by the fact that in several cases the placenta is expelled immediately after the birth of the baby. Another factor which may enter is that during a violent contraction the cord may be constricted between the uterine wall and some hard part of the fetus, for instance, the sacrum, trochanter or shoulder, resulting in asphyxia.

Heard reports three cases of diffuse nervous lesions due to cerebral hemorrhage and resulting in terrible afflictions, one at 9 months, one at 13 months and one

7. Moran, J. F.: Personal communication to the author.
8. Johnson, Reginald: Dublin Jour. Med. Sc., 1915, **140**, 241-260.
9. Bubis, J. L.: Surg., Gynec. and Obst., 1915, **21**, 659-662; Am. Jour. Obst., 1916, **73**, 673-675.
10. Ingraham, C. B., and Chase, P. M.: Colorado Med., 1915, **12**, 190-194.
11. Matheson, Farquhar: New Zealand Med. Jour., 1915, **14**, 294.
12. Seeley, W. F.: Tr. Clin. Soc., Univ. Mich., 1914, **5**, 128-132.
13. Brockman, R. St. L.: St. Barth. Hosp. Jour., 1915-1916, **23**, 8.
14. Miller, J. L.: West Virginia Med. Jour., 1914-1915, **9**, 411-413.
15. McFarlane, W. D.: Glasgow Med. Jour., 1915, **84**, 194-196.

at 19 months of age. In each case the parents were healthy, and the mother was a multipara with the history of previous normal births. There was no history of prolonged or difficult labor, but in each case pituitary extract was administered early in labor, and birth was precipitate very shortly after. In each case, efforts at resuscitation were required and convulsions followed later; in two they continue to recur. Heard[16] is convinced that these were cases of cerebral or meningeal hemorrhage and that pituitary extract was the etiologic factor in their production.

Obstetricians generally are coming to a realization that the child has a right to be born alive, and that the license to practice medicine does not also carry with it a license of executioner of the unborn child any more so than of the mother.

A COMPARISON OF STATISTICS OF 1914 AND 1916

1914	1916
Cases, 3,952.	Cases, 1,293.
Ruptured uterus, 8 cases, or 1 rupture in every 494 cases.	Ruptured uterus, 12 cases, or 1 rupture in every 106 cases.
Fetal deaths, 27, or 1 fetal death in every 146 cases.	Fetal deaths, 34, or 1 fetal death in every 38 cases.
	Asphyxia pallida, 1 case in every 32.

Pituitary extract probably has a place in the obstetrician's armamentarium, but for its undoubted bad effects on the child primarily, and on the mother in a lesser degree, it would seem that its field of usefulness is indeed a limited one.[17]

16. Heard, A. G.: Texas State Jour. Med., 1916, **12**, 264.

17. In addition to the references already given, the following will be of interest:
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Fouche, F. P.: South African Med. Rec., 1915, **13**, 20.
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Gallagher and Gallagher: Surg., Gynec. and Obst., 1916, **22**, 490-493.
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Trapy: Monatschr. f. Geburtsh. u. Gynäk., 1915, **4**, No. 36.

Production of Camphor.—As set forth in *Commerce Reports*, April 13, 1917, the estimated production of camphor in Japan for the year ending March 31, 1917, was 2,148,197 pounds, an increase of 35,121 pounds as compared with the actual production of 1915-1916. The estimated production in Formosa during this period amounted to 6,619,461 pounds, an increase of 520,821 pounds, as compared with the actual yield of the preceding year. During 1916-1917, the estimated production of camphor oil in Japan was 4,237,852 pounds, an increase of 275,976 pounds as compared with the actual yield of 1915-1916. The estimated production of the oil in Formosa during the period named was 10,332,379 pounds, or 1,249,153 pounds in excess of the actual yield of 1915-1916.

ONE ROAD TO THE CONTROL OF HEART DISEASE

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This note begins with analogy and ends in exhortation. The analogy consists in a fundamental likeness between the demographic aspects of what I will venture to call subclinical infections of the heart, and incipient tuberculosis of the lungs.

No broad scheme for the prophylaxis of tuberculosis was possible until hygienists grasped the fact that tuberculous infection is wellnigh universal. Thereupon the practical procedure became one largely of devising means to prevent a harmless anatomic infection from developing into a dangerous clinical disease. Accordingly, whatever the physical condition may be which the clinician is called on to consider, he has in mind tuberculosis. Particularly in the case of children does he search out in tuberculosis an explanation of morbid symptoms. The result is the control of established tuberculosis.

Just as civilized mankind harbors almost constantly a more or less latent tuberculosis, so infective disease of the heart, provoking no classical symptoms, but potential for catastrophe, is wellnigh invariable at some period of life. The practical conclusion from such a premise is that, as in the case of tuberculosis, the latent anatomic derangement may break down into functional inefficiency in an unfavorable environment, such as added infection or overuse.

The proof of such a proposition can be established only after years of definite research; but sufficient evidence is at hand to justify the clinician in accepting it as a working hypothesis. As has been slowly apprehended in the case of tuberculosis, only on the assumption of the universality of cardiac infection will the clinician give adequate consideration to morbid signs which point to cardiac disease.

From the point of view of the public health officer, Darlington[1] has given statistical evidence that the mortality rate from heart disease is positively increasing throughout the United States, while the general death rate is steadily decreasing.

The fundamental basis on which must rest a belief in my thesis is the incompleteness of the evidence offered by physical signs of the organic condition of the heart. From the point of view of the pathologic anatomist, Warthin[2] has shown how doubtful is the ultimate cure of any infectious disease and, particularly in the case of syphilis of the heart, that profound organic infection may exist without appreciable clinical signs.

Necropsy records, including careful histologic and cultural examinations of the cardiac tissues, must furnish the crucial evidence as to the dissemination of heart lesions, and none can dispute the urgent duty of the pathologist to provide appropriate records. On the clinician, however, devolves the task of determining the functional capacity of the heart during life, and the practical application of methods to restore power and prevent failure.

We are not here concerned with the obvious cardiac lesions which are causing or threatening broken compensation, but only with what may be called "sneaking heart disease" in which the classical signs of insuffi-

1. Darlington, Thomas: Tr. Am. Clin. Assn., 1908, **24**, 120.

2. Warthin, A. S.: Tr. Assn. Am. Phys., 1910, **25**, 580; ibid., 1914, **29**, 416.

ciency are absent but in which there is a dangerous narrowing of what James Mackenzie calls the field of physiologic response.

It must be granted that the clinical data of physical diagnosis are absurdly insufficient to supply a reliable fund of information. While medical students are taught the words which signify that the pathologic importance of a heart lesion depends on involvement of the heart muscle rather than on changes in its lining membrane, the statement may be boldly ventured that the endocardial murmur is still the sole language through which the heart can speak its limitations to the casual examiner.

It is doubtful if the student keeps clearly in mind that even valve lesions are probably all due to infections conveyed not by the intracardiac flood which bathes the valves but by the capillary streams which spring from the coronary circuit, and that the slightest attack on a valve presupposes a more or less widespread infection of the myocardium. Granting a locus of infection within the heart, the teachings of the new science of immunology must lead us to suspect that at once the vital reactions of cardiac protoplasm become profoundly modified. Even the crude knowledge in our possession today points indubitably to the conclusion that heart tissue so attacked becomes, as it is said, "sensitized" to the particular form of poison with which it is inoculated, and thereafter abnormally receptive of new accessions of the same poison, and susceptible to them. The clinical facts that support this point of view are simply numberless. Fortunately for the preservation of the higher forms of life, protoplasm attacked by a foreign poison, after an initial stage of heightened susceptibility, is apt to acquire a specifically strengthened resistance to the noxa. But this "immunity" is always merely relative, and it were vain in a given case to estimate in advance the ratio of virulence to resistance.

The canny practitioner of medicine wisely takes his generalizations only as inductions from individual experience. Nothing, in my opinion, could be more fruitful for good than for the student of disease to estimate "the field of physiologic response" in the hearts of his patients, according to the views set forth.

EXAMPLES OF LATENT HEART DISEASE

A few concrete clinical examples of a familiar kind may make clearer the source of the impulse that led to this article:

CASE 1.—A man of fine physique, somewhat under 40 years of age, developed articular rheumatism. Nothing wrong had previously been found with his heart, but now there was detected obscurely at the apex a murmur of that peculiar quality which one learns to associate with fresh endocardial lesions. Under some medication and prolonged rest the physical powers seemed to become completely restored and the murmur, changed in quality, had nearly disappeared.

Many months later the patient was accepted for life insurance by a conscientious and competent examiner who, though informed of the history, could detect no cardiac lesion whatever. Since then, a number of times in the course of several years, the patient has applied for treatment of a sore throat, and on each occasion a slight bruit could be detected at the apex, the abnormal sound becoming temporarily a distinct murmur during a recent acute rheumatic attack involving throat and muscles.

My conclusion has been that this active business man carries a chronic infection of the heart which sensitizes the organ toward rheumatic toxins. It is impossible, of course, to pronounce whether the new endocardial murmur accompanying each attack of sore throat was the mechanical result of an altered circulation or a sign of fresh infective turgidity of the mitral valve. One who watches the quality changes in such a murmur day by day is apt to incline to the latter explanation.

Of the numerous tests to determine the functional efficiency of the heart, nearly all fall within the limbo of "academic" procedure. It is usually doubtful whether a functional inefficiency thus determined shows pathologic impairment or only lack of physical training or weakness of other coordinated organs.

CASE 2.—A man, aged about 25, of powerful physique, who had a perfectly compensated mitral lesion for some years and who was apparently in excellent health and strength, entered a military camp and was set to digging a trench.

A physical examination disclosed too late his unfitness for the task. A prolonged and fatal illness followed, bearing all the features of an infective cardiac disorder.

While the following explanation of this casualty cannot be proved, it harmonizes many facts and suggests a safe working hypothesis: In the foregoing subject, infection and resistance within the heart had been so balanced that functional processes remained normal. When excessive physical strain was put on the anatomically defective organ, its mechanical imperfection led to a "break in compensation," that is, the left ventricle ceased to deliver blood as fast as it was received by the right auricle. At once disturbance of cardiac nutrition was instituted. Immediately the biologic "resistance" of the heart tissues deteriorated, and the infective forces, which had been held in subjection, began to take on strength and to propagate their kind.

A tissue which is the seat of a viable infection is like a seesaw; on one end is seated physiologic resistance, on the other infective virulence; the balance represents the ratio of the two forces. Precisely in the same way we frequently find that a quiescent pulmonary tuberculosis is lighted up into progressive disease by injudicious habits. Indeed, the salutary relation of rest in active tuberculosis is identical, with greatly increased emphasis, in acute heart disease. In tuberculosis, Nature is prone to forgive the careless transgressor; in heart disease, perhaps more rarely.

CASE 3.—A strong youth had a slight indisposition which was evidently rheumatic, but he was not so ill as to refrain from riding several miles on his bicycle to an entertainment. The return journey was made against a strong wind. The boy was obliged to seek his bed on reaching home, and soon developed signs of a general cardiac inflammation that carried him off.

I insist that these cases do not find their complete explanation in mechanical overstrain of the heart, but indicate an intense intoxication, such as the immunologist is prone to demonstrate in his reactions of anaphylaxis. Moderate overstrain of a normal organ is probably an indifferent episode, but the same test applied to an infected organ sets in play chemical reactions which lead to physiologic destruction.

An adequate study of heart disease will disclose another line of contact with pulmonary tuberculosis. In the latter disorder, accumulating clinical experience points more and more frequently to the period of early youth as the time of primary infection. In the same way the student of breaking cardiac compensation can often trace the history through a long period of latent disease to a definite moment in early life when some

extraordinary exertion developed symptoms which themselves represented probably antecedent infection.

The cardiac tissue must have a great reserve of resistance against infection. We are perhaps too apt to consider that an infective agent attacking the heart possesses a virulence comparable to that of a streptococcus originating in a progressive surgical lesion or in a cadaver at necropsy. It is probable, however, that the vast majority of cardiac infections are due to germs of low virulence but great staying powers. Case 4 represents a typical history of chronic infection of low virulence:

Case 4.—A professional man of 65 evidently suffered from an advanced stage of myocarditis with mitral insufficiency. His field of physiologic response was limited to the exertion of walking about 100 feet on the level. He applied to me about four years ago on account of dyspnea and "bronchitis." His trouble was pulmonary edema due to heart failure. Since then he has been restored many times from various ailments, mostly respiratory, all originating in overexertion. A rise of body temperature has played no part in his attacks, nor has there been, except during a recent desperate illness, any edema of the feet. Tracing the personal history of the patient, the first suspicious event was an attack of scarlet fever at the age of 6 or 7. From 12 to 14 he was very nervous, restless and fidgety, though there was no defined chorea. Spending his summers on a farm as a boy he remembered that when he was from 14 to 18 years of age, the exertions of field work would utterly prostrate him. He passed an examination for life insurance when about 20. He never had tonsillitis, but from about the ages of 21 to 27 he suffered several rather mild attacks of rheumatism. At 54 he was for some months the victim of melancholia, during which he made several desperate attempts at suicide. A doctor discovered "leakage of the heart" when he was 59.

A critical study of this history can hardly fail to lead to the suspicion that the heart disease began with the attack of scarlet fever in early youth.

It must be admitted that a heart which appears to be normal to superficial physical examination may still be confined to a narrowly limited field of physiologic adjustment beyond which health and life are endangered.

The practical physician must have a clear cut picture of the signs of latent cardiac debility in order to know when there is need of prophylactic care and how to achieve it.

One whose ear is trained to recognize the typical *lub-dup* of the normal organ in youth will miss the quality, quantity or rhythm of health in the heart sounds of most adult patients. Returning to our analogy of the lungs, the examiner will fail to find the "breezy" typical respiratory murmur in most chests he is called on to auscultate in patients of middle age. In either case it would be a mistake to pronounce the patient on the verge of clinical disease or even liable to it. Skill in physical diagnosis consists largely in distinguishing between morbid signs which are adventitious and those which imply specific organic derangement. Two obvious methods are open by which the clinician may estimate the physiologic state of the heart. One is through tests of functional efficiency, observing how perfectly the organ rises to and recovers from some unusual strain to which it is subjected. The other is by an analysis of the classical cardiac signs — volume, sounds, etc.

Functional tests often require considerable care to avoid danger to the patient:

Case 5.—Some time ago a man past middle age was seen who evidently suffered from an advanced degree of cardiac degeneration but whose complaint was limited to intense dyspnea on exertion. The effort of lifting one arm above the head, while standing, caused the external jugular veins to bulge in a way to bespeak the inability of the right heart to deal with the slightest excess of inflow.

Case 6.—Five or more years ago I made many observations on the jugular pulse of an aged man who presented evidence of mild myocardial degeneration. At any time on holding the breath the jugulars would swell and the normal auricular venous pulse would change into the ventricular form, indicating a temporary paralysis of the right auricle, overdistention and relative insufficiency of the tricuspid valve. The patient now, over 80 years old, is in excellent health.

Case 7.—A young man of fine physique presented obscure cardiac symptoms, but manifested no distinct abnormality except slight dilatation of the heart. It was significant, however, that, following violent stooping exercise, the second sound of the heart disappeared at the apex. This, as pointed out by Broadbent,[3] is an indication that the right ventricle is overdistended and by its pressure against the chest wall throws the tip of the left ventricle away from it. Nothing more was heard of the patient for about fifteen years, when he was found dead in a cold stream in which he was trout-fishing.

A really rational test of cardiac efficiency involves a study of the blood pressures and of the state of vasomotor coordination, as can be done by comparing blood pressures in the recumbent and in the erect postures, as was pointed out by Crampton[4] and later by myself.[5] It may be worth while to repeat a former assertion[6] as to the probable relative clinical significance of the maximal or systolic as compared with the minimal or diastolic blood pressure: there is reason to assume that the height of the former determines the danger to the artery, while that of the latter measures rather the danger to the heart.

Janeway[7] has pointed out that in most cases the primary cause of syncope and sudden death is not heart failure but vasomotor failure when the subject assumes an erect position; nevertheless, it is doubtful whether a normal heart would ever stop because of postural draining of blood into the abdominal vessels.

The average clinical examination, however, is confined to a static study of the circulation, and undoubtedly a shrewd estimate may be made of the organic integrity of the heart irrespective of such gross signs as valvular murmur and without the strain imposed by excessive exercise. One of the salient characters to be observed is the quality of the first sound. There is a fine crepitant roughness of this sound, requiring the closest attention for its apprehension, sometimes intensified to a grinding character, which possibly is a sign of friction between the roughened muscle fibers, and therefore significant of myocarditis.

Often there is an idefinable abnormality in the first tone, such as once appealed to me in a case of a child, aged 5 years, for whom I had advised tonsillectomy. Though the danger of anesthesia was recognized, the child was given chloroform and nearly died under the operation.

When the suspicious roughness of the first sound is associated with dilatation of the heart, it may be assumed that cardiac overstrain has already occurred, and considerable care is required not to provoke a break in compensation.

Relative loudness of the second sound and weakness of the first sound at the apex is suspicious of

3. Broadbent, W. H.: Heart Disease, 1897, p. 194.
4. Crampton, C. W.: New York Med. Jour., 1913, **98**, 916.
5. Sewall, Henry: Am. Jour. Med. Sc., 1916, **151**, 491.
6. Sewall, Henry: Internat. Clin., Series 23, **4**, 12.
7. Janeway, T. C.: New York Med. Jour., 1907, **85**, 193.

myocardial degeneration. Possibly no better auscultatory test of the muscular power of the ventricles is available, as was demonstrated long ago,[8] than by increasing the pressure with which the bell of the air-conducting stethoscope is applied over the precordium. With increase of pressure, the intrinsically weak sound nearly or quite disappears.

There is a very common auscultatory phenomenon which frequently, if not usually, is a sign of cardiac infection. This is a vibratory character of the first sound, as from reduplication or triplication of the element. It has not the rising accent associated with mitral stenosis, and it persists throughout the respiratory cycle, is heard over the whole heart, and is not confined to the apex at the end of expiration, as is the common form of first-sound reduplication. I have seen this rattling character of the first sound develop during acute rheumatism, and persist after it when there seemed surely no valvular lesion. One patient developed it, following sore throat, during an attack of typhoid fever. He died, and at necropsy the only gross change found in the heart was slight congestion of the larger mitral cusp.

Remembering that heart disease in most cases is the result of infection and that the portal of entry is often within the oral cavity, the wise clinician will not underrate the peculiar importance of pharyngeal inflammations in the persons of those who present a suspicious cardiac condition. As was pointed out above, a heart sensitized to certain toxins may be expected to respond disastrously to new accessions of the specific poisons:

CASE 8.—A short while ago, a man, aged about 50, who harbored a passive pulmonary tuberculosis, developed a slight follicular pharyngitis, without elevation of body temperature. The pulse rate, however, was definitely raised, and the first sound of the heart, always under slight suspicion, became more distinctly abnormal in quality.

Directed by the line of reasoning just detailed, the patient was sent to bed for two days with the result of complete return to normal. Such an experience alone, of course, proves nothing, but I submit that it is an example of an effective and neglected method for the control of heart disease.

RECOGNITION AND TREATMENT OF HEART DISEASE

I am writing with the keen conviction that no systematic effort toward the control of heart disease is possible until the practitioner of medicine assumes the point of view regarding the prevalence of latent cardiac disease that he has slowly been led to take as to tuberculous infection of the lungs, that it is to be distinctly excluded in every case coming to diagnosis, and that in our study of the heart we should cease to await the development of the signs of mechanical imperfection, much as in the diagnosis of cancer of the stomach we no longer wait for a palpable tumor. In short, the clinician must learn to recognize heart disease while it is still a chemical disorder and before its morbid anatomy leads to physical signs.

A mechanical break in cardiac compensation probably finds its chief danger in degradation of cardiac nutrition and consequent depletion of resistance toward infective agencies.

As to treatment, when cardiac infection threatens to develop or when acute inflammation has already supervened, there is one fundamental resource without which nothing is of avail — complete mental and physical rest.

In chronic cases, which are apt to be overlooked unless previous infection has caused mechanical derangement of the valves, it would seem that we cannot do better than to act on the hints from our hard won experience with tuberculosis.

In an arrested case of tuberculosis, the patient is functionally normal within certain limits; not to overstep these bounds requires a mode of life ordered according to the rules of hygiene which must be carefully adapted to the needs of each person.

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8. Sewall, Henry: On the Use of Stethoscopic Pressure in Physical Examination of the Heart, New York Med. Jour., 1897, **66**, 758.

HERPES ZOSTER IN TABES DORSALIS AND GENERAL PARALYSIS OF THE INSANE

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Herpes zoster (acute posterior ganglionitis, acute posterior poliomyelitis, radiculoganglionic syndrome) is defined[1] as a "special type of erythematous eruption with formation of vesicles following the radicular distribution of the segment involved,[2] due to disease of the posterior roots and sensory ganglia." It may be put under two heads:[3] 1. Symptomatic zoster, due to (*a*) diseases and lesions of the nervous system implicating the posterior roots and ganglions: acute and chronic meningitis, myelitis chronica,[4] tabes dorsalis,[4] progressive muscular atrophy,[4] carcinoma of the vertebrae, Pott's disease, injuries; (*b*) acute infectious diseases, the micro-organisms[5] or toxins of which affect the ganglions and roots; (*c*) poisons by which the ganglions seem to be specifically affected (carbon monoxid, arsenic). Acute gastro-intestinal affections, pneumonia and tuberculosis are not infrequently contributing factors. 2. Essential or acute specific zoster, studied extensively by Head and Campbell.[6] This is a disease *sui generis,* and may be looked on as analogous to one of the acute infectious diseases. The eruption is usually preceded by a prodromal period in which there is malaise and fever; the disease may occur in epidemics; it confers immunity; it is unilateral, and there is no other condition, central or peripheral,[7] found to account for it.[8]

1. Jelliffe and White: Diseases of the Nervous System.
2. In describing the distribution of herpes zoster, it is said, more or less satisfactorily, to follow the course of certain peripheral nerves. This is convenient, but is incorrect. The distribution corresponds to the skin areas represented by the posterior ganglions and roots—radicular (sensory) segmental distribution as opposed to spinal (sensory) segmental areas of distribution and peripheral nerve distribution. The skin areas are different for these three.
3. Head: Herpes Zoster, in Allbutt and Rolleston: System of Medicine.
4. Blaschko: Beiträge zur Topographie der Aüsseren Hautdecke, Arch. f. Dermat. u. Syph., 1898, **43**, 37.
5. Rosenow, E. C., and Oftedal, Sverre: The Etiology and Experimental Production of Herpes Zoster, THE JOURNAL A. M. A., June 12, 1915, p. 1968. In this and other articles, the authors emphasize the actual presence of the micro-organisms. Sunde, quoted by them in this article, demonstrated gram-staining diplococci in the gasserian ganglion in an old man who died of bronchopneumonia three and a half days after the appearance of an ophthalmic herpes.
6. Head, Henry, and Campbell, H. W.: The Pathology of Herpes Zoster, and Its Bearing on Sensory Localization, Brain, 1900, **23**, 353.
7. Rosenow, E. C.: Elective Localization of Streptococci, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1687. Rosenow and Oftedal (Note 5) consider the infection atriums as the primary focus, and have isolated streptococci from the ganglions.
8. Paralysis may occur in specific herpes zoster due to secondary involvement of the cord. Hewlett, A. W.: The Motor Complications of Herpes Zoster, California State Jour. Med., 1906, **4**, 119-121. Magnus, V.: Herpes Zoster, Norsk. Mag. f. Lægevidensk., 1916, **77**, 1612; abstr., THE JOURNAL A. M. A., Jan. 20, 1917, p. 234.

Herpes zoster may develop in any phase of paresis,[9] often coming at the onset before the appearance of the characteristic symptoms. It may develop in the course of the lightning pains of tabes.[10] In tabes and paresis, herpes zoster is incidental to an involvement of the ganglions and roots in the pathologic processes of these diseases,[11] although it must not be overlooked that the diseased condition of the nervous system may open the portal for the specific form. It is interesting to note, incidentally, that Knowles[12] mentions the occurrence of herpes zoster together with a maculopapular syphiloderm, and also the occurrence of herpes zoster in a patient with gummas.

Zoster involving the entire length of the upper extremity alone (as in the first case report) appears to be uncommon. Knowles[12] observed four cases of zoster involving the entire length of the upper extremity out of 273 cases of herpes zoster in which the distribution was mentioned.[13]

REPORT OF CASES

CASE 1.—M. K., aged 50, laborer, was an advanced paretic admitted to the Philadelphia Hospital for the Insane, Feb. 10, 1915. Oct. 25, 1915, there was an eruption confined to the right upper extremity as follows: Starting above the axilla the eruption ran along the posterior margin of the deltoid muscle; it occupied an area corresponding to the lower half of the body of the deltoid; below this the outer (lateral) portion of the upper arm, including the outer portion of the flexure of the elbow, and the outer aspect of the forearm, both anteriorly and posteriorly. There were a few vesicles on the dorsum of the hand, slightly beyond the wrist, in line with the metacarpal bone of the index finger; there were a few vesicles toward the palmar aspect of the hand, and along the metacarpal bone of the thumb, extending to the base of the nail. The distribution[14] of the eruption corresponded to the fifth, sixth, seventh and eighth cervical nerve roots (according to the nomenclature of Bärensprung, a cervicobrachial zoster). The vesicles were in groups, on a reddened base; some were filled with hemorrhagic serum. In some places they were broken down with ulceration. The patient had not received arsenic, iodids or any other medication; he had not been injured. There was no evidence of any actual paralysis, or any alteration of the reflexes from the previous condition. The patient did not seem to suffer any pain; this may have been due to his advanced dementia. The teeth and the tonsils appeared to be normal.

A spinal puncture was done, October 28. The fluid was under much increased pressure (spurted). The Wassermann reaction was positive, culture negative. The Wassermann reaction in the blood, taken the same day, was positive. The patient's temperature was normal throughout the course of the eruption. A white cell count, November 1, revealed: leukocytes, 6,900; neutrophils, 64 per cent.; lymphocytes, 34 per cent.; mononuclears, 1 per cent.; eosinophils, 1 per cent. The patient also had psoriasis, which was present on admission.

The eruption had healed (with a few scars) at the time of the patient's death, which occurred, Nov. 23, 1915.

Owing to an oversight, the spinal cord was not removed at necropsy. Histologic examination[15] of the brain confirmed the diagnosis of paresis. The upper cervical cord showed marked involvement of both the tracts of Goll and Burdach.

CASE 2.—T. M., man, aged 49, vagrant; was admitted to the wards of the Philadelphia Hospital for the Insane, Oct. 26, 1915. The patient was a paretic with some tabetic symptoms. The eye grounds were normal. The Wassermann reaction was positive in both blood and spinal fluid. Several teeth were represented by old decayed roots.

November 5, a redness was noticed on the right side of the forehead. The next day vesicles appeared.

November 6, the border of the eruption started at the hair line laterally and went across to the root of the nose, including the upper lid; the conjunctiva was reddened. There were a few vesicles on the bridge of the nose. The border of the rash then extended up the midline; the upper border was slightly beyond the hair line of the forehead.

November 8, the eruption became infected.

November 9, the patient's temperature was 100 F. It was normal the next day.

November 18, the eruption was practically healed, with rather extensive scarring. The hair line of the eyebrow was involved in a scar with some loss of hair. The patient complained for a time of slight hyperesthesia in the region involved. The sense of pain in this area was considerably diminished; the touch and temperature senses were normal.

The following report on the spinal fluid was submitted by Dr. Kolmer: Clear; total cells, 30 per cubic millimeter, all small lymphocytes; protein reaction positive: Noguchi, +; Pandy, +; Nonne, +; Kaplan, ++; sugar, normal; colloidal gold, 5555544311 (paretic curve); Wassermann reaction (dose 0.8 c.c.), strongly positive; cholesterinized antigen, ++++; alcoholic syphilitic liver, ++++; acetone insoluble lipoids, ++++.

The patient's teeth subsequently became loose. Dementia and physical signs increased. He died, July 23, 1916, in a congestive attack, associated with restlessness and stupor; there were no convulsions or paralyses. Aside from atheroma of the aorta, and chronic myocardial and renal changes, the general organs showed nothing of note. Grossly the brain showed the following lesions of general paralysis: (1) chronic hemorrhagic pachymeningitis; (2) chronic leptomeningitis of the superior and anterior portions of the cerebrum, and (3) granular ependymitis of the floor of the fourth ventricle. There was no apparent cerebral atrophy. Histologic examination confirmed the diagnosis of paresis. The perivascular infiltration was unusually severe in the occipital pole. Gliosis was fairly marked in the column of Goll. The gasserian ganglion and its roots showed fibrosis and also round cell infiltration. The picture was one of chronic and also acute changes, the latter being of a nonseptic type, and probably specific (syphilitic).

CASE 3.—P. H., aged 51, admitted to the wards of the Philadelphia Hospital for the Insane, June 21, 1915. Blindness commenced five years before, and mental symptoms two months before admission. The eyes showed nystagmus; the pupils were equal, slightly irregular and inactive. There was complete optic atrophy of the eye grounds, probably primary. The knee jerks were absent. Romberg's sign was present when the eyelids were closed; there was ataxia in the lower extremities; there had been slight difficulty in holding the urine

9. Hérissey, Paul: Études cliniques sur les troubles trophique dans la paralysie générale, Paris thesis, 1903. De Fursac and Rosanoff: Manual of Psychiatry.

10. Osler: Practice of Medicine.

11. Poincaré and Bonnet (Ann. méd.-psych., 1868 and 1876) first described structural and functional alterations of the sympathetic ganglions in paresis, and Klippel (1892) first described the peculiar microscopic visceral lesions which he attributed to ganglionic changes (Martial Vignaud, Historique de la paralysie général, Paris thesis, 1902). These chronic degenerative changes in the ganglions, which are distinct from the acute changes in paresis causing herpes zoster, may be secondary to involvement of the nervous system central to the ganglions (retrograde degeneration).

12. Knowles, F. C.: Herpes Zoster, Report of Two Hundred and Eighty-Six Cases, with a Review of the Unusual Features of the Disease, Pennsylvania Med. Jour., 1911-1912, **15**, 615-622.

13. Other cases, to which I have had access, are: Stopin, Le zona du membre supérieur, Paris thesis, 1882-1883. The entire length of the upper extremity was involved in six instances out of seventeen cases of herpes zoster of the upper extremity. Gordon, Alfred: Cervico-Brachial Herpes Zoster, Am. Med., 1909, N. S., **4**, 627-630. Carpenter, G.: A Case of Herpes Zoster Extending to the Finger Tips, Rep. Sc. Study of Diseases of Children, London, 1905, **5**, 3. Pfeiffer (quoted by Blaschko) quotes one case (Footnote 4). In larger series of herpes zoster reported (Hoennicke, Cantrell, Greenough) the exact distribution of the eruption is not mentioned.

14. In determining the level involved, one must take into account the following factors: 1. A given area, though usually supplied by a given root, may instead be supplied by the root above, with corresponding changes in the other roots, or by the root below, with corresponding changes in the other roots. 2. In a very large proportion of cases the eruption does not occupy the whole area of a single nerve root. 3. The shape of the part involved (whether thin, stout, etc.) makes a difference in the appearance of the eruption. 4. There is a certain amount of overlapping of supply in a given segment by the one above and below. In outlining the area of involvement one includes the zone of hyperemia as well as the eruption proper. Cases in which only a single segment is involved are of value in determining the area supplied by a given nerve root. In any one case one cannot be absolutely certain which root is involved unless confirmed by necropsy.

15. I am indebted to Dr. Samuel T. Orton for the histologic studies.

during the last six months; the teeth and the tonsils were normal. The patient had a psychosis, but was not a paretic. Tabes dorsalis was diagnosed; a positive mental diagnosis was not made.[16] Dr. Kolmer submitted the following report on the spinal fluid, June 14, 1916: Clear, 90 cells per cubic millimeter; 92 per cent. small lymphocytes; protein reactions strongly positive: Noguchi, +++; Nonne, Phase I, +++; glucose content, normal. Wassermann reaction (dose 0.8 c.c.), ++++, with the three antigens used above; Lange colloidal gold test: typical paretic curve.[17]

June 6, there was redness on the right side of the forehead. June 8, vesicles were well marked. The outer border of the rash extended upward from the outer end of the eyebrow; the inner border was at the midline. The rash included the upper lid, and the nose to the ala; the conjunctiva was reddened, but contained no vesicles. The rash extended backward to slightly beyond the parietal eminence. The blood count was normal. There was a slight rise of temperature a few days later due to secondary infection. June 21, the eruption had well disappeared, except for scabs along the eyebrow.

At present, on the forehead, upper lid and the bridge of the nose, the areas which were formerly the bases of the vesicles show loss of pigment. Neither in these whitish areas nor in the normal appearing skin can any disturbances of sensation be demonstrated.

CONCLUSIONS

Of three patients having an attack of herpes zoster, two were paretics and one a tabetic. The cases of herpes zoster were of the symptomatic variety, that is, due to involvement of the ganglions in the pathologic processes of the disease from which the patients were suffering. The nature of the ganglionic changes is in all probability specific, that is, due to spirochetes or toxins.

Thirty-Fourth and Pine Streets.

16. The patient's mental condition may have been dependent on syphilitic changes or alcoholism. On admission, dementia, though present, was not very apparent; it has since progressed, but is not extreme. There is nothing, however, in the clinical symptoms, which suggests paresis.

17. Solomon, Koefod and Welles state that a typical paretic curve may occur not only in patients who do not have paresis, but also in patients who do not even have syphilis. I have seen two nonparetics with typical paretic curves. In one of these at least, the question of paresis sine paresi does not enter (Solomon, H. C.; Koefod, H. O., and Welles, E. S.: Diagnostic Value of Lange's Gold Sol Test, Boston Med. and Surg. Jour., 1915, **173**, 956-960. Solomon, H. C., and Welles, E. S.: Varieties of the Gold Sol Test (Lange) in Several Loci of the Cerebrospinal Fluid System, ibid., 1915, **172**, 625-629). A paretic curve is reported in a child suffering from poliomyelitis, with a positive Wassermann in the spinal fluid (Felton, L. D., and Maxcy, K. F.: The Colloidal Gold Reaction of the Cerebrospinal Fluid in Acute Poliomyelitis, THE JOURNAL A. M. A., March 10, 1917, p. 752). These observations show that the paretic curve occurs occasionally in conditions other than paresis. All of our consulting psychiatrists have agreed that the patient described above is not a paretic.

Milk Distribution a Public Utility.—A joint commission of Pennsylvania, Maryland and Delaware appointed to study the milk question with reference to price, distribution, etc., headed by Prof. Clyde L. King of the University of Pennsylvania, recommends (*Survey*, February 24), that milk distribution shall be recognized as a public utility. The recommendations extend to both production and distribution, and include suggestions for increased state and municipal supervision, as well as an attempt to harmonize the interests of producers, dealers and consumers. Recognition of milk distribution as a public utility implies the keeping of accounts by dairymen and dealers in a form prescribed by the state, the state examination of accounts, the licensing of all dealers, as at present; the licensing of testers in receiving stations, and the standardization of prices. Seasonal inequality of production has been an obstacle to the maintenance of uniform price to producers, which makes the financial success of the dairy business uncertain. This, it is suggested, can be overcome to some extent by the storage of milk in the form of butter, cheese and condensed milk, and the stimulation of new uses at times of greatest yield. The competition of milk with other food products and the matter of freight rates complicate the milk supply problem.

A CASE OF BROWN-SÉQUARD PARALYSIS*

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Until recently, many workers, following Brown-Séquard, held that impressions of pain and temperature pass upward through the gray matter, while those of touch and sense of position ascend through the dorsal columns. Petrén,[1] from a collection of reports of a large number of cases, concluded that impressions of pain and temperature pass through the opposite lateral column, and of the muscle sense through the homolateral dorsal column, while two paths are open to touch, one through the uncrossed exogenous fibers of the dorsal column, and another in the opposite lateral column.

Head and Thompson[2] confirmed these conclusions and showed that the ability to recognize the simultaneous contact of two compass points depends on impulses traveling through the homolateral dorsal column. Head and Holmes[3] found that the appreciation of weight and recognition of size and shape are frequently lost on the paralyzed side, and concluded that the impulses which subserve these functions ascend uncrossed through the dorsal columns. Egger[4] has shown that the sense of vibration of a tuning fork depends on the integrity of the dorsal columns.

Recently Petrén,[5] from a review of ninety-four cases of stab wounds of the spinal cord, has concluded that fibers for pain and temperature sense have their course near the lateral column of the cord. For touch two pathways are present: first, in the posterior columns in the long exogenous fibers and, second, in the crossed lateral columns somewhere along with pain and the temperature sense. The fibers for muscle sense do not run in a crossed tract; they run in two columns, one in the homolateral posterior columns and the other in the lateral cerebellar bundle. They run mediad to the fibers for pain and temperature and laterad to the pyramidal tract.

From the notes of forty-five cases of spinal injuries of warfare in which the Brown-Séquard syndrome occurred, Holmes[6] found that the upper limit of anesthesia to the different forms of sensation varied, and that as a rule the upper border of the contralateral loss did not correspond to the segmental level of the injury. In the middorsal region, the crossing of pain and thermal impulses is complete in one segment. Thermal impressions cross less rapidly than those of pain, and touch requires two segments for decussation. In the upper dorsal segments, pain and temperature cross in two and frequently in three segments. At the fourth cervical segment the decussation of pain requires from five to six segments, and that of thermal impressions from four to five.

Holmes concludes that the fibers which convey impression from the lower spinal roots are probably placed lateral to those which have later reached the contralateral side.

* Read before the Chicago Neurological Society, Dec. 21, 1916.

1. Petrén: Skantin. Archiv. f. Physiol., 1902, **13**, 9.
2. Head and Thompson: Brain, 1906, **29**, 537.
3. Head and Holmes: Brain, 1911, **34**, 102.
4. Egger: Rev. neurol., 1902, **10**, 549.
5. Petrén: Neurol. Centralbl., Jan. 2, 1916.
6. Holmes: Brit. Med. Jour., Dec. 11, 1915, p. 855.

REPORT OF CASE

Oct. 1, 1916, a man, aged 27, whose previous history has no bearing on the present condition, and in whom the Wassermann reaction was negative on the blood serum, was stabbed in the left groin, the left buttock, and in the back of the neck. The wound in the neck extended from the fifth to the seventh cervical vertebrae. The right leg was immediately paralyzed. For three days the patient complained of severe shooting pains in both

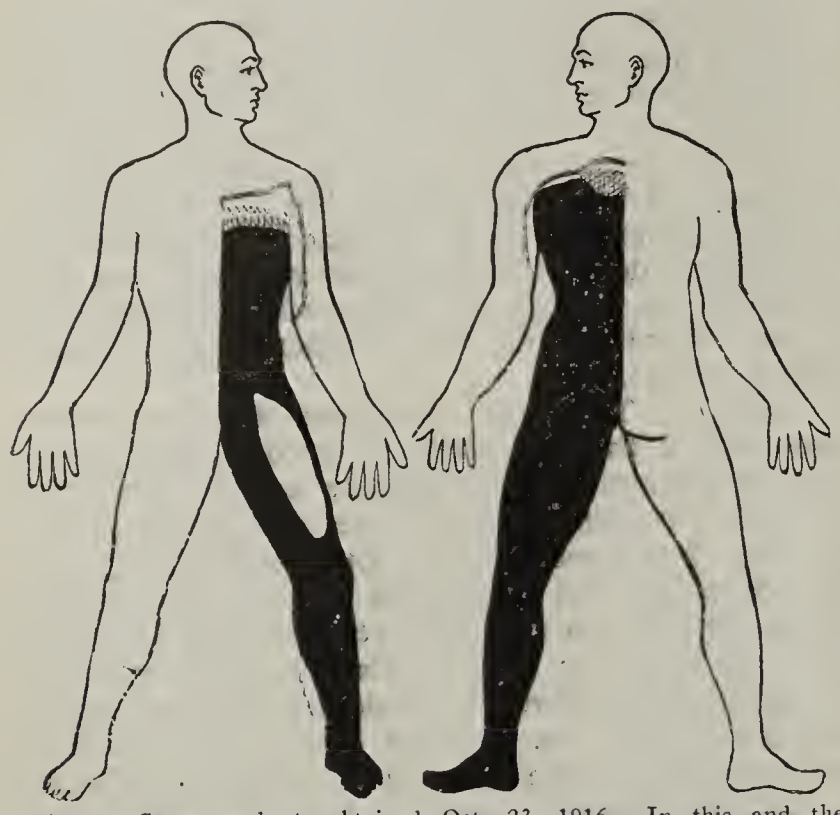


Fig. 1.—Sensory chart, obtained Oct. 23, 1916. In this and the accompanying illustration, oblique solid lines indicate areas of thermanesthesia; oblique broken lines, diminished temperature sense; vertical solid lines, diminished pain sense; solid black areas, loss of pain and temperature sense; within the area bounded by the double line is found a diminution in the acuteness with which pain and temperature are appreciated; the blank space over the left leg represents a loss of sensation in all its forms.

arms. He was unable to move the right leg for four days, then movements of the thigh and leg returned, and on the sixth day he was able to get out of bed, and more or less rapidly regained all function except dorsal flexion of the foot and extension of the toes. He remained in the hospital until October 18, and was examined five days later.

He showed a weakness of the muscles of the right side of the body below the level of the fifth and sixth cervical segments; the groups represented by these levels were more markedly affected than those of the fifth alone, as the deltoid especially, and the pectoralis major, supinator longus and biceps were feeble, and the supraspinatus, teres minor, subscapularis and serratus magnus were probably not affected. The muscles representing the lower levels were still weaker, the greatest disability being in the extensor of the index finger, the opponens pollicis and the first dorsal interosseus. The motor disability was most marked in the lower extremity, where the dorsal flexors of the foot and extensors of the toes showed the greatest weakness. The right side of the abdominal wall was paretic. Ankle and knee clonus were present on the right side; the rectus jerk was greater on the right side. The deep reflexes in the upper extremities were equal and about normal, with the exception of the right scapulohumeral, which was increased. A Babinski phenomenon was present on the right side. The right cremasteric and abdominal reflexes were absent. The sympathetic and organic reflexes and vasomotor functions apparently were normal on both sides. The pupils were normal. Sensation to touch was disturbed only over the area supplied by the anterior femoral cutaneous nerves of the left side. They had probably been severed by the stab wound in the groin. There was an analgesia of the left side below the level of the third dorsal segment. For a short distance above this, pain sense was diminished, and below the fourth cervical segment, although very slight pain stimuli were felt on the left side, the sensation which they awakened was more acute on the right side. Temperature sense was lost to a level slightly higher than the third dorsal, and for a small band above this was diminished. As with the temperature sense, as high as the level of the fourth cervical segment temperature stimuli were more acutely on the right than on the left side. The slightest stimulation, however, was correctly interpreted on the left side in this area. Over the arm only that portion represented by the second and third dorsal segment showed a similar condition as to pain and temperature. Joint and muscle sense were apparently normal, but slight pallesthesia was present on the right side. No difference in tactile space sense existed.

Since the time of examination an improvement has been noted in the motor functions; the same muscle groups, however, are affected and in similar proportions. The thermal anesthesia has retreated caudally so that the upper border is at the sixth dorsal level. Above this to the fifth dorsal either heat sense alone is lost, or heat and cold slightly diminished. Analgesia likewise has retreated caudally to a level lower than the thermal anesthesia, namely, the eighth dorsal segment. Up to the level of the sixth dorsal, pain sense is diminished. The same acuteness of sensation to heat and pain is present in the area of the right side as was noted at the first examination.

COMMENT

This case is of particular interest because of several features:

1. The low level of the crossed sensory disturbance as compared to the direct motor injury illustrates the obliquity of the crossing of the sensory fibers, as pointed out by Gordon Holmes.

2. The caudal retreat of analgesia, and more slowly of thermal anesthesia, indicates a lamellar arrangement in which the fibers that convey impressions from the lower spinal roots are placed laterad to those that have later reached the contralateral side.

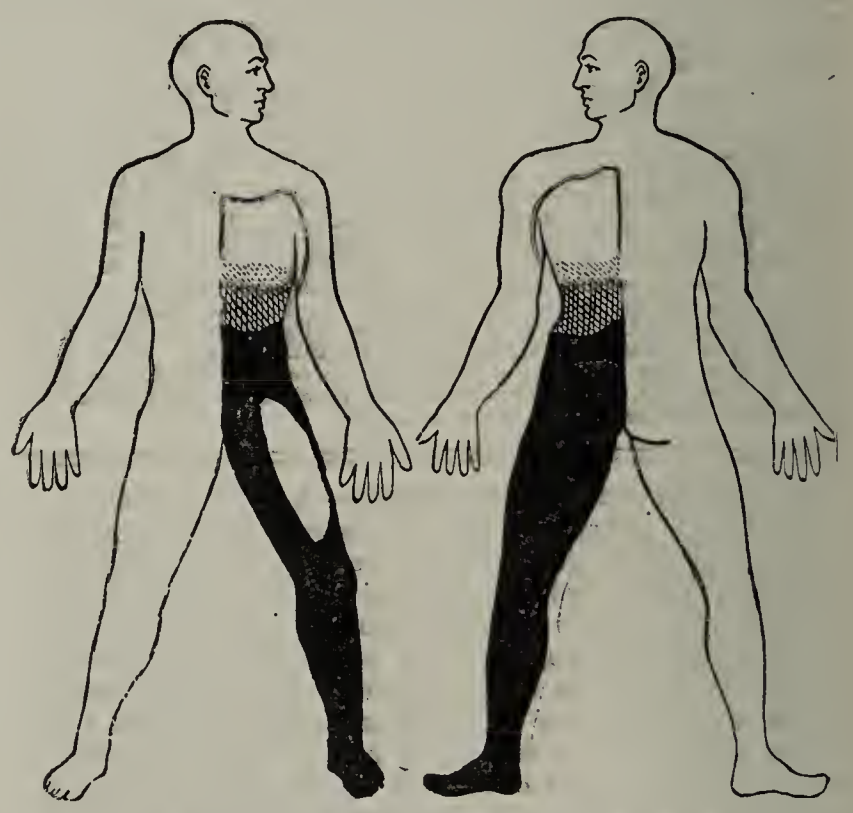


Fig. 2.—Sensory chart, obtained Dec. 20, 1916.

3. As the upper margin of the anesthesia to heat is slightly higher than that to cold, it is probable that the afferent impulses which subserve the latter decussate more slowly.

25 East Washington Street.

Actions, not Words.—A slender acquaintance with the world must convince every man, that actions, not words, are the true criterion of the attachment of friends.—George Washington.

TETANUS, WITH SECONDARY MULTIPLE NEURITIS

REPORT OF A CASE WITH RECOVERY *

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M. J., man, aged 19, Italian, laborer, who spoke little English, and whose family history and previous medical history were unascertainable, had received a rather slight lacerated wound of the left ring finger ten days prior to admission to the sanatorium, which occurred, Feb. 20, 1915. The finger had not been cared for properly. The patient was apparently delirious on admission, and it was because of these mental symptoms, the cause of which had not been ascertained, that he was sent to the sanatorium. He had a general convulsion shortly after admission. In my absence, the diagnosis was correctly made by Dr. R. M. Hope, who thoroughly opened and disinfected the wound. The patient later was resistive, and attempted to bite and scratch. The temperature was 102 by rectum. Three thousand units of tetanus antitoxin were given subcutaneously by Dr. P. T. Hope later in the evening, together with morphin and chloroform. The patient had no further convulsions until the next morning at 10:30. He was placed on hypodermic injections of 10 minims of 2 per cent. solution of phenol (carbolic acid) every two hours, and chloral and bromid by the rectum according to circumstances. He had another convulsion at 5 a. m. on the third day, opisthotonos being marked in this and in most of the succeeding convulsions. He had another seizure at 9:30 a. m. As difficulty was experienced in securing antitoxin, the second injection of 9,000 units, given subcutaneously, was not received until forty-eight hours after the first. Morphin in one-fourth grain doses was given to alleviate pain, from which the patient suffered intensely at intervals, apart from the convulsions. On the fourth day at 4 p. m., 5,000 units of antitoxin were given intradurally after lumbar puncture, and 3,000 units were injected at the seat of the injury in the finger. Bacteriologic and cytologic examination of the spinal fluid (15 c.c.) withdrawn on this occasion was negative.

As no convulsions appeared after the third day and the patient's general condition was improved, 5,000 units were given intraspinally and 5,000 units intravenously on the fifth day, no antitoxin on the sixth day, 7,000 units subcutaneously on the seventh day, and 5,000 units subcutaneously on the eighth day, it being felt that the disease was now under control. This was an error, however, as two convulsions occurred on the ninth day, after five free days. From the ninth to the seventeenth days thirteen convulsions occurred, most of which were severe. During this period from 5,000 to 15,000 units were given daily, chiefly by the intravenous and intraspinal routes. Two subdural injections of 4 c.c. each of magnesium sulphate solution (7 gm., 2 cg. to 100 c.c. distilled water) were also given during this period (the fourteenth and sixteenth days) with seemingly beneficial results. On the eighteenth, nineteenth and twentieth days, no convulsions occurred, and only 5,500 units of antitoxin were given during this period. Mild convulsions reappeared, however, and occurred daily from the twenty-first to the twenty-fifth days. During this period only 10,000 units of antitoxin were given, as the convulsions were noted to be diminishing in severity and the patient was beginning to show serious paralytic (or perhaps anaphylactic) symptoms, such as dysphagia and very slow, weak and irregular heart action. There were no convulsions after the twenty-fifth day. On the fifteenth day the left forearm and hand were found to be much swollen, and on the twenty-first day much pus was evacuated from an abscess in the elbow region, evidently due to infection from one of the intravenous treatments. The hypodermic injections of 2 per cent. solution of phenol were continued throughout the treatment, save on two occasions when it had to be stopped for a couple of days to permit the urine, which had become very smoky, to clear up. Chloroform was used only when the intradural injections were given.

Three weeks after the last convulsion, it was noticed in bathing the patient that he was very sensitive to pressure or touch in his arms. This soon extended to the limbs. Examination revealed extreme tenderness along the peripheral nerve trunks as well as general hyperesthesia. This condition was accompanied by loss of power in the extremities and general atrophy of the muscles, so that the patient became extremely emaciated. The hands were swollen at first, but this gradually subsided. There was difficulty at times in swallowing. Trophic changes were not marked, though the patient had to be watched closely to prevent bedsores, and was manifestly suffering from a generalized peripheral neuritis. The presence of anesthesia could not be definitely determined because of the patient's mental condition. Under massage and good feeding the condition began to improve slowly after two weeks. At the end of a month from the beginning of this complication the patient had so far improved as to be able to walk a little with assistance.

In connection with these physical evidences of neuritis there was an abnormal mental condition, characterized by a tendency to grin in a silly manner and to general emotional instability. This condition gradually passed off as the physical condition of the patient improved. He was discharged as convalescent, May 26, a little over three months after admission. He had not fully recovered from his neuritis when he was discharged, and was unable to work for about two months after returning home. He called recently at the sanatorium to state that he was working every day and had fully recovered his usual health.

COMMENT

In this case the effect of the antitoxin is well worth studying. In all, 152,500 units of antitoxin were given, 45,000 units in nine doses subcutaneously, 56,500 units in nine doses intraspinally, and 51,000 units in eight doses intravenously. After the subdural injections on the fourth and fifth days and the intravenous injection on the fifth day, there were no more convulsions for five days and the patient's general condition was greatly improved. The treatment, however, was not continued by these methods; two subcutaneous treatments were given on the fourth and fifth free days, with the result that convulsions began next day and the disease became more aggravated. Had the subdural and intravenous treatments been continued daily, I feel convinced that the disease would have ended at this point. The results here, therefore, are in harmony with those of Park, Irons[1] and others who have found the combined treatments by the various routes mentioned much more efficacious than the subcutaneous treatments alone.

Undoubtedly the most interesting question, however, is as to the etiology of the neuritis. The possibilities are: (1) toxic action from the antitoxin; (2) the infection of the arm, or (3) toxins arising from the action of the tetanus bacilli.

As to the first point, although antitoxin was used in considerable quantities, neuritis is not regarded as one of the allergic phenomena to be expected, although the patient showed at times symptoms possibly ascribable to anaphylaxis, such as respiratory and cardiac irregularity and weakness.

Secondly, while infection is a possibility, it seems unlikely in view of the fact that the infection was local, it did not cause severe constitutional symptoms, the pus was promptly evacuated, and the abscess was kept well drained.

In view of the severity and duration of the attack, it seems most probable that the neuritic symptoms

* Read before the Pittsburgh Neurological Society, Oct. 10, 1915.

1. Irons, E. E.: The Treatment of Tetanus by Antitoxin, THE JOURNAL A. M. A., June 27, 1914, p. 2025.

resulted from the toxins generated by the tetanus bacilli. Although, in view of the frequency of neuritis following diphtheria, we might expect it in tetanus, as a matter of fact it has been rarely reported and there is almost no literature on the subject.

Anders[2] speaks of paralysis as being a rare sequel, but does not particularize as to the nature of such paralysis as has been observed. He mentions also the significant fact that Kitasato has produced paralysis in man by injecting tetanus toxin into the femoral vein.

The only article found on the subject was that of Hnatek.[3] He reports the case of a woman, aged 54, who developed traumatic tetanus. After two weeks she began to improve, but at the beginning of the fourth week she developed severe pain in the left shoulder, followed by pain, swelling and later numbness of the left hand. The condition improved under treatment. It is noteworthy that this patient was not treated with antitoxin.

Hnatek, in commenting on the case, states that while Goldscheider[4] considers that changes in the peripheral nerves from tetanus are impossible, there is no doubt that the peripheral nerves sometimes react to the tetanus toxin. After discussing at some length the possible mechanism of trophic changes in neuritis he says:

> The fact that neuritic symptoms appear after an injection of antitoxin, as well as without it, speaks for the tetanotoxin as the etiologic basis of the neuritis. But why is the action of the tetanotoxin so rarely accompanied by an inflammation of the nerves, and why doesn't it act at the time it passes through the nerve? There can be only this explanation, that a long duration is necessary to produce inflammation. If the tetanotoxin is really the cause of the neuritic phenomena, there is no other possibility than this, that a long contact with the nerves is necessary.

I feel that Hnatek has reached the most probable explanation of these cases. It is the protracted cases of tetanus ending in recovery that are apt to be followed by neuritis, as it is only in such cases that the toxin has the opportunity to act for a sufficiently long time to produce neuritis as a sequel. It seems to me most probable that under the newer methods of treating tetanus, and as protracted cases with recovery become more numerous (as they no doubt will), we shall have more reports of tetanus cases followed by neuritis.

SUMMARY

An Italian, aged 19, developed tetanus about the tenth day following a lacerated wound of the finger. Under treatment by antitoxin, magnesium sulphate and phenol he showed two periods of temporary improvement, finally on the twenty-fifth day ceased to have convulsions, and developed neuritic symptoms in the arms three weeks later, this rapidly developing into general peripheral neuritis. After two weeks he began to improve, and by the fourth week (of his neuritis) had regained sufficient power to walk slightly. Approximately 150,000 units of antitoxin were used, divided nearly equally among the subcutaneous, intravenous and intraspinal routes. The most probable cause of the neuritis was the tetanotoxin.

2. Anders, J. M.: Tetanus, in Osler's Modern Medicine, **1**, 580.
3. Hnatek, J.: Tetanus and Neuritis, Wien. med. Wchnschr., 1905, **55**, 997.
4. Goldscheider: Ztschr. f. klin. Med., 1894.

SPONTANEOUS RUPTURE OF UTERUS FOLLOWING ADMINISTRATION OF PITUITARY SOLUTION

REPORT OF TWO CASES

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Within twelve weeks of each other there have been admitted to the obstetric ward of the Delaware Hospital two patients with spontaneous rupture of the uterus, following the administration of a single dose of pituitary solution. These would seem worthy of more than passing interest since the widespread advocacy of the use of this agent in labor.

These two cases bear a marked resemblance to each other in their salient features: In neither was there any intra-uterine manipulation, attempted version or use of forceps. In neither case had true engagement taken place, but the presenting part was well within the pelvic brim, and otherwise they met the usual indications for the use of pituitary solution. Both patients were multiparas; in both, dilatation of the cervix was complete, the membranes ruptured, the fetus presenting by the vertex, with the uterine contractions weak and inefficient. Each patient received only a single injection of one ampule (1 c.c.). Routine pelvimetry was not carried out, but both pelves were practically normal and the conjugata vera, as estimated at operation, at least 10 cm. in each.

After operation, both babies were found to be somewhat above the average size, one weighing a little above and the other a little below 4,500 gm. (9 9/10 pounds).

REPORT OF CASES

CASE 1.—*History.*—M. W., colored, aged 44, quattuordecipara, whose previous labors had been spontaneous, was admitted to the Delaware Hospital about 7 p. m., Dec. 19, 1916, and the following history obtained from Dr. J. B. Stubbs: The dates of the last menses and of quickening were unknown. Labor was expected about December 1.

Late in the afternoon of December 18, the patient fell into labor, and a midwife was called. The pains were weak and irregular, and much homely stimulation in the form of coffee, whisky, etc., was given throughout the night and following day. About 4:30 p. m., December 19, Dr. Stubbs was called, and found the woman exhausted from her long labor, the pains weak, the abdomen pendulous, the cervix fully dilated, the membranes ruptured, and the vertex presenting and well within the pelvic brim.

He administered hot milk to the patient, placed her in a semirecumbent posture, and injected hypodermically one ampule of pituitary solution. In from five to ten minutes, while holding his hand over the fundus of the uterus, he noted a "sudden giving away": The patient immediately complained of sharp pain in the abdomen and "air hunger." The uterine pains ceased, and cold sweat, ashy color, pinched features and the other signs of shock appeared. Hemorrhage was steady from the vagina but not large in amount. Vaginal examination revealed that the head had receded above the symphysis. The physician gave a diagnosis of rupture of the uterus and advised immediate transfer of the patient to a hospital, but a delay of an hour or more was entailed in obtaining the consent of the family.

Examination.—The findings as given above were confirmed; the patient was taller and heavier than the average, the abdomen was pendulous and relaxed, the fetal head below and riding free in the abdomen above the symphysis, the small parts palpable just beneath the abdominal wall. Fetal movement and heart sounds could not be elicited. Bleeding from the vagina was moderate in amount but

steady, the cervix irregular in outline and flabby, a long anterior lip being palpable just below and posterior to the fetal head. Immediate section was decided on.

Operation.—A low median incision, from 12 to 14 cm., was made. The dead fetus lay just beneath the incision free in the peritoneal cavity. A foot was seized and extraction performed. The placenta, which was still within the uterus, was removed. There was present a large rent in the left broad ligament, extending to and continuous with a tear completely through the uterovesical fold of peritoneum, thus leaving the large anterior lip of the cervix free from all attachments. The vessels of the left side were caught and ligated. After ligation of the infundibulopelvic and round ligaments and the uterine artery on the right, the uterus was freed from its attachments, the attached posterior portion of the cervix incised supravaginally, and the uterus with its adnexa removed. The pelvis was drained below, and the peritoneal toilet completed as is usual. The abdomen was closed in three layers. The patient died about an hour after the completion of the operation.

CASE 2.—*History.*—B. K., aged 26, Austrian, quintipara, whose previous labors had been spontaneous, was admitted to the Delaware Hospital between 10:30 and 11 a. m., March 8, 1917. I was called into this case through the courtesy of my colleague, Dr. Willard Springer, who was in charge of our service at that time. The following history was obtained from Dr. S. M. Zion: The dates of the last menses, of quickening and of expected labor were unknown. According to the history given Dr. Zion by the midwife in attendance, the patient fell into labor about 1 p. m., March 7. Throughout the afternoon and night the pains continued, but were weak and inefficient. At 5 a. m., March 8, he was called, and on examination found the woman having regular but ineffectual pains, the head below, the cervix fully dilated, the membranes ruptured, and the vertex presenting and below the pelvic brim. At 5:20 a. m. he administered hypodermically one ampule of pituitary solution. This was followed promptly by the onset of vigorous uterine contractions, but after a few minutes (three or four pains) there was a sudden cessation of the uterine contractions and the onset of the symptoms of shock; rapid, thready pulse, ashy hue of the skin, anxious, pinched face, sighing respiration and cold sweat. Hemorrhage from the vagina for a while was free, and the head of the fetus was found to have receded above the brim of the pelvis; just in front of the head he noted an irregular mass (the torn anterior lip of the cervix). He called in a consultant (myself), but before my arrival the family called Dr. J. B. Stubbs, who gave a tentative diagnosis of rupture of the uterus and advised immediate transference of the patient to a hospital.

Examination.—The findings as given above were confirmed; the abdomen was large and irregular in outline, the fetal head below and riding free in the abdomen above the symphysis; the small parts were palpable just beneath the abdominal wall. Neither fetal heart sounds nor fetal movements could be elicited. There was slow, steady bleeding from the vagina. A rent in the cervix could be felt extending from the right posterior portion below, upward and to the left into and through the broad ligament of the left side; the head could be palpated through this rent above the symphysis. Immediate operation was decided on.

Operation.—A low median incision, from 12 to 14 cm., was made. The dead fetus was free in the peritoneal cavity just below the incision. A foot was seized and extraction performed. The placenta, which was lying loose within the uterus, was removed. A large tear extended from the contraction ring downward through the lower margin of the cervix and outward through the left broad ligament, involving the uterine artery and vein of the left side and the left infundibulopelvic ligament. Bleeding points were caught and ligated. The uterus with its adnexa was freed and removed supravaginally. The rent in the remaining portion of the cervix was brought together with a running chromic catgut suture, the pelvis drained below, the stumps of torn and severed ligaments sutured to the cervical stump, and all torn and cut surfaces closed over with peritoneum. An inflamed appendix containing three large fecal concretions was removed. The abdomen was closed in three layers and the patient removed to the ward in fair condition.

The external pelvic measurements, taken after operation, were: between spines, 27 cm.; between crests, 29 cm.; between trochanters, 31 cm.; right oblique, 23 cm.; left oblique, 23.5 cm.; external conjugate, 20.5 cm.; circumference of pelvis, 91 cm.

The patient made a comparatively uneventful recovery and was discharged from the hospital on the twenty-first day after operation.

PUBLIC HEALTH INSTRUCTION IN MEDICAL SCHOOLS

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We now take it for granted that public health instruction should be included in the medical curriculum. This assumption, so easily and unanimously acquiesced in today, would not have found sympathetic approval in yesteryears.

Most medical schools have not met their full responsibility with reference to the teaching of hygiene. Only four or five medical schools in this country treat hygiene as a major subject. By a major subject I mean one taught by a well equipped department with a staff on a full-time basis; with adequate facilities for teaching and investigation; with a fair allotment of time in the curriculum, and a required course in which credit must be obtained for the M.D. degree. It must come as a surprise to learn that the only medical schools that meet these requirements in part are Pennsylvania, Yale, Michigan and Harvard.

We must keep clearly before us that the purpose of teaching public health in medical schools is not to make health officers of medical students, but to broaden their training so as to fit them better for the practice of medicine. I am not in sympathy with the views of many teachers of special fields that their particular specialty is the most important in the medical curriculum. Medical schools have a clear-cut purpose, to train men in the fundamental sciences and in the clinical methods that are necessary for success in the responsible service of ministering to the sick. Chemistry is not taught in medical schools with the object of making chemists of the students, for the training of chemists as well as of sanitarians requires long and exacting tutelage in special schools devoted to these particular purposes. On the other hand, while the physician need not be a sanitary expert, he has many sanitary duties to perform, and must understand and be in sympathy with public health work. He cannot meet his obligations or reach his full measure of usefulness without a knowledge of hygiene, preventive medicine or public health, call it what you will.

In this paper I shall limit myself to a discussion of undergraduate instruction in hygiene in medical schools; that is, only to required work in public health leading to the M.D. degree. Special training for a public health career requires special courses and even special schools. The importance of training health officers deserves the recognition which it is getting. Thus, we have the School for Health Officers of Harvard University and the Massachusetts Institute of Technology; we shall soon have the Institute of

Hygiene at Johns Hopkins, which is now in the making. Furthermore, a number of schools offer courses leading to the Doctor of Public Health degree (Dr.P.H.), and to the Certificate in Public Health (C.P.H.), and similar degrees. All this is another story, and should not be confused with our present problem of instruction in public health in medical schools for students who are preparing themselves to be practitioners of medicine.

With this in view, teaching hygiene in medical schools may be considered under several headings: to impart a point of view; to teach facts; the course itself; to cooperate with forces within and without the medical school; to stimulate investigation, and to develop aptitudes.

THE POINT OF VIEW

When a patient consults a physician, he wants to know two things: first, "What is the matter with me?"; second, "What can be done to relieve me?" The successful doctor must therefore be expert in diagnosis and the use of remedial measures. To become and remain a competent diagnostician and a skilled therapeutist requires the same concentration of effort that makes for success in any special field of human endeavor. Many medical schools accept this function of the physician as final, and devote most of their time to the recognition of disease and to the "practical" art of treatment.

The medical student clearly foresees that he must become a specialist in diagnosis and treatment. His clientele expects this, and for this reason some students are overanxious to prepare themselves in a narrow and restricted sense. Medical schools often meet this situation by making the courses as "practical" as possible; but a practical art based on an insecure knowledge of the fundamental sciences reduces a profession to a trade.

The teaching of hygiene may then be used as one of the means to broaden the point of view of the medical school and to widen the horizon of the medical student. The advanced practitioner of medicine is fast adding prevention as one of the necessary tools of his equipment. Hence, the future student of medicine should make a study of health and its maintenance, as well as a study of disease and its relief.

The point of view of the practitioner of medicine is largely personal and particular, while the point of view of the sanitarian is more communal and general. But there is much overlapping and interlocking, for while the community suffers from infections which may be suppressed and avoided by public measures which largely disregard the individual, it is gradually being borne into the consciousness of health officers that one of the most important protections against disease is personal hygiene and individual education. Thus, many communal fevers and infections may be altogether prevented by the use of clean water, safe milk and satisfactory foods. In a modern city the individual cannot possibly get these things for himself, and therefore they should be secured for him. On the other hand, personal hygiene becomes the keynote in the prevention of syphilis, gonorrhea, and to a large degree of tuberculosis and many other infections contracted mainly by direct personal contact. Furthermore, the object of preventive medicine is not alone to control the communicable diseases, nor is it altogether to prolong life but to make life more efficient. Here, again, personal hygiene, education, and the individual rather than the community organization is important. Public health is merely individual health in the aggregate. It is altogether fitting and proper to regard the practitioner of medicine as responsible for individual and family health, which in the mass represents public health. Medical practice can no longer be carried on in cloistered seclusion, for the individual malady must be considered with reference to the common weal. The relation of the individual to the community, both in sickness and in health, is one of the points of view which must be taken into account in the training of a physician.

For a long time the medical profession studied disease only after it had reached the threshold of disabling manifestations. The beginnings of many diseases that do not start sharply are still imperfectly understood. Disease as a terminal condition is still the point of view of the laity. Formerly, people waited until they had toothache before they consulted a dentist. The situation in medicine is precisely the same today. People wait until they are laid low by fever or pain before consulting a physician. For the sake of the patient and for the cause of prevention, lead poisoning must be recognized long before wrist drop, a blue line on the gums and colic make their appearance. Many men in middle life now want physicians to tell them how to delay hardening of the arteries, how to prevent Bright's disease, cancer, diabetes, etc. In medical schools so little emphasis is placed on the causes and beginnings of disease that few physicians have the necessary skill and experience successfully to examine and advise individuals in this situation. Here, again, the medical school in many of its departments must meet a responsibility, or be found wanting. The borderline between health and disease, and the causes which lead up to the derangements of metabolism and the slower degenerative processes are pressing problems. In a way, it is one of the functions of the department of hygiene to stimulate interest in these matters in the medical school.

The young medical practitioner soon will find to his embarrassment that after he has made a diagnosis and written a prescription, he will be asked many questions concerning personal hygiene and the modes of spread of disease; also points regarding sanitation and relations to public health administration which he is expected to know, and which, in fact, he should know, for the practitioner of medicine is the family health officer. The medical profession has in the hollow of its hand the power to carry the message of prevention into the household. Properly qualified practitioners are blessed with the power of immeasurable service in the prevention of much suffering and unnecessary illness. The doctor is constantly asked questions concerning diet, exercise, clothing, rest and ventilation, and he is supposed to be familiar with the laws of heredity and the purposes of eugenics. He should be the friend and adviser of the young concerning sex hygiene and the baneful effects of alcohol. He will be asked by mothers how to guard their children against infections. Busy practitioners of medicine are constantly being consulted, often in private conversation, by legislators and responsible citizens who seek advice on public policies in questions of child welfare, medical inspection of schools, industrial hygiene, vital statistics, or the best forms of health administration. The public welfare often hangs on a casual opinion given offhand by the overworked practitioner. Many doctors have the courage

to say they "do not know" when the question is outside the scope of their special knowledge. There is no reason, however, why all students who are now passing through the medical schools should not be well grounded in the principles of the sanitary sciences and the art of prevention, and I think this is one of the points of view clearly to be kept in mind in public health instruction in medical schools. At one time, the doctor was both priest and healer; he has always been consoler, and now has become teacher.

The social and economic bearing of disease is another point of view which must be considered. The young practitioner of medicine will soon learn to his sorrow that medical science has its limitations, and that life and health itself are often purchasable. He will find, for instance, that after he makes a diagnosis of his first case of tuberculosis, it is easy enough to give medical advice to the patient. Even the laity understands that rest, good food and fresh air are the important factors in the cure of this disease. Two difficulties, however, will at once present themselves: one, how to obtain these things, and the other, what measures to advise the family to carry out with reference to the contagious nature of the disease. Since the communicability of the disease has been recognized, it has become one of the greatest homebreakers of all the diseases. To obtain isolation, however, it is not always necessary to disrupt the family. In order to avoid unnecessary hardships and even to avert family disaster, the practitioner must at least be forewarned and understand the social phase of the situation, as well as the use of expectorants and narcotics. Again, many ailments are brought on, or aggravated, through occupation, and to render full service to his clientele, the practitioner of medicine must have a clear understanding of the occupational diseases, with reference to the needs of his patient.

The relation of the practitioner of medicine to the health department is one of the points of view which must be made clear in the medical school, and this duty falls especially on the department of hygiene. The medical profession is one of the most important links in the sanitary chain. The efficiency of any system of health administration depends on the cooperation of a trained group of skilled physicians, acting independently and collectively. The prompt recognition and reporting of cases of communicable disease are points in question, for the control of infection rests primarily on the ability of the physician to make an early diagnosis and his willingness to notify the registrar at once. Furthermore, the physician must be alive to the importance of announcing doubtful and suspected cases, and must look for mild and abortive cases of disease, as well as carriers, so that proper preventive measures may be instituted. The whole burden of correct morbidity and mortality reports rests ultimately on the medical profession. Every physician should regard himself as an agent of the health department. In return, he utilizes the health department in many of its activities, and the advantages of this relationship should be made clear in the public health course in all medical schools.

It is plain to some that, while a physician's daily duty is to care for sick individuals, his responsibility does not end here, for he must extend his services to the community. Thus, the physician today is not called in solely to treat typhoid fever, but to treat the individual in such a way that the infection will not spread. This is one of the points of view which again and again must be repeated, not only in the course in hygiene, but in other courses in the medical school, for the private physician has in truth become a public official. Physicians are wanted today who are able not only to minister to individuals while they are sick, but also to protect the family and the community.

The teaching of preventive medicine and hygiene in medical schools, then, must be used to broaden the point of view of the practitioner, to emphasize his duty to the profession and the public, and to instil into his mind the fact that he is both private practitioner and public servant; that he must qualify himself to teach the art of hygienic living, and be a leader in the community welfare; that he is teacher as well as consoler; that he must understand the social and economic bearings of disease; that prevention is part of the day's work, and that he must consider the study of health and its maintenance, as well as the study of disease and its cure, and finally that he is ex officio an agent of the department of health.

There are still other special points of view which can be given the student, even in a medical curriculum now so overcrowded that it would seem impossible to add further topics. It will be shown presently, however, that readjustments can be made to meet this situation in a satisfactory manner, and without much extra time, through cooperation with other departments.

TEACHING THE FACTS: THE COURSE ITSELF

Teaching the bare facts is perhaps the simplest, though by no means the easiest, task in a course of hygiene. The fundamental data concerning the modes of spread of the infectious diseases and the means of their prevention which science and experience have demonstrated as most efficient must obviously be included in the course. Special prophylactic measures, such as vaccination, specific inoculations, use of antitoxins and other specific protective measures should be demonstrated and practiced by the students in the course in public health, if not taught in some other department in the medical school. The essential facts concerning venereal prophylaxis and sex hygiene, as well as heredity and eugenics, should be made known to every medical student. The important facts concerning milk and other foods, air and ventilation, water purification, disposal of sewage and wastes, vital statistics, personal hygiene, industrial hygiene, health inspection of schools, disinfection and military hygiene can all be summed up concisely and sufficiently to medical students in a brief course, provided they have a secure background of the medical sciences. The course in hygiene, therefore, must come after the student has learned normal structure and function, and pathologic structure and function, including some bedside acquaintance with disease itself. We now take it for granted that all medical students have some information concerning physics, chemistry and biology before taking up medical work. With proper preparation, the course in hygiene does not require as much time as may be feared by makers of the medical curriculum, nor is it necessary to do more than touch on the high points, leaving exhaustive consideration of each subject to those who desire to specialize in public health work in elective courses or special schools.

At Michigan, Chicago and Harvard the course in hygiene comes in the second year of the medical curriculum, while at Pennsylvania, Yale and Columbia the subject is given in the third year.

The successful teaching of hygiene demands a combination of methods: lectures, demonstrations, quizzes, laboratory exercises, sanitary surveys and excursions. The lectures are perhaps the least important part of the methods of instruction in hygiene, and from forty to fifty hours are a fair allotment of time for this part of the program. Vaughan at Michigan devotes forty-eight hours to lectures and demonstrations; Park at Columbia, fifty hours to lectures and quizzes; Abbott at Pennsylvania, thirty-two hours to quizzing and discussion, and at Harvard I devote thirty-two hours to lectures and demonstrations. In the lectures, the time should be taken up with expounding the broad principles rather than the details of the subject. Hygiene touches elbows with all other subjects, and the subject therefore affords an unusual opportunity to correlate and tie together the varied information with which the student is struggling. In the lectures, also, the different points of view can be explained and opportunity taken to fire the imagination for investigation and to inspire the ideals of prevention.

The backbone of any course in preventive medicine should be the sanitary survey and the laboratory exercises. Every student at Harvard Medical School is required to take the laboratory course and to make a sanitary survey of some city or town. The value of the sanitary survey as a pedagogic instrument has been set forth previously,[1] and need not be repeated here. An outline, which is placed in the hand of each student, gives the general plan and scope of this exercise, as carried out in the Department of Preventive Medicine and Hygiene at Harvard.

SANITARY SURVEY OF A CITY OR TOWN

Each student is required to make a sanitary survey of a city or town, and submit a written report, which should consist of: (*a*) data; (*b*) interpretation of the facts, and (*c*) criticisms and recommendations.

In the crowded medical curriculum, little time can be spared for an exercise of this character. All the students at the Harvard Medical School, however, have in some way found time. A few afternoons during the course are set aside for the purposes of the survey, and we permit students to do this work Saturday afternoons, Sundays and holidays. A certain amount of the work, such as visiting watersheds and dairies, looking up nuisances, etc., is done in the spirit of a walking excursion or a picnic. Some of the best surveys are done during the summer vacation. Some of the reports prepared by medical students are splendid contributions, giving a complete account of the important sanitary and hygienic features of the place studied. Many of the surveys are enlivened with photographs showing good and bad sanitary conditions; most of them have carefully prepared charts showing morbidity and mortality rates, and some of them have a judicious summing up, with a well considered criticism of the defects in the health administration of the town. The sanitary survey has not yet been adopted generally, but sanitary excursions are made at several medical schools.

Another advantage of the sanitary survey is that it adds much interest to the course in hygiene, and helps brighten the laboratory exercises, especially for those students who sense the "practical" point of view. This correlation between the field work and the laboratory work is accomplished in part by requiring students to make chemical and bacteriologic tests of the water supplied the town they are studying. The same applies to samples of milk, air, and other specimens for sanitary analysis.

The laboratory exercises in hygiene should be selected to include fundamental exercises which give a better understanding of the major topics. Thus, each student, in addition to making a chemical and bacteriologic analysis of water and milk, should establish the phenol coefficient of germicides and do a practical exercise in fumigation; he should make a bacterial vaccine, a sanitary analysis of air, etc. The amount and nature of the laboratory work done in the course in hygiene will depend on how much is already accomplished in other courses in the school. At Harvard there are thirty-two hours of required laboratory work in preventive medicine and hygiene. The laboratory exercises in hygiene are elective at Pennsylvania, Yale, Michigan and Chicago. Laboratory work at Columbia consists of thirty hours in the course of applied bacteriology. We therefore see that the medical school should apportion about 100 hours for lectures, demonstrations, laboratory work and field exercises. Furthermore, sanitary excursions should be offered, and visits made to water purification plants, sewage disposal works, boards of health, antitoxin and vaccine laboratories, and other places of sanitary interest. At present these excursions are excursions both in name and in fact at Harvard, and although voluntary and made on Saturday afternoons, they are usually attended by practically the entire class.

COOPERATION

The department of hygiene has unusual opportunities to cooperate with other departments in the medical school and also with extramural agencies. It is quite hopeless to attempt to teach the whole range of hygiene, sanitation, public health and preventive medicine in one course, however long. The professor of hygiene should attempt to induce the professor of physiology to include personal hygiene in his course; the clinical department can be shown that it is profitable to add clinics on industrial diseases; the department of obstetrics should emphasize ophthalmia neonatorum and prenatal work; the department of ophthalmology should dwell on the causes and prevention of preventable blindness; the department of biologic chemistry should consider diet and food poisoning; pediatricians should be willing to devote sufficient time to a thorough discussion of the causes and prevention of infant mortality and child welfare; the department of psychiatry will find it congenial to include mental hygiene and the problem of feeblemindedness; orthopedic surgeons should include posture and the prevention of deformities; the outpatient department should demonstrate social work; the dental school should be called on for oral prophylaxis; the department of bacteriology can well include board of health laboratory methods; pharmacology can include the action of alcohol and the "patent medicine" evil, and so on throughout every course in the medical school. In this way, many of the facts and much of the ideals of prevention can be given medical students from different angles and with different personalities.

One of the most important functions of a department of hygiene is to stimulate interest in the subject of preventive medicine into the work of the other departments of the medical school. This cooperation has been made easy at Harvard through the School

1. Rosenau, M. J.: The Value of a Sanitary Survey in the Teaching of Hygiene, The Journal A. M. A., July 24, 1915, p. 321.

for Health Officers. Many of the members of the medical faculty give special courses in the School for Health Officers, and have shown a willingness to introduce similar exercises expounding the point of view of prevention into their regular medical school courses. Thus, Professor Edsall gives clinics on industrial diseases; Prof. Richard Cabot demonstrates social service work; Prof. W. B. Cannon discusses personal hygiene; Prof. J. L. Morse, infant mortality; Prof. E. E. Southard, mental hygiene; Prof. Reid Hunt, the pharmacology of alcohol and the "patent medicine evil, and Prof. R. W. Lovett, posture and the prevention of deformities. We also enjoy the advantages of cooperation with Professors Strong, Walbach, Ernst, Tyzzer, Mallory, Wright, and other members of the faculty.

No medical school can ever be complete enough to offer facilities to cover the entire field of public health instruction. Cooperation must be established with federal, state and city health departments, and with many philanthropic and semipublic agencies. Milk stations, baby welfare work, antituberculosis societies, psychopathic clinics, institutions for the feebleminded, water and sewage boards, hospitals for contagious diseases, board of health laboratories, quarantine stations, medical inspection of schools, and many other agencies may be utilized with advantage in teaching the subject.

Direct relations should be established especially with the health department, so that the student can see its workings from the inside, and learn at first hand what becomes of birth certificates, death certificates and reports of notifiable diseases, and how the machinery of the department of health operates in the case of nuisances. He should follow the health inspectors on one or two visits, and at least see the diagnostic laboratory, and satisfy himself as to what public health nursing accomplishes. In this way the future physician carries with him throughout his lifetime a keen appreciation of the relations of his work to that of the health department.

In many ways, the department of hygiene has an opportunity to bring the medical school and its work into direct relation with varied activities of the community which may be developed to mutual advantage.

SPIRIT OF RESEARCH

No course in public health can be regarded as satisfactory that teaches the subject with a sense of finality. The student should be left with a clear understanding that some facts seem to be well established, in that they have stood the tests of science and experience. On the other hand, he should be made to realize that a mass of near facts and half truths form the bulk of the subject; and finally, he should be led to the brink of the great unknown and there encouraged to blaze new paths. The imagination of students may often be stimulated by frank presentations of the limitations of our knowledge rather than by attractive and dogmatic expositions. Any course which does not leave in the minds of some students a desire to solve some of its problems has failed to meet its full measure of usefulness. A department of public health must therefore have adequate facilities to offer those students who are fitted by temperament to carry on investigation. These opportunities should be attractively displayed, and the young student, the younger the better, encouraged to try his dreams. The latch string on the laboratory door should hang out. Every class has a few men who will make successful research scholars and can develop the ability to add grains of truth to the sum total of human knowledge. This attitude does not apply alone to the subject of hygiene, for any department of learning in a higher institution which lacks facilities for research will be found wanting. When these facilities are present but not used the situation is pitiful, for there is nothing so contagious as example, and nothing so infectious as enthusiasm.

DEVELOPING APTITUDES

After a boy has made up his mind to study medicine, he has by no means solved his life's problem. The achievements of surgery seem first to appeal to the imagination of most medical students. After the fever to become a surgeon has subsided, medical students begin to think seriously of their career. Medicine probably has more strings to its bow than any other profession. Vocational guidance, therefore, becomes one of the functions of the successful teacher. To discover the inclinations and to develop special aptitudes, in other words, to help young man to find themselves, is one of the satisfying rewards of the teaching profession. Public health work as a career in itself is little understood within and without medical ranks. Every class in the medical school has a few students whose idealism is such that prevention of suffering makes a particular appeal; they at once become happy in the thought that they can have the privilege of consecrating their lives to public health service. The fact that the new profession of sanitation offers uncertain and inadequate material rewards at the present time does not deter those with the pioneer spirit. Such men are endowed with the missionary spirit, and it is not necessary to stimulate souls who dedicate themselves to the ideals of prevention.

Cognizance must be taken of the great changes which are now going on in medical science, medical practice, medical teaching and the relations of medicine to the community life. Adjustments and readjustments are frequently called for. The socializing of practice is marching forward with great strides. It therefore would be a great mistake to provide a rigid or inelastic course in hygiene. Medical schools should be keenly alive to these currents as they ebb back and forth, sometimes with amazing irregularity and rapidity which requires a steady hand and clear eye to pilot the ship *Hygiea* in such uncharted waters. A good pilot will not drift with the tide, but will stear a clear course and reach port, often despite head currents and adverse winds.

Putting It Up to the Legislature.—According to its *Monthly Bulletin* for March, 1917, the Connecticut State Board of Health guarantees to show one life saved for every $500 placed at its disposal. The proposition is that if the legislature grants the $119,000 asked for the board will save 236 lives within the next two years. In doing this, it is said, considerable unnecessary illness will be prevented and a great economic saving will be effected. On the proposition to save 236 lives it is said that if a human life is valued at $1,700 and it costs $500 to save one, the total saving to the state on an investment of $119,000 would be $401,200, or a net profit of $282,200. It is declared that it is the duty of the state to provide for the welfare of its citizens, and that it is also its duty to invest its funds to the best advantage. It is therefore asked whether a guaranteed dividend of 240 per cent. can be ignored.

A METHOD OF TREATMENT OF MERCURIC CHLORID POISONING*

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In recent years, undoubtedly as a result of sensational newspaper notoriety given to one or two cases, the frequency of mercuric chlorid poisoning has greatly increased. Cases of unintentional and suicidal poisoning are continually brought to notice. Naturally, the frequency of these cases has been productive of many studies, chemical, pathologic and therapeutic.

It has long been known that mercury, when introduced into the body, produces characteristic changes. Applied locally, necrosis and sloughing are produced. In the body, practically every organ is affected, the secretory and excretory organs bearing the brunt of the damage. The drug produces a cloudy swelling, leading to fatty degeneration and necrosis, frequently to hemorrhagic inflammation, and occasionally to subsequent calcification. As a part of these changes, an edema of the tissues takes place.

Kahn, Andrews and Anderson,[1] in a chemical and pathologic study of a case of mercury poisoning, have shown that the metal is present in practically every portion of the body; the largest amounts were obtained from liver, intestine, brain and kidneys, respectively.

Burmeister and McNally,[2] in a histologic and chemical study of the renal and hepatic tissue changes, have found mercury in the blood of dogs ten minutes after small doses of mercuric chlorid were introduced into the stomach. In their conclusions, they say:

> In massive intoxication, immediate renal changes vary with the size of the dose. Hepatic changes vary as the duration of the intoxication. In smaller doses, renal changes vary as the duration of the intoxication.

The classical symptoms of mercurial poisoning are: burns, as in the mouth and vagina; stomatitis; nausea; vomiting; oliguria with blood, pus and all forms of casts in the urine, or anuria; anasarca; abdominal distention, and hemorrhages from the mouth, nose, uterus, kidneys and intestine. As the condition progresses, the patient may enter into a state of muttering delirium, convulsions, coma and, finally, death.

In order to know whether or not we are really dealing with a patient poisoned with mercury, it is necessary to determine if mercury has been introduced into the system. This can be determined easily and quickly by the examination of the excretions and secretions.

Vogel and Lee[3] have described a simple method. We have used this method in practically all our determinations. It is said to be so sensitive that the presence of mercury can be detected in the sweat and excreta in the proportion of 1 : 100,000.

Of the methods suggested for the treatment of mercuric chlorid poisoning, the following are among the most important:

Anderson[4] advises hydraulic irrigation through a cecostomy wound in the effort to hasten elimination through the intestine.

Wilms[5] uses calcium sulphid by mouth and intravenously; he maintains that calcium sulphid is the chemical antidote for mercuric chlorid.

Schisler[6] reports a series of sixteen cases, in eleven of which the patients recovered. He gave from 30 to 60 grains of magnesium oxid every three hours, with plenty of water, if there was no general edema.

Previously, large amounts of water, water restriction, salt restriction, hot packs, hypodermoclysis, and proctoclysis have been used in the effort to overcome the kidney damage.

The most successful report of the treatment of mercurial poisoning is that of Lambert and Patterson,[7] who, in a series of sixteen cases, reported but two deaths.[3] Their treatment is decidedly vigorous, but apparently has been successful. They wash out the stomach twice daily and also give two colonic irrigations daily. They give the patient a liquid diet of 8 ounces of milk every two hours, to be alternated every two hours with 8 ounces of the following mixture: potassium bitartrate, 1 dram; sugar, 1 dram; lactose, ½ ounce; lemon juice, 1 ounce; boiled water, 16 ounces. To supplement this large amount of fluid given by mouth, they give a solution containing 1 ounce of potassium acetate to the pint of water continuously by rectum. The approximate amounts are not mentioned. The patient also receives a daily hot pack.

It is a known fact that patients poisoned with mercury die with all the symptoms of acute nephritis. As Fischer[8] has shown, the evidences we get of acute nephritis are merely an indication of what is going on throughout the body. Just as the kidneys are swollen, so are the other tissues swollen. When we find albumin, casts and blood in the urine, we may be reasonably sure that the other organs have undergone damage similar to the kidneys, that is, severe cloudy swelling. Anuria develops, that is, the kidneys do not pass any water along as a result of the severe cloudy swelling and edema. Then many of the symptoms appear, as nausea, vomiting and headache, probably depending on edema of the brain.

We have used this principle of colloidal swelling, as enunciated by Fischer, as the basis for our treatment. We give alkali, hypertonic salts by mouth, by rectum and intravenously. Freyhof and I have modified the old English potus imperialis.

This modification, which we call "imperial drink," consists of potassium bitartrate, 60 grains; sodium citrate, 30 grains; sugar, 60 grains, with lemon or orange juice to taste, to 8 ounces of water. This makes a pleasant alkaline drink, which is best made by placing the potassium bitartrate and sodium citrate into the lemonade just before it is used. In conjunction with this, we use intravenous injections of Fischer's solution, which consists of sodium carbonate crystals, 10 gm., and sodium chlorid, 15 gm., to 1,000 c.c. of water.

The treatment begins on the arrival of the patient, which is usually within a few hours after the drug has been taken. The stomach is washed with 1 quart of milk and the whites of three eggs, followed by water.

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1. Kahn, M.; Andrews, V. L., and Anderson, J. H.: Med. Rec., New York, 1915, **88**, 357.
2. Burmeister and McNally: Jour. Med. Research, 1917, **36**, 87.
3. Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532; Med. Rec., New York, 1916, **89**, 58.
4. Anderson: Surg., Gynec. and Obst., 1915, **20**, 736.
5. Wilms: Lancet-Clinic, 1915, **114**, 555; ibid., 1916, **115**, 460.
6. Schisler: Jour. Mississippi State Med. Assn., 1917, **14**, 173.
7. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.
8. Fischer, M. H.: Edema and Nephritis, New York, John Wiley & Sons, 1915.

A sample of gastric contents is saved for examination. Before the stomach tube is removed, 3 ounces of magnesium sulphate in 6 ounces of water are introduced and allowed to remain in the stomach. The patient is then given a soapsuds enema. The enema and catharsis rapidly open the gastro-intestinal tract, thereby aiding in the elimination of mercury. If the patient did not vomit immediately after swallowing the poison and did not reach medical aid for at least three hours later an intravenous injection of Fischer's solution is given at once in amount ranging from 1,000 to 1,500 c.c., depending on the condition of the heart of the patient. If there is no evidence of cardiac derangement, 1,500 c.c. of fluid intravenously are readily tolerated without any disturbance. Then the patient receives from six to eight glasses of imperial drink a day, and he is given large quantities of water by mouth. He is allowed a liberal diet — almost anything except an excess of protein foods.

We use the analysis of the urine as the control of the treatment. The patient should void large quantities of urine, as he is taking large amounts of fluid. We endeavor to keep the urine alkaline to a saturated solution of methyl red in alcohol, for Fischer has shown that if the urine of a nephritic cannot be made alkaline to methyl red, this patient continues in a dangerous state. An animal poisoned with mercury is at least a potential, if not an actual, nephritic. Almost all of the patients develop an albuminuria early, but this gradually, or occasionally, rapidly disappears, as soon as sufficient alkali can be introduced into the body to counteract the abnormal amount of acids produced.

We have had complications in only one patient; he developed a severe necrosis of the mucous membrane of both sides of the cheek, and later in the course of the disease he had severe intestinal hemorrhages, in all probability from the colitis produced by the mercury excreted through the bowel. Similar cases were described by Lambert and Patterson.

Up to the present time we can report on fifteen cases personally treated and ten cases similarly treated in other parts of the hospital. The series began in July, 1915, and continues to the present time.[9]

These twenty-five patients were discharged from the hospital, free from any discoverable symptoms of mercurial poisoning. There were no fatalities. The amounts taken by these patients, according to their own statements, varied from 3 to 82 grains of mercuric chlorid, all taken by mouth.

The most serious case was that of a man who took 45 grains. He came to the ward twelve hours later. He had not vomited after taking the tablets. On admission, his stomach was washed, and a soapsuds enema was given. The urine obtained by catheterization was acid to methyl red, and showed a moderate cloud of albumin with granular casts and blood, chemically and microscopically. Twelve and one half ounces of urine were obtained the first day. An intravenous injection of 2,000 c.c. of Fischer's solution was given immediately on admission to the ward.

The patient was urged to swallow as much fluid as he could, but this was very painful, as he had developed a severe mercurial stomatitis. There was a complete suppression of urine for three days following the day of admission. On the third day after admission, he was given 1,800 c.c. of Fischer's solution intravenously. Orthoform powder applied locally diminished the pain of swallowing so that he could take large amounts of milk, water and imperial drink. On the fifth day after admission, the patient voided only 3 ounces of urine, which showed many granular casts and red blood cells, and was strongly acid to methyl red. On the sixth day the patient again voided only 3 ounces. In the meantime, alkali and fluids were pushed by mouth and rectum (Fischer's solution by rectal drip). A slight edema of the ankles developed on the third day; this edema continued to increase so that on the sixth day after admission the patient's face, hands, abdomen and legs were swollen with a soft edema. On the seventh day the patient voided 136 ounces of urine; this urine was alkaline to methyl red, showed a slight cloud of albumin, and scattered granular casts and many red blood cells. Following this large voiding, the patient continued to secrete large amounts of urine, and the edema disappeared. The albuminuria continued for thirty days, after which the urine became normal chemically and microscopically, and remained so until the patient was discharged, fifty-eight days after entering the hospital. On the fourth day after admission, the patient had tarry stools, which continued until the seventeenth day of his illness. The severe course in this case was probably due to the unavoidable delay in instituting the treatment.

The following case is typical of those in which treatment was promptly instituted: A man, after drinking six glasses of beer, and omitting his evening meal, dissolved at least five 7½ grain mercuric chlorid tablets in warm water and drank the solution with suicidal intent. He thinks he vomited about fifteen minutes later. He reached the hospital two and one half hours after taking the poison. His stomach was washed with milk, eggs and warm water, and 10 ounces of saturated solution of magnesium sulphate allowed to remain in the stomach. He vomited a portion of this after several minutes, and more magnesium sulphate was given to him. He was given a simple enema, and, one hour later, an intravenous injection of 1,300 c.c. of Fischer's solution. The urine voided during the night was acid to methyl red and showed no albumin. Later in the day the urine was still acid, and showed albumin, granular and hyaline casts, and blood. Mercury was obtained from the gastric washings and from specimens of stool and urine. The first day he voided 20½ ounces of urine. He was given large amounts of fluid and six glasses of imperial drink a day. The urine remained acid, and showed albumin and casts. He was given a second intravenous injection of 1,200 c.c. of Fischer's solution thirty-six hours after admission, and five hours later the urine was alkaline to methyl red, and no albumin was found. The urine remained clear, and he voided large amounts until he was discharged twenty days after entering the hospital. This man had no complications, such as stomatitis or intestinal hemorrhages, and no disquieting symptoms.

No hard and fast rule can be laid down whether or not to give the intravenous injection, but frequently it can be omitted. If the patient has vomited within fifteen minutes after taking the poison and has taken only about 15 grains, we watch the amount of urine voided and the acidity. If the amount voided is close to normal limits and the urine becomes alkaline on the medication by mouth within the first twelve to twenty-four hours, we may omit the intravenous injec-

9. Since the article was written, we have treated three more patients, one of whom died.

tion of Fischer's solution; but if the urine continues to be acid to methyl red, the intravenous injection must be given without delay, and repeated, if necessary.

Usually the patient's urine becomes alkaline after three or four days, and remains so. The patients are kept under treatment until the urine has been constantly alkaline from ten to twelve days and are then discharged, if no complications have developed.[10]

It will be seen from the description given above that our plan of treatment is not essentially different from that of Lambert and Patterson. As our observations were begun some months before Lambert and Patterson's work appeared, and as we had obtained satisfactory results without the frequent gastric and colonic lavage recommended by them, we have felt justified in omitting it.

Clinical Notes, Suggestions, and New Instruments

TWO CASES OF PERFORATION OF THE NASAL SEPTUM DUE TO THE INHALATION OF ARSENIC TRIOXID

Benjamin Franklin Davis, Ph.D., M.D., Chicago

Recently I was consulted by a man, married, aged 35, who said that for the past four or five weeks he had been troubled with stuffiness in his nose and a slight nasal discharge; that for the past two or three weeks he had occasionally noticed a little blood on his handkerchief after blowing his nose, and that for the past week, while applying an ointment to the mucous membrane of his nose with a piece of cotton, he had been able to pass the cotton from one nostril to the other through the septum. He desired confirmation of his diagnosis of a perforation of the septum.

Examination disclosed a hole through the cartilaginous septum, about 1 cm. in diameter, not involving the bony septum. The edges of the hole were everted, hyperemic and edematous, while the raw surfaces presented a blackened worm-eaten appearance. There were no granulations suggestive of healing. The mucous membrane of the nose was moderately hyperemic and mucus laden, but not sufficiently so to prevent nasal breathing. A Wassermann test on the blood was negative. The patient denied venereal disease, and there were no suggestive lesions elsewhere on the body. The patient was a chemist and had been engaged for the preceding six months in making an arsenical preparation which involved the grinding and shoveling of from 20 to 50 pounds of arsenic trioxid daily. He said that a good deal of the work was new, largely experimental, and that he had experienced considerable difficulty in controlling the escape of the arsenical dust and fumes. At first he had been careless, but lately had used every means he could think of to protect himself.[1] He further stated that his only companion in the work also had a perforated septum. This man was under the care of Dr. H. B. Woodard, who kindly permitted me to examine the patient and to obtain blood for a Wassermann test, which was negative. The local condition in the nose was similar to that in the preceding case.

In neither of these patients were there symptoms of gastrointestinal irritation, neuritis, dermatoses, edema of the lower lids or other changes, such as one may see following the ingestion of toxic doses of arsenic. Examination for arsenic of one eighteen hour specimen of urine from one patient (Gutzeit test) was negative.

CAUSATION OF PERFORATIONS OF SEPTUM

Of the noncongenital perforations of the septum, probably the majority which the physician treats are either traumatic or syphilitic; certainly the bulk of the cases can be explained on a congenital, syphilitic or traumatic basis. In addition, some perforations are the result of careless exposure in the industries, and some, idiopathic. Dr. Frank Billings informs me that he has studied a number of cases in which, syphilis, congenital defects and trauma being excluded, it was impossible to assign a definite cause for the lesion. All were associated with atrophic changes in the nasal cavities, sometimes typical of atrophic rhinitis, and it was supposed that whatever the exciting agent may have been, the primary lesion was a vascular one.

Among cases reported from the industries, the only representatives which I have been able to find occurred among employees in bichromate factories and those who were exposed to dust rich in the salts of arsenic.

Perforation of the septum due to exposure to the salts of arsenic—the fumes produce systemic but not local effects—appears to be quite common, but the literature is scanty. Our knowledge of this condition is thus summarized by Kober and Hanson:[2]

> The most characteristic lesion produced on the upper air passages is perforation of the septum of the nose varying in extent from a circular hole ⅛ to 1 inch in diameter. Perforation may be complete in a month from the time of commencement of work. The anterior and lower margin of the cartilage and the bones to which they are attached never become involved in the ulcerative process so that deformity is absent, thus distinguishing the condition easily from that due to syphilis. Once the perforation is complete no further inconvenience is felt; not a few of the workers are ignorant of the existence of the condition.

The phase of the subject dealing with the effects of chromium has been summarized by Bamberger[3] and, more recently, by Mitchell.[4] Chrome workers are subject, in addition to the nasal lesions, to peculiar ulcerations of the skin called chrome holes. Mitchell says:

> It is generally recognized that neither in the form of dust nor in solution does the salt attack the unbroken skin. For the production of a chrome hole, it is essential that the skin be previously abraded or injured in some way, however slightly. Given such a surface, irritation is set up by the salt, and a papule or vesicle is formed, followed by a pustule. The resulting ulcer is very characteristic. It is most fitly described as a sluggish ulcer. Its edges are clean-cut, markedly indurated, thickened and undermined, and present a punched-out appearance. Its center is filled with a scab resting on a slough. When the latter is removed, the floor presents a gray, indolent appearance. . . . They are from ⅛ to ¼ inch in diameter, occurring on parts exposed to injury. . . . But the most characteristic lesion associated with the manufacture of bichromate is that found in the septum of the nose, viz., perforation. From this few chrome workers escape. It is always produced by the action of the dust.

According to Bamberger, chrome salts—referring particularly to potassium and sodium bichromate—exert a markedly irritating influence on the nasal mucous membrane. There arises in the nose a marked prickling which causes violent sneezing; then, on the septum, there appears a small ulcer which is followed, painlessly, by perforation. The hole enlarges until the entire cartilaginous septum is destroyed, when the process may heal without involvement of other regions.

Mitchell describes the same stages preceding the perforation as are found in the production of chrome holes, namely, papular or vesicular, pustular and ulcerative. Exposure of the cartilage by the ulceration destroys its blood supply, and therefore necrosis and perforation follow quite rapidly. Six months' employment in a chrome works is liable to lead to perforation of the nasal septum in the bulk of those employed.

The effects of the perforation are negligible. The ulceration ceases when the limits of the cartilaginous septum have been reached and the edges heal over. Bamberger says that

10. A more detailed report, with abstracts of cases and observations on the phenolsulphonephthalein output, will be published elsewhere.

1. In a recent communication, one of the patients writes: "It might add a little interest to say that the use of a rubber respirator was early discontinued on account of the accumulation of condensed moisture in the valve, rendering it inoperative, and the fact that the moisture on the face then reacted with the dust which entered through the valve and caused much irritation. Lamb's wool held in place by a flannel mask fitted to a canvas hood seems to be the most effective guard and at the same time the least objectionable to wear. The moisture does not condense on the face for a long time, and it is light to wear. Much of the dust is kept down by the use of oil, and all mixing is done in a ball mill."

2. Kober, G. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916, p. 5.

3. Bamberger: München. med. Wchnschr., 1902, **49**, 2144.

4. Mitchell: Jour. State Med., 1916, **24**, 18.

elderly persons and snuff takers are less liable to perforation of the septum than are the young and those who do not use snuff. Mitchell concludes:

> It remains to be said that nothing that has yet been done has served to diminish the frequency of perforation of the septum. The inconvenience caused by the lesion does not seem to be sufficient to induce men to make trial of such expedients as plugs of cotton wool in their nostrils or, as has been proposed, painting the septum with paraffin. In short, preventive measures resolve themselves into the suppression or removal of dust and fumes, attention to cuts and abrasions, periodic medical supervision and cleanliness.

The lesion in the nasal septum of chrome workers appears to be quite analogous in its development and course to that produced by arsenic trioxid in the two cases described in this report. We have yet to explain the apparently characteristic location of the perforations, that is, in the cartilaginous septum. If the observation that, in chrome workers, cutaneous lesions develop only at the site of previous injury is correct, we may find the explanation for this apparently specific localization in the experience of Rothstein,[5] who relates that he has frequently observed perforations of the cartilaginous septum in tabetics, and that these perforations are always at a part which is easily reached by the finger nail. Rothstein is of the opinion that such perforations frequently follow injury to the mucous membrane due to the habit of picking the nose. With destruction of the mucous membrane there follows necrosis of the underlying cartilage, and perforation. If we apply the foregoing to the bichromate cases and to our arsenic cases, we may construct the following hypothesis as to the probable course of events: Inhalation of the dust irritates the nasal mucosa. This leads the patient to pick the nose; in doing so he produces abrasions on the parts most easily reached, and these abrasions furnish suitable sites for the bichromate or arsenic trioxid to exert their caustic action.

These cases have been reported not only because of their interest clinically, but also because it is believed that physicians should be kept alive to the additional health hazards incident to the recent widespread development of the chemical industries in the United States.

122 South Michigan Avenue.

5. Rothstein, T. C.: Personal communication to the author.

COMPRESSED OXYGEN FOR MEDICAL PURPOSES

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On a study of the supplies purchased by the city of New York one is confronted from time to time by the different prices paid for the same or similar articles. This experience is more or less common to all attempts at the standardization of supplies and purchases.

Sometimes a large industrial demand for a product of high purity makes that product available to the medical profession at a much lower cost than has heretofore prevailed. This does not necessarily reduce the cost to the profession if that particular product is purchased through the usual channels of medical supply.

A case in point is that of compressed oxygen for medicinal purposes. The extensive use of the oxyacetylene flame for welding has created a demand for oxygen of high purity. This demand has been filled by oxygen which is either distilled from liquid air or prepared by the electrolysis of aqueous solutions. The gas manufactured by either of these methods contains at least 98 per cent. oxygen. The requirements as to purity for this gas are higher than those of the U. S. Pharmacopeia IX; "not less than 95 per cent." is the Pharmacopeial standard. The chief impurity in technical oxygen is nitrogen to the extent of 2 per cent. in oxygen from liquid air or hydrogen to the extent of 1.5 per cent. in electrolytic oxygen. Both nitrogen and hydrogen are inert gases and are harmless in these quantities as far as the animal organism is concerned. Technical oxygen of high purity is compressed to 1,800 pounds pressure per square inch in steel cylinders which deliver from 100 to 200 cubic feet of gas at room temperature and atmospheric pressure. The electrolytic gas sells at the uniform rate of $1.50 per hundred cubic feet and the oxygen from liquid air at the rate of $1.75 per hundred cubic feet.

In the year 1911 the city of New York paid varying rates from $1.53 to $45 per hundred cubic feet of oxygen for medicinal purposes. At present $5 for 75 gallons is not an unusual retail price, which is equivalent to $50 per hundred cubic feet.

There are two types of containers for medicinal oxygen in general use. For use in the wards, a cylinder from 30 to 36 inches in height and 8 inches in diameter is used. The charging pressure is from 200 to 225 pounds per square inch, and such cylinders will deliver from 75 to 100 gallons or 10 to 12.2 cubic feet, of oxygen at 70 F. and at atmospheric pressure. The city of New York is paying at present $7.50 per hundred cubic feet for oxygen delivered in city owned cylinders of the type just described.

The second type of cylinder is 22 inches in height and 4 inches in diameter, and is conveniently portable. These small cylinders are used in the so-called "pulmotor" apparatus and in rescue and safety helmets. The charging pressure is from 1,500 to 1,800 pounds per square inch, and they deliver from 8 to 12.2 cubic feet of gas at 70 F. and atmospheric pressure. The city of New York is paying $11.25 per hundred cubic feet for oxygen delivered in this type of container, the containers being owned by the city.

It is obvious that considerable saving should be effected by installing suitable apparatus for charging and recharging both types of cylinders in institutions in which oxygen is used in large quantities for medicinal purposes. A small pressure pump, pressure gages and a water level gasometer constitute the necessary equipment for charging the low pressure cylinders from a large high pressure cylinder. In order to charge the small high pressure cylinders from a large one, a special pump costing approximately $210 is necessary. In factories in which oxygen rescue apparatus is in common use, the charging of small high pressure cylinders is done on the spot. There is no reason why the same practice should not be followed in hospitals or other institutions in which the demand is sufficiently large. This would bring the cost of oxygen for medical use down to the uniform price of from $1.50 to $1.75 per hundred cubic feet, exclusive of the time and labor involved.

In order to avoid accidents it is obvious that experience with gases under high pressure and practice with the apparatus should be acquired before attempting to recharge either type of cylinder.

If it is necessary to purchase cylinders, the large low pressure type should be manufactured and tested in conformance with the Interstate Commerce Commission's Specification No. 7, and the small high pressure type should conform to Interstate Commerce Commission Specification No. 3 or No. 3 A.

Following is our tentative specification for compressed oxygen:

THE CITY OF NEW YORK SPECIFICATION FOR COMPRESSED OXYGEN

Quality.—Compressed oxygen shall contain at least 98 per cent. of oxygen by volume. It shall give no coloration when 2 liters are bubbled through a solution of potassium iodid and starch, at the rate of 4 liters of gas per hour.

Number of Tests.—On quantities of 1,000 cubic feet and more, one cylinder shall be selected at random and the contents of this cylinder tested.

Tests Waived.—On quantities less than 1,000 cubic feet, the chemical tests may be waived.

Methods of Test.—All chemical and physical tests shall be made in accordance with the Board of Estimate's standard methods of test.

Delivery.—It shall be delivered in steel cylinders which shall have been manufactured and tested in accordance with the regulation of the Interstate Commerce Commission, and the date of the last test shall be plainly legible. The capacity of the containers shall be certified by a recognized testing laboratory, and the certificates shall be subject to inspection on request.

Payment.—Payment shall be made for the number of cubic feet of gas at 70 F. and 760 mm. pressure accepted, at the price bid per cubic foot. The pressure of each cylinder shall be tested immediately on delivery and shall register at least 1,800 pounds per square inch. Cylinders registering less than 1,800 pounds at the time of delivery shall be rejected.

EXPLANATION

NOTE 1.—It is recommended that this specification apply to oxygen for medicinal use. The chemist-in-charge at the General Drug Laboratory shall transfer as occasion demands oxygen purchased under this specification to cylinders suitable for medical use.

NOTE 2.—When oxygen is to be used in laboratories for determinations of heat of combustion or for organic analysis, the following additional requirement shall be made under "Quality":

The gas shall contain no hydrogen or other combustible matter.

A CASE OF MERCURIC CHLORID POISONING, WITH SPECIAL REFERENCE TO THE LAMBERT TREATMENT

GEORGE E. BROWN, M.D., MILES CITY, MONT., AND L. W. BASKETT, M.D., BIG TIMBER, MONT.

This case is reported, not because of its rarity, but to show the effects of treatment in an apparently hopeless case, and to demonstrate the efficacy of this treatment on the kidney function, which was studied by means of the phenolsulphonephthalein test and specific gravity curve.

The treatment described by Lambert and Patterson[1] was so successful that it seems the method of choice. They emphasize: (1) the need of prolonged gastric lavage, since shown essential by the work of Lieb and Goodwin;[2] (2) colonic irrigations; (3) diuretics, in the form of a mixture of potassium bitartrate, sugar and lactose; (4) potassium acetate by proctoclysis, and (5) daily hot packs.

This elimination treatment is controlled by frequent examinations of the stomach and rectal washings for mercury. Vogel and Lee's,[3] test for detection of mercury in the excretions is recommended.

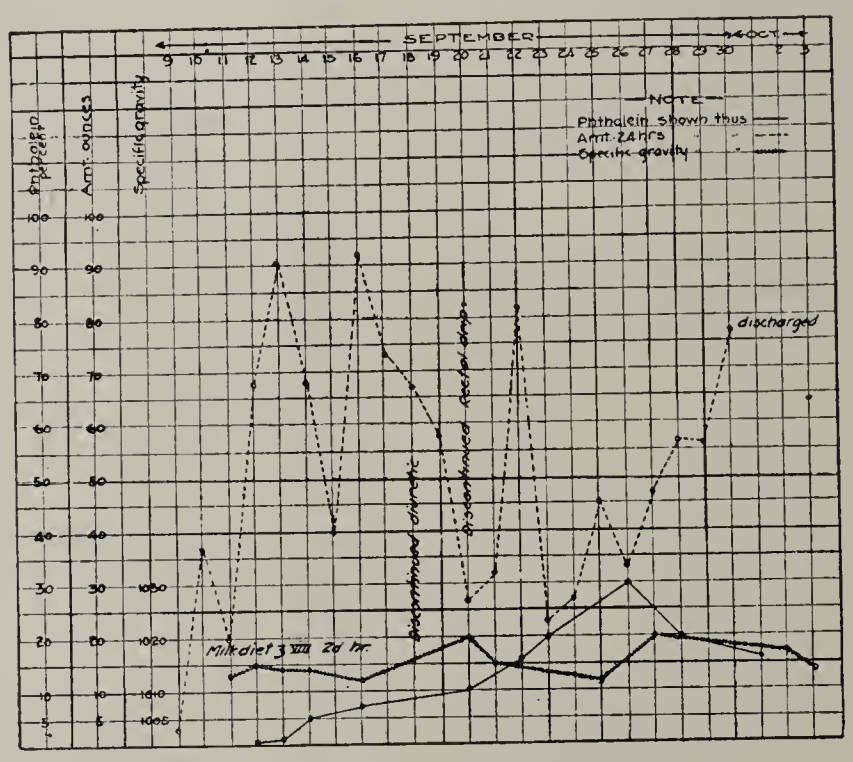


Chart showing effect of treatment of kidney function.

REPORT OF CASE

History.—F. I., woman aged 33, married, first seen by one of us (L. W. B.) 8 miles out of town, with negative family history, had never been strong. She had had five children in eight years, the youngest of whom was 10 months old. The patient finished menstruating, Aug. 31, 1916, and, following her usual custom, inserted an astringent tablet in the vagina. This tablet proved to be a 7½ grain mercuric chlorid tablet, and though it felt uncomfortable, she allowed it to remain. One hour later she felt faint, and became ill with nausea and vomiting. In about one hour vaginal pain became pronounced and diarrhea commenced. The patient was ill all night and was seen by Dr. Baskett at 10 o'clock the following morning. The vagina and the stomach were washed out a number of times. The patient continued ill for five days, with profound nausea and vomiting. The bowels moved from six to twelve times daily with bloody passages. She was seen by Dr. Baskett on the sixth day, and was brought on a stretcher to Miles City in a very critical condition. Close questioning of the patient revealed the fact that she had excreted practically no urine for two days—a few drops at the most.

Examination.—The patient was thin and pale. The pulse was 60, and of low tension. The temperature was 98. The patient was weak; she could scarcely talk or swallow on account of severe stomatitis, with bleeding at the slightest touch; this ulceration extended into the pharynx. The blood pressure was 100, systolic. The red blood cells numbered 4,160,000; the hemoglobin on the Tallqvist scale was 70 per cent. The Wassermann test was negative. The twenty-four hour urine, September 8, 3 ounces; albumin ½ volume; sugar, a trace; pus and blood were present in sediment. The lungs and heart were negative, the abdomen slightly distended. There was no edema of the extremities. On the vaginal mucosa was one large black eschar. There were ulcerative lesions of the tongue, gums and pharynx.

Treatment and Results.—The patient remained under treatment twenty-one days, and after treatment was instituted, her improvement was gradual and constant. At first she was sluggish and lethargic, but this condition improved as urinary excretion was established.

Gastric lavage was given three times a day with large amounts of warm water. One dram of potassium acetate in 1 pint of warm water was given by proctoclysis by the continuous drop method. Every second hour, 8 ounces of the following diuretic mixture were given: potassium bitartrate, 1 dram; sugar, 1 dram; lactose, ½ ounce; lemon juice, 1 ounce; water, 16 ounces. Eight ounces of milk were administered every alternate second hour.

Hot packs were applied twice daily. The colon was washed twice daily with warm water. This was continued until the stomach washings and the urine revealed no trace of mercury.

The diuretic mixture was discontinued the ninth day and the proctoclysis the eleventh day after treatment had been begun. The diet was increased on the fourth day to include cereals. The vagina was packed daily with moist boric acid packing.

Daily urine examinations revealed albumin varying from a trace to 1/10 volume. Sugar was continually present in small amounts. Pus and blood were present in sediment in varying amounts. The stomatitis cleared up slowly under antiseptic mouth washes, but the patient still had taste impairment on the day of discharge.

The effect of treatment is shown strikingly in the curves presented. The specific gravity curve reveals a low specific gravity during the most severe stage of the nephritis, agreeing with Mosenthal, who has shown that there is a marked fixation of the specific gravity at a low level only during the most severe type of nephritis. This also agrees with the studies of Lewis and Rivers. The low specific gravity is maintained in spite of the wide variations of the twenty-four hour quantity. The specific gravity three months later was 1.012.

The phenolsulphonephthalein curve shows the beneficial effect of treatment. The restoration of this phase of kidney function was gradual and constant. Three months later, a normal dye excretion was present, though at this time an increase in blood urea was found, 0.36 gm. per liter. The

1. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.
2. Lieb, C. C., and Goodwin, G. M.: The Excretion of Mercury by the Gastric Mucous Membrane, THE JOURNAL A. M. A., June 19, 1915, p. 2041.
3. Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532.

most noticeable effect of this treatment, however, is shown in the rapid increased flow of urine. Within thirty-six hours from the beginning of treatment the urinary flow had increased from 2 to 3 ounces, in twenty-four hours to 36 ounces in an equal space of time, and by the fourth day had reached 63 ounces in twenty-four hours.

The patient was discharged, Sept. 30, 1916, having been under treatment twenty-four days. Examination of renal function on this date revealed: phenolsulphonephthalein excretion in two hours, 20 per cent.; specific gravity, 1.016; albumin, faint trace; sugar, negative; sediment, few pus cells, many hyaline casts. The patient was quite weak, however, and she was referred to Dr. Baskett for further care. Her improvement was slow but constant.

Dec. 4, 1916, examination revealed: phenolsulphonephthalein excretion in two hours, 60 per cent.; specific gravity of urine, 1.012; albumin, faint trace; sugar, negative; sediment, no casts; few red blood cells; few pus cells; blood urea, 0.36 gm. per liter.

CONCLUSIONS

1. This case illustrates the importance of treatment in this type of poisoning, more particularly the efficacy of the eliminative treatment as outlined by Lambert and Patterson.

2. No case of this kind should be considered hopeless, and vigorous and accurate treatment should be started at once.

3. These are hospital cases, and the Lambert and Patterson treatment cannot be carried out with the best results unless the patients are in a hospital.

4. The importance of gastric and colonic lavage, as shown by Lambert and Patterson, should be emphasized. This treatment should be continued until no mercury can be detected in the excretion fluids.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1551)

CATHETERIZATION OF THE URETERS

If pus or blood in the urine is not positively known to come from the urethra, the source of either one or both must be ascertained, and the diagnosis of the cause will determine the treatment.

As it is not proposed in this discussion of kidney disturbances to describe diseased conditions of the urethra, bladder or the genital adnexa, urethral, bladder, prostate and seminal vesicle tests will be only briefly mentioned. The two and three glass office tests in gonorrhea should be routine. Young's seven glass test, well described by Thomas,[120] should be done from time to time in male cases to determine the source of the pus and what parts of the genito-urinary system are involved. If the case is not one of gonorrhea, then these tests should be carried out immediately as a prelude to more accurate physical examinations. It may also be stated that an organism, apparently a gonococcus under the microscope, does not positively prove that gonorrhea is present unless gonococci can be shown in cultures and unless the so-called complement-fixation test is positive. It should also be noted that the complement-fixation test does not appear until the posterior urethra is infected in the male and the cervix in the female, and then not until the disease has been present four or more weeks. If the test is negative, it does not prove that gonorrhea is not present. The fixation test may be positive weeks after an apparent cure, proving that gonococci probably are present somewhere in the organism.

120. Thomas: Am. Jour. Med. Sc., November, 1913, p. 696.

Whether gonococci have migrated to a joint, a kidney, or to some other region, a gonococcic vaccine injection may give a focal reaction of value in diagnosis. As a cure it is not a great success in acute gonorrhea or in its complications, but it may be of assistance in secondary subacute cases. An autogenous vaccine may be of supplemental value to other treatments.

Microscopic examination of secretion from a massaged prostate, culture examinations of sediment of the excretion (pus, blood, mucus and semen) obtained by an injection into a guinea-pig if tuberculosis is suspected, urethroscopy, cystoscopy, the passage of catheters into each ureter if necessary, roentgenography, pyelography, the tuberculin diagnostic test, and the Wassermann reaction should reveal the origin of pus or blood, or both, in the urine.

It is now possible to shorten the period (about six weeks) of the guinea-pig test of secretion or excretion suspected of being tuberculous. Murphy and Ellis[121] have shown that when white mice are exposed to Roentgen rays they are more susceptible to bovine tuberculosis than the normal animal, and Morton[122] of the Massachusetts General Hospital has shown that the resistance of guinea-pigs to tuberculosis is reduced by Roentgen-ray exposures. Therefore the diagnosis of suspected renal tuberculosis can be ascertained in from eight to ten days by the inoculation of a guinea-pig exposed to Roentgen rays. The application of the Roentgen ray to the guinea-pig for this object may be made in one large dose administered just before or shortly after the animal is inoculated.

The ureters rarely show primary disease, but acquire disease or disability from above (the kidneys), less frequently from below (the bladder), or occasionally from some disease or condition external to them.

It is hardly necessary to express the caution that before the passing of ureteral catheters the bladder should be thoroughly washed, lest infection be carried into the healthy ureter and to a healthy kidney. When the bladder is seriously infected, a ureteral catheter should perhaps not be passed at all unless urgently necessary.

As stated in the discussion on bleeding from the kidney, the term "essential hematuria" should not be applied unless all other causes have been eliminated, and even then surgery may find a tangible pathologic excuse for such bleeding. A previous lesion, followed by a cicatrix, and the formation of varicosities and consequent bleeding are tangible causes of so-called essential hematuria, and cases have recently been described by Payne and MacNider,[123] showing that some such cause may be at the base of many if not of all so-called essential hematurias. Of course there may be hemophilic bleeding from any portion of the genito-urinary tract without previous local disease.

PYELOGRAPHY

While in many cases the usefulness of this method of obtaining roentgenograms cannot be disputed, it should be emphasized that only by the exercise of great care is the method free from danger. It seems essential for safety that the opaque substance, colloidal silver or whatever it may be, should run into the pelvis of the kidney by gravity only and not by any

121. Murphy and Ellis: Jour. Exper. Med., 1914, **20**, 397.
122. Morton: Jour. Exper. Med., 1916, **24**, 419.
123. Payne, R. L., and MacNider, W. B.: The Surgical Problem of Unilateral Symptomless Hematuria, THE JOURNAL A. M. A., Sept. 23, 1916, p. 918.

syringe pressure. If pain occurs, the instilled substance has apparently caused sufficient distention of the pelvis to force the solution into the terminal kidney tubules.

Therefore this ultimatum of scientific roentgenography should not be resorted to unless other simple means of diagnosis have failed. If the renal excretion is shown by various tests to be decidedly insufficient, and if the patient is in a weakened physical condition, pyelography should not be attempted.

The objects of pyelography are: to locate a kidney as to its relation to some tumor; to determine positively the amount of mobility of a kidney (roentgenograms being taken with the patient standing and lying); to accentuate a doubtful roentgenogram of a renal calculus; and to determine accurately the dilatation of a kidney pelvis in hydronephrosis and in pyonephrosis.

While the normal capacity of the pelvis of a kidney is not entirely agreed on by surgeons who specialize in diseases of the kidney, testimony seems to show that any capacity below 30 c.c. (an ounce) may be normal; any capacity above this amount is generally abnormal, and some patients complain of pain after the instillation of 15 c.c. (half an ounce) of liquid. Overdistention of a kidney, whatever the size of the pelvis, and rapid distention will cause pain and may cause shock. A rise of temperature is not infrequent after pyelography. Childs and Spitzer[124] state that it should also be recognized that considerable twisting of the ureter may not be abnormal.

An efficient technic of pyelography can be acquired only by association with some expert in this line of work. It is obvious that the technic can be carried out only in a hospital with proper Roentgen ray equipment. The patient who is to undergo the examination should be physically and renally able to endure it. He should rest for two days before the operation — for it is an operation. During these two days his diet should be rather light, and sufficient purging should be caused to obtain the best picture results. Several opaque silver preparations are used in pyelography. It is not clear that any one is preeminently the best. Collargol has been, perhaps, the most frequently used, but thorium nitrate in 20 per cent. solution has more recently been advocated.[125] Whatever solution is used, it should be entirely evacuated in twenty-four hours. In some cases the silver solution has been found retained in some part of the kidney structure.

(To be continued)

124. Childs, S. B., and Spitzer, W. M.: Roentgenographic Study of the Normal Kidney, Its Pelvis and Ureter, THE JOURNAL A. M. A., Sept. 20, 1913, p. 925.

125. Burns, J. E.: Thorium—A New Agent for Pyelography, THE JOURNAL A. M. A., June 26, 1915, p. 2126; Further Observations on the Use of Thorium in Pyelography, ibid., Feb. 17, 1917, p. 533. Braasch and Mann: Am. Jour. Med. Sc., September, 1916, p. 336.

Inauguration of First Aid Service.—Under John Moore (1826-1907), surgeon-general during 1886-1890, instruction in first aid was inaugurated in the service in 1886. This was one of the most important steps for the welfare of troops, in connection with which the first aid books of Dietz, Smart and Pilcher were published and the Hospital Corps of the United States Army was organized by Act of Congress in 1887, resulting in the drill manuals of Pilcher, Heizmann, Hoff, Havard, Woodhull and Dietz.—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *The Scientific Monthly*.

Special Article

THE MEDICAL OFFICER OF THE ARMY

VII

ADMINISTRATIVE CONTROL IN TIME OF WAR

In time of war, the activities of the military establishment embrace the service of the interior and the service of the theater of operations. The service of the interior is directly under the secretary of war and the bureau chiefs. In this area, from the medical standpoint, several important functions are included. The general hospitals are situated in this section. They are directly under the surgeon-general, and their medical administration is handled by his office. These general hospitals are similar to civil hospitals, in that they use buildings, giving them a permanent status, and the character of the cases treated is similar to those encountered in civil life. Here are chronic diseases, permanent or semipermanent crippling from wounds, and all cases which will require long treatment for the recovery of the patients. If a large number of these hospitals are required, undoubtedly many civil institutions will be used for the purpose.

The physical examination of recruits of all kinds is carried out in this area. This particular work, as may be imagined, will be extensive when the new conscript army is brought into being. The medical service of the concentration camps, and the organization and training of new ambulance and field hospital companies will take place in this territory, and the administration will be directly under the War Department at Washington.

THEATER OF OPERATIONS

The service of the theater of operations comprises all that territory covered by the actual movement of the troops in the field. This service is directly and entirely controlled by the commander of the armies in the field, and his chief surgeon has direct administrative control over the sanitary troops in this army.

SUPPLY AND OTHER TRAINS

The most important administrative departments for the army in the field are those which are concerned with the supply of this army. With the division are the following supply trains: the combat train, field trains, ammunition trains, sanitary trains, supply trains and engineer trains.

The combat train consists of a certain number of wagons attached to each regiment which follow directly after this regiment on the march. They carry only ammunition, entrenching tools and reserve medical supplies. When an engagement is imminent, this ammunition and the other supplies are issued to the command, and the empty wagons go to the rear to be refilled. The pack mule which is assigned to each regiment for the transportation of sanitary supplies is attached to this train.

The field trains carry the baggage and rations of the regiment; on the march, however, they do not follow the regiment, but are back in the rear with the trains. When camp is reached, these wagons return to the regiment so as to provide for the proper distribution of rations and other supplies.

In the column of trains, the supply trains follow usually directly after the sanitary trains. The latter have been treated in a previous article, so will not be

considered here. The supply trains carry extra forage and rations for the division so that a sufficient supply can be kept on hand at all times.

The engineer trains carry the pontoon and pioneer equipment of the engineer corps. The ammunition train, which always heads the column of trains, carries the reserve ammunition for the division.

When on the march these trains are under command of an officer detailed as commander of trains, and he has complete control over them. When their services are needed, or an engagement is imminent, the sanitary trains are immediately released from his command and placed directly under the division surgeon.

When the field trains are emptied, they proceed to a point designated in orders called the refilling point, and there are refilled from the supply train, and in turn the supply train is sent back to the head of the line of communications, which is called the distributing point, to be supplied. This method of handling these trains prevents the field trains from ever becoming greatly separated from their regiments.

The medical supplies needed for the division are brought up on the supply trains in the same way that forage and rations are handled, and when brought to the refilling point are turned over to the sanitary units which carry the reserve sanitary supplies for the division.

The source of these supplies is not always the base, but the country through which the army is advancing is required to furnish a certain amount of necessary supplies to the troops. This is called supply by requisition. This is of interest from a medical standpoint, in that all obtainable sanitary supplies are also requisitioned from this territory.

LINE OF COMMUNICATIONS

The line of communications is, of course, under command of the commander of the line of communications; but the length of this territory is such that he cannot control it without proper assistance. To provide for a more efficient administrative control, the area is divided into two sections, the base section and the advance section. Each of these sections is handled by an assistant chief of staff, who represents the commander of the line of communications in that section.

The handling of sanitary supplies and the evacuation of the sick and wounded are in the hands of a medical officer assigned to each of these sections. The official titles of these officers are surgeon of the advance section of the line of communications, and surgeon of the base section of the line of communications. The surgeon of the base section of the line of communications is also the technical adviser on the staff of the commander of the line of communications. Sanitary supplies are pushed forward, and the sick and wounded are evacuated to the rear directly under the control of these officers, and they are responsible for the efficient handling of this service. Failure in performing their duties in a proper manner could not be tolerated for one moment. The actual existence of the army depends on the efficient handling of the supply and sanitary service, and the general public never realizes how much depends on the work of these officers, working without hope of glory or reward.

HOSPITAL TRAINS

The service of military railroads which handles hospital trains, though under the commander of the line of communications, is directly controlled by the director of military railroads, who is an engineer officer detailed for the purpose, and all movements of hospital trains are carried out under his immediate orders. These trains run on regular schedules, and officers who may be placed in charge of such trains should remember that it is extremely important that the schedules laid down should be followed carefully and delays in entraining and detraining cannot be tolerated.

MILITARY POLICE

Another department of the military service which is of interest to the medical officer is the military police. This is composed of officers and soldiers detailed for the purpose, and has complete control of the territory immediately in the rear of the fighting line. Its function, in addition to regular police work, is to gather in stragglers and take care of prisoners of war. The medical department is interested in this service, for malingerers in the stream of wounded coming from the front, and all wounded prisoners of war, are ultimately turned over to the military police.

THE GENEVA CONVENTION

In the back of the "Field Service Regulations" are a number of appendixes. The one that concerns the medical officer is that which gives the text of the Geneva Convention.

[NOTE.—This concludes this series of articles. They will be reprinted in pamphlet form slightly modified and extended. The pamphlet will also include "The Medical Corps of the Army as a Career," by Major Robert E. Noble; Instructions to Officers of the Medical Reserve Corps, concerning procedure when called to active duty, and the text of the Geneva Convention.]

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

KEPHALIN-ARMOUR.—The hemostatic phosphatid obtained from spinal cord and brain tissue. It is essentially the same as Brain Lipoid (New and Nonofficial Remedies, 1917, p. 125).

Action and Uses.—See New and Nonofficial Remedies, 1917, p. 124, under "Fibrin Ferments and Thromboplastic Substances (Kephalin)."

Dosage.—0.1 to 0.2 per cent. suspensions of kephalin-Armour in sterile physiologic sodium chloride solution is applied freely to bleeding or oozing surfaces.

Manufactured by Armour and Company, Chicago.—No U. S. patent or trademark.

The brain and spinal cord of mammals is desiccated in vacuo and the crude phosphatids extracted by means of petroleum ether. This liquid is concentrated and then precipitated with an excess of acetone. The precipitate is extracted with acetone and then with alcohol. The residue is dried and dissolved in ether and the ether solution evaporated to dryness at a low temperature.

Kephalin-Armour is an amorphous, yellowish substance of characteristic odor and taste. It is readily soluble in ether and chloroform, slightly soluble in alcohol and insoluble in acetone. In neutral aqueous solution it forms an opalescent emulsion. The blood clotting properties of kephalin-Armour are not destroyed by boiling aqueous suspensions of it.

One part kephalin-Armour will coagulate 1000 parts oxalated blood plasma in from one to two minutes when tested as follows: 1 Cc. of a 5 per cent. solution of kephalin-Armour in ether is added to 25 Cc. of physiological sodium chloride solution and the mixture shaken until a uniform suspension results. 5 Cc. of this suspension is mixed in a large test tube with an equal volume of blood serum. Ten Cc. of oxalated blood plasma (1 Gm. sodium oxalate in 100 Cc. water added to 900 Cc. fresh blood) are then added and mixed by inverting the test tube twice. The mixture is rapidly transferred to a shallow porcelain dish: it should curdle in from one to two minutes. All solutions used in the preceding test should be made freshly and the temperature of the liquids and the porcelain dish should be maintained at 38 C.

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SATURDAY, JUNE 2, 1917

THE DUTY OF THE MEDICAL PROFESSION IN THIS WAR

This is the most destructive war the world has ever experienced. Indeed, it is more than a war. It is a cataclysm in the progress of civilization. In its effects on man it is comparable to the great geologic epochs which have endangered the existence of the race and profoundly modified the development of civilization. Whatever may be the results of this titanic struggle, the trend of man's evolution must be profoundly altered. Ultimately, it may result in benefit to the race; or it may lead to deterioration. Our success, with that of our allies, is essential to the welfare of the world. Defeat would mean not only disaster to ourselves, but the retrogression of all nations. We are fighting to protect our nation against a ruthless aggressor; to aid England, France and Italy, whose ideals are in harmony with our own and who up to the present have been fighting our battles; to restore desolated and ravished Belgium and Serbia; to assist Russia in her struggle for liberty, and to give freedom to the great masses of the German people themselves. The cry for help that comes to us from our allies should cause us to respond with our greatest effort, directed by our highest intelligence, and stimulated by our most unselfish desires.

In this great struggle the medical profession has a part to play second to that of no other group of men. The medical profession has had its peculiar duties and obligations in all wars, but especially in this war. The medical service is the branch of the army whose functions are concerned almost solely with the amelioration of the horrors of war. Our European confrères have shown themselves worthy by their ready enlistments, by their high skill and intelligence and by their altruistic devotion. The high rate of medical corps fatalities testifies to this. Practically every physician in France is in the army, either with the combatants or on detail to take care of civilians; but in either case he is absolutely at the command of the military authorities. There are today practically no private practitioners in France. Every medical man is subject to order, and is working not in his own interest, but in the service of the state. In England the profession has been so reduced that at present there is only one practitioner for every 4,000 population in densely peopled districts, and one to 2,500 in the more sparsely occupied areas, and even these are now subject to call.[1] There the organized profession itself has sole charge of supplying the army with medical officers. This has been, and is still, being done without the necessity of a draft among physicians, except the draft which is exercised by the profession itself. Let there be no slackers among us!

Let there be no slackers! But, also, let there be none to offer themselves, provisionally, asking that they be favored in this, that or the other way. In promoting to higher ranks, the Surgeon General undoubtedly will avail himself of the best information concerning each man's fitness, and in assignment to duty the same care will be exercised. An internist will not be assigned to operative work, nor will a sanitarian be expected to take the place of an ophthalmologist. Individual preference and special fitness, we may rest assured, will receive full consideration in all cases. But it must be remembered that the exigencies of the situation may demand, at times, that the medical officer sacrifice his personal and professional pride and do a service which he may consider a drudgery. This sacrifice he should be willing to make for his profession's honor and for his country's good.

A few prominent men have expressed great disinclination to be assigned to the physical examination of recruits. Yet no more important function falls to the lot of the medical officer than this work. Every physically unfit man in the enlisted ranks is not only a dead weight to be carried for the present, but also a potential burden on the pension lists to be borne in the future. So far as possible, the final examination of enlisted men in the concentration camps will be made not by individual medical officers, but by boards of experts. On these boards there should be men skilled in the recognition of surgical, circulatory, genitourinary, dermatologic, pulmonary, neurologic, ophthalmologic and otologic defects. If an army of 1,000,000 men is to be assembled, two or three times this number may need to be examined. These examinations must be carefully, scientifically and conscientiously made. No greater honor and no greater responsibility can come to a medical man, eminent in any of the specialties, than to be placed on such a board. No such opportunity—rich in material from among our diversified population, important to the success of our cause, valuable from a scientific point of view, worthy of the

4. Draft of Physicians in England, THE JOURNAL A. M. A., May 19, 1917, p. 1483; Compulsory Mobilization of the English Medical Profession, p. 1486.

high skill of the specialist—is likely to come again to the medical profession.

The war in Europe has wrought great havoc; it has destroyed millions of lives, has maimed and crippled many men, has littered the fields with shells of destruction, dismantled cities, and crumbled into dust some of the most stately edifices, both secular and religious, ever conceived in the brain of man or reared by his hands. Civilization is not to be lost, and the upward progress of the race is not to be permanently arrested. The potent saving factor in this great catastrophe is scientific medicine. Had disease followed these great armies in like proportion as it accompanied smaller armies in the past, the better part of civilization might have been lost. But in all the belligerent countries medical science has stayed the pestilence and coped successfully with typhoid, typhus, plague, cholera and other infections which in the past often wrought greater havoc than war and determined the fate of nations. The obligation has come to us. Let us lay aside our individual interests, forget our personal desires and professional ambitions, and with one accord proceed in the execution of the duty that lies before us.

LIMITATIONS OF THE WHITE BEAN AS A DIETARY COMPONENT

Although legumes of various sorts have been familiar food products from early times, they have never formed the prominent staple of the dietary of large groups of people in the same sense that wheat or rice or other cereals have long been the "backbone" and chief ingredient of the ration of great masses in different parts of the world. At the present time, however, when all available sources of nutriment are being carefully taken into account and when the item of comparative cost is directing attention to every possibility in the way of food sources, the relatively low priced legumes, such as beans, are receiving serious consideration as an efficient supply of valuable nutrients.

The legumes, as peas, beans and lentils, are characterized by being decidedly richer in protein than are other vegetables. Moreover, they are easily preserved dry, a state in which they are of apparently greater fuel value than meats, judging by proximate analysis alone. Legumes in the green state are generally regarded as more readily digestible than the dried products. Although dried beans, for example, bear the reputation of being undesirable as a prominent component of the daily diet, such impressions receive scant consideration in times of stress from many of our food dictators.

Actual digestion trials on man are not wanting in the case of beans. When beans have formed about one quarter of the ration, the utilization of the protein has been estimated in American experiments at less than 80 per cent., a figure decidedly lower than that obtained for the proteins of meat, eggs or milk. In Oshima's[1] compilation of Japanese investigations, an average digestibility of 65 per cent. is reported for beans. These legumes contain celluloses and hemicelluloses, carbohydrates which are entirely or for the most part indigestible. To the interfering presence of these components the lowered digestibility of white beans has usually been ascribed. Mendel and Fine,[2] who have made extensive studies in this field, have pointed out that the unfavorable results can be explained in part only on the basis just referred to. Isolated bean protein, free from the supposedly interfering cellular detritus, does not appear to be satisfactorily utilized in the alimentary tract; and in feeding experiments by Osborne and Mendel[3] with purified phaseolin, the chief protein of the bean, the nutritive results were highly unsatisfactory when this product formed the sole source of the nitrogenous part of the diet.

An important contribution to the problem of the biologic value of the white bean of commerce has just been made from the laboratory of agricultural chemistry at the University of Wisconsin by McCollum, Simmonds and Pitz.[4] Experiments on rats, the best guide as to what may be expected in respect to the nutrient possibilities of a ration, have shown that caution is necessary in advising an extensive use of beans to supplant other protein rich foods in the diet. The Wisconsin investigators remind us that the hasty substitution of legumes as a class for the apparently more expensive sources of protein, meat, milk and eggs, may be misleading. Modern investigations of proteins by chemical and biologic methods have made it clear that from the dietetic standpoint the term "protein" cannot be loosely employed as it was formerly. "Protein is of biologic value only in so far as it yields appropriate proportions of essential amino-acids."

Some of the facts bearing on the problem are illuminating. When the protein of the ration was derived solely from beans there was a high mortality among animals thus fed, and pronounced stunting was observed in all. Small supplements of acknowledged superior proteins like the casein of milk may bring some improvement; but a high content of beans in the diet appears to exert an injurious effect in any event. McCollum, Simmonds and Pitz have provisionally adopted the view that their subjects were mechanically injured by the distention of the digestive tract, due

1. Oshima, K.: Bull. 159, U. S. Dept. Agric., Office Experiment Stations, 1905.

2. Mendel, L. B., and Fine, M. S.: Studies in Nutrition, IV. The Utilization of the Proteins of the Legumes, Jour. Biol. Chem., 1911-1912, **10,** 433.

3. Osborne, T. B., and Mendel, L. B.: Beobachtungen über Wachstum bei Fütterungsversuchen mit isolierten Nahrungssubstanzen, Ztschr. f. physiol. Chem., 1912, **80,** 307.

4. McCollum, E. V.; Simmonds, N., and Pitz, W.: The Dietary Deficiencies of the White Bean, Phaseolus Vulgaris, Jour. Biol. Chem., 1917, **29,** 521.

to the extent of fermentation processes after eating liberally of beans. The latter contain much carbohydrate of the class of the hemicelluloses, for the digestion of which the higher animals have no provision. These hemicelluloses are, however, readily attacked by micro-organisms inhabiting the digestive tract, and their fermentative decomposition is accompanied by the liberation of a great deal of gas. That this is largely responsible for the injurious effects following high bean feeding is supported by the marked tympanites observed regularly in experimental animals eating rations high in beans. It is further suggested by the Wisconsin investigators that partial asphyxiation of the walls of the intestinal tract through interference with circulation caused by excessive stretching is the principal factor in debilitating the animals, but the low quality of the proteins is a contributing factor.

Another disadvantage of the white bean lies in its content of inorganic salts, which does not support growth. Additions are essential to make it suitable. These can be secured by the appropriate use of other foods; but in such matters expert advice is necessary when the ingredients of the diet are somewhat restricted as to variety. One advantageous feature of the white bean deserves special mention. It is rich in the as yet unidentified water-soluble vitamin that plays an important part in nutrition, although it is quite as deficient as are the cereal grains in the fat-soluble vitamin so prominent in butter fat and so useful in promoting growth.

It will be recalled that those who support the dietary theory of the origin of pellagra urge the inclusion of fresh animal foods and leguminous products in the diets intended to prevent the genesis or recurrence of the disease. Until more information is forthcoming, caution in the extensive use of white bean protein is advisable. Thoroughly cooked beans may act as a very desirable source of water-soluble vitamin despite their shortcomings on the protein side. Many natural foods contain this, however. We agree with McCollum and others that "the evidence at present available points to the conclusion that the bean proteins are decidedly inferior to those of meat, milk, eggs, and the cereal grains which have thus far been carefully studied, viz., wheat, maize, oat, and rice kernels." On the other hand, it would be an unjustified generalization to put all legumes in the same category and under the same ban as the white bean. Peas, peanuts, soy beans and other legumes deserve to be tested with equal care. The chief occasion for extreme caution lies in the possible dangers. Inclusion of undue amounts of beans in the rations of persons restricted to what is supplied to them, as in the case of armies, navies, prisons, asylums, etc., needs to be carefully considered by those who understand some of the facts which have just been rehearsed, and who have the confidence and courage to act in accordance with the lessons of science.

THE CLASSIFICATION OF STREPTOCOCCI

The important rôle that streptococci play in a large number of acute infectious processes has made the classification of the various strains of this group of micro-organisms a problem of great consequence from the standpoint of the clinician. An examination of the morphologic, cultural and biologic peculiarities of races of streptococci from different sources indicates that differences exist between certain strains, but it is difficult to determine the significance of these variations. In spite of exhaustive studies by a large number of investigators, little progress has yet been made toward the development of a practical basis for differentiation. It seems that instead of attempting to simplify and standardize the various proposed methods now in use, there has been a tendency to develop a great number of complicated technical classifications which may have confused rather than clarified the problem. Perhaps the most important contribution to our knowledge of the streptococcus group from the standpoint of the classification of the different strains was made in 1903 by Schottmüller, who introduced the blood agar plate method of culture. By the use of blood agar plates two distinct types of streptococci were differentiated on the basis of characteristic metabolic functions — hemolytic streptococci, which produce active hemolysis but no methemoglobin, and green-producing streptococci, which convert oxyhemoglobin to methemoglobin without causing appreciable hemolysis. Schottmüller called these types *Streptococcus longus pathogenes seu erysipelatos,* and *Streptococcus mitior seu viridans,* respectively. Subsequent investigators have confirmed and extended Schottmüller's work, and it has been observed that these two classes of streptococci usually give rise to different types of infections. The blood agar plate has become indispensable in the study of streptococcus infections, but the lack of standardization of this method still hampers its usefulness to some extent.

Another means of differentiation of streptococci that has gained sufficient prominence to become a routine procedure is based on the fermentation reactions of the different strains. Gordon, Hiss, Andrewes and Horder, and many others have attempted to classify streptococci on this basis, but the existence of numerous variable and anomalous strains, and the use of a diversity of methods have interfered with the establishment of definite types. Recently, however, Holman[1] and Blake[2] have suggested a combination of this procedure with the blood agar plate method, and their results are more encouraging. This is especially true of Blake's work, for his classification is more practical since he advocates besides blood agar the use of only two fermentable substances — lactose and

1. Holman, W. L.: The Classification of Streptococci, Jour. Med. Research, 1917, **34**, 377.
2. Blake, F. G.: The Classification of Streptococci, Jour. Med. Research, 1916, **36**, 99.

mannite. But standardized laboratory procedures for the differentiation of streptococci on the basis of fermentative reactions must be introduced generally before this method can be of help in the clinical study of pathologic conditions in man caused by streptococci.

To be of clinical value, a method of differentiation of varieties of bacteria must yield concrete information as to the source of the organism, and the type of pathologic process with which it is associated. On the other hand, such a method must not demand highly expert laboratory skill; a limitation of cultural tests as well as avoidance of complex classification are necessary. At this time a standard blood agar plate method such as recommended by Becker,[3] Holman, Blake or others is the only approach to a method that in any way fulfils these requirements so far as streptococci are concerned. As stated, the two types of streptococci thus differentiated have definite and characteristic metabolic functions. Furthermore, they differ in pathogenic properties — the hemolytic type usually being parasitic and highly virulent, while the green-producing type is often saphrophytic or of relatively low virulence, at least when judged by the time required for certain infections to reach a fatal end. Hence, the blood agar plate culture in streptococcus infections may yield valuable information. There still remains the hope that a differentiation of streptococci on the basis of their immunity reactions, similar to that developed for pneumococci and other organisms, may be accomplished. There is convincing evidence already at hand which indicates that the antigenic properties of the hemolytic and green-producing streptococci are quite different, a fact that should encourage intensive study along these lines. In the study of the immunologic differences of races of streptococci, refinement in the preparation of antigens might be of great help.

3. Becker, W. C.: The Necessity of a Standard Blood-Agar Plate for the Determination of Hemolysis by Streptococci, Jour. Infect. Dis., 1916, **19**, 754.

THE ORIGIN OF RED BLOOD CORPUSCLES

According to a current dictum in histology, the mammalian red blood corpuscle is a cell which has lost its nucleus. At an early period in fetal life the blood-forming function appears to be associated with the fetal liver. In the "blood islands" of this organ, nucleated erythroblasts are believed to be formed rapidly by karyokinesis. The primitive spleen also assumes a small portion of the hematopoietic function, which, however, does not appear to persist in these organs much beyond the term of intra-uterine life.

With the appearance of the red marrow of bone, the work of blood formation is transferred in increasing measure to it. Here this activity seems to be continued throughout adult life, being much accelerated after hemorrhages and in certain pathologic conditions. It is generally stated that in their primitive condition all red blood cells are nucleated — erythroblasts, of a biconvex rather than a biconcave shape. Groups of such nucleated, colorless erythroblasts are found in the red marrow. These cells, according to the textbooks, multiply by karyokinesis, and the daughter cells eventually produce hemoglobin in their cytoplasm, thus forming nucleated red corpuscles. Subsequently, according to the present conception, the nuclei of these cells are lost and the newly formed non-nucleated red corpuscles are forced into the blood stream. In fetal life, and in certain pathologic conditions in which blood formation is greatly accelerated, the process is said to occur with sufficient rapidity to permit the immature erythroblasts to gain entrance into the general circulation. The red blood cells of the earliest fetal circulation are, therefore, all nucleated; those of later fetal life are nucleated in decreasing proportion; while in healthy extra-uterine life only mature non-nucleated forms ordinarily occur in the general blood stream.

It remains to inquire how, on this hypothesis, the nuclei disappear from the cells as described. Some regard the process of disappearance as an extrusion; others as a disintegration or solution. In attempting to observe the different stages of the development of the normoblasts into a true red corpuscle by means of a living culture of red bone marrow, Tower and Herm[1] have been led to question the validity of the current descriptions. Instead of witnessing a normoblast remodeled into a non-nucleated corpuscle by losing its nucleus, they saw this normoblast send out non-nucleated straw-colored bladders from its nucleus, these bladders finally separating off as true red corpuscles. This process was not confined to the normoblast type, but was evident in the lymphocyte series of white cells. Moreover, observations show that the normoblasts in the mammal (cat) and the red corpuscles in the bird (chick) arise from white cells by an intranuclear activity, and at the time when they first emerge from the parent cell they are almost indistinguishable from each other.

The novelty in these studies may be thus summarized: The mammalian red blood corpuscle is a nuclear bud which escapes into the circulation as the true red cell. The mammalian normoblast and the red corpuscle of the bird are the product of intranuclear activity and are phylogenetically identical. Phagocytosis of red cells by the giant cells (megakaryocytes) in normal blood-forming tissues is by no means common. The true process is undoubtedly the manufacture and not the destruction of red cells. When it is recalled that a continual disintegration of a certain proportion of red corpuscles in the blood stream is today postulated as an essential factor in the production of bile pigments, it follows as an inevitable consequence that new erythrocytes must also be forming continually. The investigation of a process thus

1. Tower, R. W., and Herm, C. F.: The Intranuclear Origin of the Mammalian Red Blood Corpuscles Observed in Living Cultures, Proc. Soc. Exper. Biol. and Med., 1916, **14**, 51.

prominent is fundamental to any adequate conception of hematopoiesis. That a new method of study has raised new problems in regard to the process under investigation is characteristic of progress in scientific research.

EPIDEMIC MENINGITIS

Epidemic meningitis is spread in the same way as diphtheria — by contact with the sick and with carriers, meningococcus carriers. As pointed out a week ago, the meningococcus carrier is of far greater importance in spreading meningitis than sick patients. In the case of diphtheria it is the rule everywhere that proper preventive measures are enforced to control diphtheria carriers until they are free from bacilli. Similar measures should be enforced in the case of epidemic meningitis, not only in the case of troops or in camps, but also in civil communities.

Meningitis is a fearfully destructive disease, and no step that tends to limit its spread should be omitted. Wherever epidemic meningitis appears, the patient and carriers should be segregated immediately! In the treatment of epidemic meningitis the immediate intraspinal injection of specific meningitis serum is absolutely indispensable. Such injections, preceded in each case by the withdrawal of the cerebrospinal exudate, should be continued daily, or practically daily, until the condition of the patient no longer requires specific treatment. English observers (Foster and Gaskell) lay great stress on the value of frequent removal of the cerebrospinal exudate even when the serum is not injected; but whenever serum believed to be reliable is available, it is not doing the most we can in the situation to omit its intraspinal injection. Unfortunately, as shown by experiments in England, some of the serum as obtained under market conditions seems to be without sufficient virtue to have any curative effect. In this respect we still are at the mercy of the manufacturers, unless fortunate enough to be able to secure the serum from institutes for research, such as the Rockefeller Institute for Medical Research or the research laboratories of the board of health of New York City. There has been, and is still, urgent need for efficient methods of standardization of antimeningococcus serum.

When recruiting on a large scale begins, it may be advisable, in view of the wide spread of epidemic meningitis at present, to search for and segregate carriers among new recruits, especially those coming from districts where meningitis is prevalent. This work, if done as it should be, will require specially trained men. In addition to the training given at the Army and Navy Medical Schools, the Rockefeller Institute has arranged to give intensive training to medical officers in this work and offers to the government experienced members of its staff who will undertake the work in the field. Other institutions of research have made similar offers.

It cannot be too strongly emphasized that the bringing together of large bodies of men from various parts of the country involves the serious menace of the development of this disease. The disease can be prevented, provided the right measures are adopted. Such measures include a careful survey of the localities from which the men come, as to the prevalence in those localities of epidemic meningitis; a systematic search for carriers; the retention of all carriers until free from meningococci; early diagnosis and immediate isolation of patients with repeated intraspinal injections of serum, including withdrawal of the exudate.[1]

Current Comment

THE BASE HOSPITAL UNIT

After war was declared the first call on this country by its allies was for medical officers. We were prepared to, and did, respond; and we were able to do this simply and solely because we had the base hospitals organized, equipped and ready to respond. In a word, because this new idea of preparedness had been carried out, we were prepared to respond to this emergency call; otherwise we should not have been. The idea of forming these base hospitals was original in this country and has been carried out nowhere else. In October, 1915, Dr. George W. Crile suggested and thoroughly outlined the whole general scheme of organization. This received the instant approval of the American National Red Cross, through Col. Jefferson R. Kean. The idea was taken up with enthusiasm, and in many cities in which there were institutions that could further the proposition the foundation of these base hospitals was undertaken. There were seven in the course of enrolment in May, 1916, with two others prospective. By May, 1917 — one year later — there were available for use by the United States Army thirty-eight base hospital units practically equipped and ready with brief training for active duty. At the present time four of these base hospitals are in England or France; two others are en route and possibly by the time this appears will have arrived in England, and four others are about to go. As has been stated, the conception of an organization drawn from an existing civil hospital, whose personnel would embrace the best medical and surgical talent, is a new one. It is this idea of a group of men already acquainted and working together in civil life being transported to the field of action — in this case to a foreign country — where they still work as a unit, that makes the scheme so valuable and practical. It is the conception of a smoothly running machine picked up in all its perfection and transferred to a new location, where, almost by the simple turn of a switch, the entire machine is again in working order. Two men especially deserve the credit — Dr. Crile for suggesting the idea, and Colonel Kean of the American National Red Cross for carrying it out.

1. In connection with this matter see the remarks of Dr. Flexner under "Medical Mobilization and the War."

ANAPHYLAXIS TO SERUM

The use of antitoxic or curative serums in the past has occasionally been attended with disagreeable anaphylactic symptoms — serum rashes, etc. — which have been almost impossible to foretell and difficult to combat. The refinement of antitoxic serums, recently introduced, has lessened the incidence of the undesired reactions, and thus has emphasized the probability that the manifestations of anaphylactic sensitization and the therapeutic properties are not necessarily associated with the same components of the serum. Studies of the chemistry of serum have clearly indicated that the antitoxins are not a common property of all the blood proteins of immunized individuals, but either belong specifically to definite proteins or are associated in some way with special protein fractions. It is the recognition of this fact which has made the concentration of antitoxin so successful.[1] In attempting to free antitoxic serums from the dangers of various anaphylactic phenomena, it has naturally been asked whether the different proteins of the serum play a different part in the anaphylaxis to foreign serum. Do all of them have an equivalent or even common antigenic function? Such questions of immunologic specificity are not new; they have been answered definitely in the case of certain proteins in a way to suggest that the antigenic distinction is possibly dependent on such properties of the different proteins as may be open to the ordinary methods of chemical and physical inquiry, rather than on some mysterious biologic relationship. The work of Wells and Osborne[2] has contributed fundamentally to the establishment of such anaphylactic specificity on a chemical basis. That every sensitization with whole serum is in reality a complex multisensitization has been indicated anew by recent observations conducted for the British Medical Research Committee by Dale and Hartley.[3] These show that each of the three proteins separable from horse serum by their physical and chemical properties — euglobulin, pseudoglobulin, albumin — can act as an anaphylactic antigen. Complete separations of such serum proteins is extremely impracticable, if not actually impossible at present. On the whole, however, the evidence seems in favor of the view that the different proteins of a serum, so far as they can be obtained pure from one another, act as independent anaphylactic antigens. A practical feature of this work may be alluded to here. Dale and Hartley remark that since all the proteins of a serum can act as anaphylactic antigens, it is evident that the ideal to be aimed at, in concentrating the curative element in a specific immune serum, is simply the reduction of the ratio of total protein to antitoxic value; for the purpose of reducing serum reactions, the elimination of albumin seems to be as important as that of euglobulin, when the pseudoglobulin is the fraction carrying the therapeutic power.

1. The Refinement and Concentration of Diphtheria Antitoxic Serums, editorial, THE JOURNAL A. M. A., Jan. 6, 1917, p. 38.
2. Proteins and Anaphylaxis, editorial, THE JOURNAL A. M. A., Jan. 1, 1916, p. 36. Lake, G. C.; Osborne, T. B., and Wells, H. G.: Jour. Infect. Dis., 1914, **14**, 364. Wells, H. G., and Osborne, T. B.: Ibid., p. 377; 1915, **17**, 259; 1916, **19**, 183.
3. Dale, H. H., and Hartley, P.: Anaphylaxis to the Separated Proteins of Horse-Serum, Biochem. Jour., 1916, **10**, 408.

THE EFFECT OF COLD ON MALARIAL PARASITES

Experiment has demonstrated that many microorganisms are far less sensitive to low temperatures than was believed to be probable in the earlier days of bacteriology, in view of the permanent damage or death which promptly ensues when the environmental temperature of these lowest forms of life is raised. The detrimental effects of heat have not found a counterpart in the influence of cold. Some bacterial species are known to survive temperatures far below those of the extreme cold occurring in nature. The possibility of a survival of other lower forms, such as the plasmodia, under the adverse conditions represented by low temperature, has not in the past been equally well investigated. King,[1] the government entomologist, has stated that the impression is gained from the literature on malaria that the development of malaria parasites in *Anopheles* is arrested at a temperature of about 60 F. and that the parasites themselves are destroyed at temperatures below this. He recognizes the importance of the question, since it involves the survival of infection in mosquitoes after hibernation or after exposure to low temperatures under natural conditions. In new experiments conducted in the Tulane University Medical Department at New Orleans, King has found that the parasite of tertian malaria in the mosquito host is able to survive exposure to a temperature of 30 F. for a period of two days, 31 F. for four days, and a mean temperature of 46 F. for seventeen days. In a smaller series of tests the sporonts of the estivo-autumnal parasite have shown a resistance to temperatures as low as 35 F. for twenty-four hours. This demonstration of the resistance of *Plasmodium vivax* and *Plasmodium falciparum* to cold and survival through a freezing temperature of several days' duration is significant.

DIFFERENTIATION IN THE PARATYPHOID-ENTERITIDIS GROUP OF BACTERIA

In the case of groups of similar bacteria, such as the members of the paratyphoid-enteritidis group, which cause serious epidemics in man and animals, it is important to determine whether each member is a fixed type, according to human or animal origin, or is constantly changing from one type to another. On the practical side it is desirable to know whether paratyphoid is due to infection from human sources or to infection from the lower animals, as is apparently the case in infection with the enteritidis bacillus in "meat poisoning" epidemics. Certain earlier workers held the members of this group to be indistinguishable; but recently Jordan[2] and Krumwiede[3] have found sufficiently typical cultural and agglutinative differences to justify a division into four groups. The cultural differences consist in the formation or absence of formation of acid and gas in xylose, arabinose and dulcite, and in the degree of rapidity of alkali forma-

1. King, W. V.: The Effect of Cold upon Malarial Parasites in the Mosquito Host, Jour. Exper. Med., 1917, **25**, 495.
2. Jordan, E. O.: The Differentiation of the Paratyphoid-Enteritidis Group, Jour. Infect. Dis., April, 1917, **20**, 457.
3. Krumwiede, Charles; Pratt, Josephine S., and Kohn, L. A.: Studies of the Paratyphoid-Enteritidis Group, Jour. Med. Research, 1917, **35**, 357.

tion in litmus milk. The paratyphoid A strains, which always are derived from human sources, according to Jordan, produce alkali in litmus milk much more slowly than the others, and do not ferment xylose. The paratyphoid B strains, almost always obtained from human sources also, ferment xylose, arabinose and dulcite rapidly, and produce alkali quickly in litmus milk. The enteritidis strains are indistinguishable culturally from the paratyphoid B strains, but have distinct agglutinative reactions. The suipestifer or hog cholera strains, which in almost every case are of porcine origin, ferment xylose but attack arabinose and dulcite slowly or not at all. In their agglutinative reactions all these bacteria fall into this grouping, though in certain rare cases the strains of porcine origin, after being under cultivation for some time, may assume characters of the paratyphoid B group. The agglutinative reactions of the paratyphoid B and hog cholera strains are not always clearly distinctive when the whole serum is used, immune serums for hog cholera strains agglutinating the paratyphoid B strains; but by absorption tests the agglutinins may be separated. As Bainbridge[4] pointed out, if the immune serum is saturated with a suspension of paratyphoid B bacilli and then centrifugated, its potency for strains of porcine origin is not affected.

Medical Mobilization and the War

Training Camps for Medical Reserve Officers in Operation

Last week The Journal announced that three training camps for physicians were being established at Fort Rilcy, Kan.; Fort Oglethorpe, Ga., and Fort Benjamin Harrison, Ind. There camps are already established and a fourth camp, for which details have not been worked out, is in process of establishment. At Fort Benjamin Harrison, Ind., Major Percy M. Ashburn will be commanding officer and Major James F. Hall, assistant. Other instructors will be: Majors Jay R. Shook, Charles F. Morse, William A. Powell and George H. Scott, and Captains C. C. McCornack, S. S. Creighton, Howard McC. Snyder, Joseph E. Bastion and Taylor E. Darby. At Fort Rilcy, Kan., Major William N. Bispham will be commanding officer, and Charles R. Reynolds, assistant. Other instructors will be: Majors Frank W. Weed, Jacob M. Coffin, William W. Reno, Craig R. Snyder and Henry C. Pillsbury; Captains Felix R. Hill, Thomas J. Flynn, John J. Reddy and William H. Richardson, and First Lieut. Harrison W. Stucky. At Fort Oglethorpe, Ga., Lieut.-Col. Henry Page will be commanding officer and Major Roger Brooke, assistant. Other instructors will be: Majors Leartus J. Owen, Wallace De Witt and Robert L. Carswell; Captains Mahlon Ashford, Eugene G. Northington, Alexander D. Parce, Calvin D. Cowels, Jr., Samuel J. Turnbull and Royal Reynolds.

The training will consist of three periods of four weeks each. During the first month, the duties which the enlisted man is expected to perform will be taught; during the second month the duties of the medical officer and book instruction will be given; and the third month will be devoted to training in the field. In case of emergency, it will then be possible to cut off the last month of training. An ambulance and a field hospital will be established at each training camp.

Organization of Training Camps

Three new branches of the medical service of the army have been announced in connection with the organization of training camps. These branches are: a division of sanitary inspection, to be headed by Col. F. P. Reynolds; a district of hospitals and hospital construction, headed by Col. James B. Glennan, and a division of medical military instruction, headed by Col. Ed. L. Munson. The three branches are coordinated under the direction of Col. Henry A. Birmingham.

Colonel Glennan's division of hospitals and hospital instruction will be immediately concerned with the preparation of thirty-two hospitals for the divisional cantonments. It is estimated that each cantonment hospital will have a capacity of 1,000 beds. It will also be necessary to build several general clearing hospitals and one or two receiving hospitals in seaport cities.

The division of Colonel Reynolds'—sanitary inspection—has to do with all sanitary matters pertaining to armies in the field, such as kitchens, mess shelters, ice boxes, and all sanitary appurtenances. The work will be carried on by a corps of general sanitary inspectors, with the ranks of colonels and lieutenant-colonels. A general sanitary inspector will also be attached to the commanding general of each army.

Medical Reserve Officers and Registration

The President has held, according to an order of the Provost Marshal General, dated May 24, 1917, that the Selective Service Act of May 18, 1917, and the proclamation and regulations of the same date, do not require the registration on June 5 of members of any duly organized and recognized force, naval or military, subject under other laws of the United States to be called, ordered or drafted into the military or naval service of the United States. The registration regulations are to be construed as providing for the exception from registration of persons in the military or naval service of the United States, which includes all officers and enlisted men of the Regular Army, the Regular Army Reserve, the Officers Reserve Corps, the Enlisted Reserve Corps, the National Guard and National Guard Reserve recognized by the Militia Bureau of the War Department, the Navy, the Marine Corps, the Coast Guard; and the Naval Militia, Naval Reserve Force, Marine Corps Reserve, and National Naval Volunteers, recognized by the Navy Department.

Visual Tests for the Medical Corps

To the Editor:—You fail to mention the physical qualifications for the Medical Reserve Corps and the regular Medical Corps. Many, many physicians wear eyeglasses. Would this act as a disqualification or hindrance? Is myopia (in the case of physicians) or other ailments of minor character, cause for rejection or exemption? Would a commission be refused on these grounds to a physician otherwise qualified?

Answer.—The physical examination is thorough. The applicant must certify that he labors under no physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required. Errors of refraction, if vision is not below $^{20}/_{100}$ in either eye, are not causes of rejection, provided they are not accompanied by ocular disease and are entirely corrected by appropriate glasses. With the proper correction by lenses the visual acuity of each eye must not fall below $^{20}/_{20}$. While using the refractive correction required for distant vision, in the case of ametropic conditions, the applicant must be able to read No. 1 Jaeger (.50 D. Snellen) at the usual distance for near work (13 to 20 inches) while using both eyes. Strabismus of any type or color blindness for red, green or violet will be a cause for rejection. The foregoing requirements apply to eyes free from disease, either acute or chronic. All lesions of either fundus oculi, whether old or of recent origin, as determined by ophthalmoscopic examination, will be causes for rejection. A certificate from a competent oculist may be accepted at the option of the examining board as evidence of freedom from lesions of the fundus.

Base Hospitals Ordered to Active Duty

The following base hospitals have been ordered to active duty and will sail shortly for England:

Base Hospital No. 4, Massachusetts General Hospital, Boston.—The following are the medical and surgical members of this unit: Frederic A. Washburn, director; Lincoln Davis, assistant director, surgical service; Roger Kinnecut, assistant director, laboratory service; staff surgeons, Richard

4. Bainbridge, F. A., and O'Brien, R. A.: On the Paratyphoid Group of Bacilli, Jour. Hyg., 1911, **11**, 68.

F. O'Neil, William J. Mixter, Zabdiel B. Adams, Frederick C. Irving, Dewitt S. Clark, George A. Leland, Jr.; staff physicians, E. Lawrence Oliver, James H. Means, Paul D. White, Wade S. Wright, Joseph C. Aub, Carl A. L. Binger; Adelbert S. Merrill, roentgenologist; Oscar Teague, bacteriologist; Augustus G. Reynolds, quartermaster; Henry C. Marble, registrar; Henry K. Sherrill, chaplain; Ralph A. Hatch, oculist; Harold G. Tobey, laryngologist; George Clymer, neurologist and alienist; William H. Gullifer, dentist; William H. Sherbune, assistant dentist.

BASE HOSPITAL NO. 15, THE MACKAY UNIT OF THE ROOSEVELT HOSPITAL, NEW YORK.—The medical members of this base hospital are as follows: Major Charles H. Peck, director; Major James I. Russell, assistant director, surgical service; Major Rolfe Floyd, chief of medical service; Capts. Alfred Stillman, Harold Barclay, Clarence McWilliams, Calvin B. Coulter, Henry James, Edward F. Kilbane, Joseph Steiner, Gouverneur M. Phelps; First Lieuts. William C. White, Henry W. Cave, John H. Carlisle, Alexander T. Martin, Augustus Street, William B. Hetzel, John E. Williams, Lewis S. Booth, Robert T. Buckley, Thomas C. Peightal, Ralph A. Hurd; dentists, J. C. Vandervoort, John R. Merrill; chaplain, Rev. Francis B. Barnett.

BASE HOSPITAL NO. 17, HARPER HOSPITAL, DETROIT.—Major Angus McLean, director.

BASE HOSPITAL NO. 18, JOHNS HOPKINS HOSPITAL, BALTIMORE.—J. M. T. Finney, director.

Preparedness of Medical Officers for Development of Epidemic Meningitis

At the meeting of the General Medical Board of the Advisory Commission of the Council of National Defense, at Washington, D. C., May 27, Dr. Simon Flexner spoke of the preparations that the Rockefeller Institute had made for instructing medical officers in the technic and procedure for the detection of meningococcus carriers and for review of other laboratory methods that were necessary in the management of this disease. Dr. Flexner said, in part, that there is an urgent demand for doctors for the army and navy and that many of them had had training so recently that it would be unnecessary perhaps to supplement that training in the manner proposed. Others have not had training so recently, and it might be advisable to undertake to supplement their training. Undoubtedly one of the situations that will arise has to do with infectious diseases. Certainly it has been the experience in European armies in this war that recruiting is attended with the appearance of contagious diseases, sometimes on a considerable scale, among the new recruits, introducing diseases which must be met immediately, and which are often a real menace to the work to be carried out in their training. Certain of the diseases which were formerly a severe menace among troops, such as typhoid and paratyphoid, are now much better controlled. These diseases have been reduced to the minimum. There are other diseases for which there is no such artificial means of protection, and which constitute a great menace. One of these is epidemic meningitis, a disease which has been prevalent for many years. It has never died out since the epidemic which appeared in the early part of the present century. There is reason to believe that we shall be confronted with epidemic meningitis very soon after recruiting actually begins. The disease has already appeared in certain of the camps. It is desirable and necessary that we should deal with these epidemics in the most effective manner at the outset, and, among other things, we should give special instruction to certain numbers of medical officers in order that they may put into effect the experience recently gained abroad, where these epidemics have appeared. "I am not a military person, and therefore do not know how the people are housed, but this I do know that just as soon as a case of meningitis is discovered, the rest of the men in the shack should not be permitted to mingle with the rest of the recruits until all of them have been subjected to a meningitis examination, to determine whether or not any man among them is a carrier of meningococcus. There is no difficulty about the sick man, as he will be taken care of in the hospital, and not be a menace to the rest. But the men who are not in the hospital and who are carriers of the coccus will be a great menace. If they are carriers they should be discovered and can be discovered in twenty-four to forty-eight hours. Those who are not carriers can be released, but those who are must be looked after as carefully as the sick man, and not released any more than the sick man should be released until they are no longer carriers. The particular service which we should like to render is this: There are at the Rockefeller Foundation many men who have had the good fortune, or misfortune, of particular experience with meningitis, and we should like the privilege of training a certain number of men who will be sent to these camps, cooperating with the clinical department, and perhaps being a part of it, who will also be doing some of the bacteriologic work of these camps. We wish to qualify them with the latest knowledge which we have gained in these diseases. If these men are with us four weeks we can teach them a number of supplementary things. I have the highest hope that what we are doing will be done elsewhere if found to be worth while. Chicago has perhaps men better versed in this special line than New York, and perhaps there are other places. There is the Army Medical School, and the Navy Medical School. They will doubtless do similar things. Where the demand for men of this type is so great, no single organization can train enough men for this purpose. We propose to carry on this work through the summer and the fall, but if it seems worth while, some other institutions will do likewise. We feel confident that four weeks will be sufficient time for this work but this will have to be determined by experience. We feel confident that it will be of value to know that wherever men are affected with this disease there will be at least one man who has at his fingers' end the training now in use at the recruiting stations and hospital organizations dealing with the troops abroad."

Qualifications of One Thousand Physicians for Immediate Service Abroad

To the Editor:—In your "Current Comment" of May 26 I see that 1,000 men have been asked for service in France. To whom shall I apply in order to get into this service?

FRANK X. POMAINVILLE, M.D., Grand Rapids, Wis.

To the Editor:—Can you give me some information relative to the procedure, qualifications, etc., of the 1,000 physicians France has asked for? More specifically, what is the remuneration, the term of service and work rendered, that is, in base hospitals or on the battle field? Do they go into Red Cross units or directly into the service of the French government?

NOAH ZEHR, M.D., Fort Wayne, Ind.

ANSWER.—The 1,000 physicians mentioned are being selected from among members of the Medical Reserve Corps, who volunteer for the service, by the surgeon-general's office with the assistance of the state committees of national defense. To obtain this assignment abroad, the applicant must be under 35 years of age, well qualified professionally and especially so physically. When assigned abroad by the surgeon-general of the army, these physicians go as officers of the United States Army and are not connected with any base hospital units or attached in any way. The remuneration is the same as that of the rank which they hold in the Medical Reserve Corps.

Protecting the Practice of the Absent Physician

The Missouri State Medical Association at its last annual meeting adopted resolutions to the effect that those physicians who remain at home should volunteer to care for the practice of those called to service and to turn over to them or to their dependents a liberal proportion of the income of this work. Plans are being formulated for rendering the resolutions effective. These plans are to be submitted to the county societies for approval.——The Mississippi State Medical Association at its recent meeting adopted a resolution to the effect that each physician keep a separate record of the charges for the patients of colleagues who have left to join the government service. When the fees are collected, one third will be turned over to the absent physician or to his family, one third to the American National Red Cross and the remaining one third to the physician who undertakes the service. The Red Cross fees are to be turned over to the local chapter.——The New York State Medical Society agreed that each physician ask every new patient the name of his usual or last medical attendant, and if this doctor is in active service, to turn over to him or to his family one third of the fees collected from the patient. Further, it was agreed that if patients are referred by a physician who has not previously referred patients and the physician is in the government service, one third of the fee shall be turned back. Finally, it was agreed that the physician will not attend such new patients for one year after the resumption of practice of the physician who was in the government service.

Care for Dependents of Physicians

To the Editor:—Will the federal government undertake the relief and support of the dependents of doctors and others who may be sent by our government across seas for service as civilians or attached to some branch of the service of the allies?

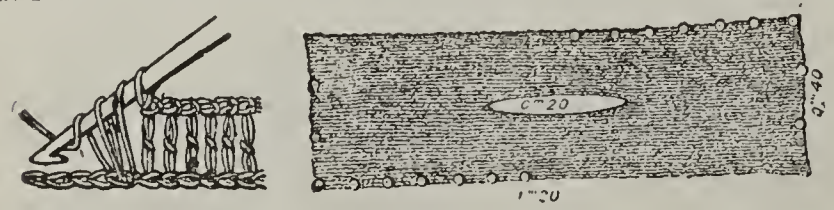
Answer.—The policy of the War Department in this regard is as yet undetermined, because Congress has not completed its consideration of military legislation. In general, it may be said that the department desires, at the outset, to exempt from military service, as far as possible, those having dependents. Realizing that this cannot be done in all instances, the department has requested Congress to provide an adequate sum to take care of the dependents of such as cannot be so exempted. Doctors who are sent across the sea will be commissioned officers of the army, and the pay allowed by law is by the department deemed to include adequate provisions for their dependents.

"Michelaines" for the Soldiers

To the Editor:—In The Journal, Jan. 23, 1915, page 353, are the directions and picture of a very fine sleeveless sweater for soldiers. I am very anxious to use all my spare time knitting for the soldiers and would like very much to get this pattern if possible, as it was recommended to me by a doctor as very good.

Answer.—The sweaters in question were known as "Michelaines," after Dr. Michel, the inventor. It is a scarf which can be used as a head, throat, chest or arm protector. It consists essentially of a woolen band 48 inches long and 16 inches wide, with a median slit 8 inches long, large enough for the soldier's head to pass through.

The particular crochet stitch which Dr. Michel recommends for this purpose is the following: Use medium sized wool and a crochet needle having a diameter of one fourth of an



inch. 1. Make a loose chain 48 inches long. 2. Crochet two extra stitches for turning. 3. Throw thread over needle. For the first row, take up the two threads of the chain, throw thread over, put it under the two stitches of the first loop of chain; pull through; throw thread over again, then pull through the first two, then pull through the second two;



repeat to end of chain. Take two stitches to turn with; proceed exactly as the first row only put through the single back stitch. Crochet eighteen rows up, then on the nineteenth row stop short 4 inches from the middle; break the thread. Begin on the other side 4 inches from the middle, thus leaving an 8 inch opening and crochet to the end. Continue again as before until you have eighteen more rows, then fasten the threads securely. Sew on buttons as shown in the figure.

Ambulance Ship Transferred to Navy.—The steam yacht *Surf,* owned by Dr. John A. Harriss, has been loaned to the navy for the duration of the war. It is to be used as an ambulance ship.

Rockefeller Foundation to Study Tuberculosis at the Front.—Dr. Livingston Farrand, president of the University of Colorado, has been appointed by the Rockefeller Foundation to undertake a campaign against tuberculosis in France under the auspices of the foundation. Aside from the small group of Americans, the personnel of his organization will be French. The Rockefeller Foundation has made an initial appropriation of $100,000 for the work—central organization, the equipping of mobile units and the publication of literature. Dr. Farrand has been granted a year's leave of absence so that he may have all of his time for this work.

Reserve Officers on Active Duty

The following officers have been ordered to active duty as mentioned:

Major Winford H. Smith, M. R. C., Baltimore, Md., to Washington, D. C., for duty.

Major Arthur C. Christie, M. R. C., Washington, D. C., to active duty with Surgeon General of Army.

Capt. Louis Barth, M. R. C., Grand Rapids, Mich., to active duty at Grand Rapids.

Capt. Walter A. Wells, M. R. C., Washington, D. C., to active duty at Washington.

Capt. Louis A. Molony, Cincinnati, O., Capt. Charles T. Hunt, Miamisburg, O., and First Lieut. J. Louis Ransohoff, Cincinnati, O., to Fort Thomas, Ky.

Capt. Howard Fox, M. R. C., New York, from Fort Slocum, N. Y. to New York, medical supply depot for duty.

Capt. Eugene R. Hochstetter, Jr., and First Lieut. James D. L. McPheeters, M. R. C., Chattanooga, Tenn., now at Fort Oglethorpe, Ga., to duty at training camp at that post.

Capt. William E. Shea, M. R. C., Fort Missoula, Mont., to active duty at that post.

First Lieuts. Roy B. Storms, M. R. C., Kempton, Ind.; James M. Smith, M. R. C., Lehman M. Dunning, Claud Du Vall Holmes and Arthur F. Weyerbacher, M. R. C., of Indianapolis, Ind., to active duty at Fort Benjamin Harrison, Ind.

Capt. James Kenan, M. R. C., Selma, Ala.; First Lieuts. Rae W. Whidden, M. R. C., New York City; Paul V. Woolley, M. R. C., Kansas City, Mo.; Joseph S. Gatlin, M. R. C., Laurel, Miss.; Harry B. Schmidt, M. R. C., Detroit, Mich.; Charles D. Lockwood, M. R. C., Pasadena, Cal.; Alpheus F. Jennings, M. R. C., Detroit, Mich.; Henry R. Carstens, M. R. C., Detroit, Mich.; and John W. Sherrick, M. R. C., Ann Arbor, Mich., to active duty at Washington, D. C., Army Medical School, for instruction.

First Lieuts. William L. Culpepper, M. R. C., Goose Creek, Tex.; Forrest P. Baker, M. R. C., Booneville, Ark.; James E. Dewey, Murray C. Stone and Horace A. Lowe, M. R. C., of Springfield, Mo.; Eugene R. Gordon, M. R. C., McComb, Miss.; William T. Fitzsimons and Oliver S. Gilliland, M. R. C., of Kansas City, Mo.; to active duty at Fort Logan H. Roots, Ark.

First Lieut. Chester F. S. Whitney, M. R. C., New York City, to report at Eastern Department for duty.

First Lieuts. Clarence B. Francisco, M. R. C., Kansas City, Mo., and Frank W. Snow, M. R. C., Newburyport, Mass., for instruction to Washington, D. C.

First Lieuts. John R. Brinkley, M. R. C., Fulton, Kans.; George R. Tabor, M. R. C., Crystal City, Tex.; Edward P. A. Ficklen, M. R. C., New Orleans, La.; Nicolo V. Alessi, M. R. C., Hammond, La; James M. Adams, M. R. C., Locust Ridge, La.; Arthur W. C. Bergfeld, M. R. C., Seguin, Tex.; Peter L. Harvie, M. R. C., Troy, N. Y.; Lucius L. Handly, M. R. C., Houston, Tex.; Edgar L. Gilcreest, M. R. C., Gainesville, Tex.; Louis C. Kuyrkendall, M. R. C., McAlester, Okla.; John W. Kinsinger, M. R. C., Roswell, N. M.; Jesse W. Lea, M. R. C., Jackson, La.; William D. Petit, M. R. C., Marfa, Tex.; Louis H. Pate, M. R. C., Carlsbad, N. Mex.; George N. Ricks, M. R. C., Pleasanton, Tex.; Harold A. Spilman, M. R. C., Ottumwa, Ia.; Ralph V. Smith, M. R. C., Tulsa, Okla.; Thomas H. Scott, M. R. C., Fort Morgan, Ala.; Fenton M. Sanger, M. R. C., Oklahoma City, Okla; Henry O. Wyneken, M. R. C., San Antonio, Tex.; Leonard S. Willour, M. R. C., McAlester, Okla.; Bacil A. Warren, M. R. C., Leupp, Ariz.; Albert R. Warner, M. R. C., Komatke, Ariz.; Thaddeus S. Troy, M. R. C., Howard L. Taylor, M. R. C., Cleveland, O.; Charles E. Fitzsimmon, M. R. C., Amarillo, Tex.; Ira Cohen, M. R. C., New York City; Frank L. Carson, M. R. C., Shawnee, Okla.; Abraham L. Blesh, M. R. C., Oklahoma City, Okla.; Walter G. Bisbee, M. R. C., Chandler, Okla.; and Alexander A. Brown, M. R. C., San Antonio, Tex.; to active duty and to report by telegraph to commanding general, Southern Department.

The following officers of M. R. C. to active duty, Letterman General Hospital, San Francisco, Cal.: First Lieuts. Sylvan L. Haas, San Francisco, Cal.; and Phillip M. Thomas, Sacramento, Cal. First Lieut. Walter S. Johnson, Los Angeles, Cal.

First Lieut. Harvey R. Gaylord, M. R. C., Buffalo, N. Y., to active duty at Fort Niagara, N. Y.

First Lieut. Conrad Berens, Jr., M. R. C., New York City, to active duty at Mineola, Long Island, N. Y.

The following officers of M. R. C. to active duty at Fort Sheridan, Ill.: First Lieuts. Henri S. Babcock, Danville, Ill., Ashley B. Morrill, Chicago, Ill.; Claude H. Ogden, Gary, Ind.; Walter A. Ford, Kankakee, Ill.; Morris Fishbein, Roy T. Rodaway, Charles D. Eldred, Louis Rudolph, Arthur C. Gillam, Chicago, Ill.; and John W. Tope, Oak Park, Ill.

First Lieut. Charles L. Gaulden, M. R. C., Elizabeth, La., to Fort Myer training camp, for duty.

First Lieut. Francis C. Tyng, M. R. C., Salt Lake City, Utah, at Fort Douglas, Utah.

First Lieut. Frank R. Mount, M. R. C., Oregon City, Ore., to Fort Worden, Wash.; First Lieut. Charles R. Glenn, Kelso, Wash., to Fort Lawton, Wash.

Capt. Lewis W. Falkner, M. R. C., Youngstown, N. Y., to training camp at Fort Niagara, N. Y.

Major Louis C. Duncan, M. C., Ft. Bliss, Tex., to citizens' training camp, Fort McPherson, Ga.

First Lieut. Charles W. Rauschenbach, M. R. C., Baltimore, Md., to Fort Myer.

First Lieut. Arthur W. Allen, M. R. C., Boston, Mass., to Boston.

First Lieuts. John H. Carlisle, Passaic, N. J., and Frederick G. Goodridge, M. R. C., Comfort Center, Conn., to Governors Island, New York.

Resignation by First Lieut. Timothy J. Butler, M. R. C., Eagle Pass, Tex., of commission that corps accepted.

Following officers of Medical Corps to report to Surgeon General of Army for temporary duty: Col. James D. Glennan, Lieut. Col. Edward L. Munson and Lieut. Col. Frederick P. Reynolds. (May 17, War D.)

Lieut. Col. Jere B. Clayton, M. C., to Fort Logan H. Roots, Ark., for duty. (May 5, S. D.)

Major William N. Bispham, M. C., relieved at Fort Sheridan, to Fort Riley, citizens' training camp, for temporary duty. (May 16, War D.)

Major George H. R. Gosman, M. C., from further duty in Southern Department to Fort Ethan Allen, Vt., for duty. (May 18, War D.)

Par. 57, S. O. 111, May 14, 1917, War D., relating to Major Charles F. Craig, M. C., is revoked. (May 18, War D.)

Major Percy L. Jones, M. C., to Philadelphia, Pa., as assistant in organization. (May 16, War D.)

Major James D. Fife, M. C., from Fort Sam Houston to St. Louis, Mo., for duty as commanding officer, Base Hospital No. 21. (May 5, S. D.)

Capt. Paul W. Gibson, M. C., from Fort Slocum to New York, N. Y., medical supply depot, for duty. (May 18, War D.)

The following officers of Medical Corps to the place named for temporary duty with Reserve Engineer regiment specified: Capt. Harry H. Van Kirk to New York, 1st Engineers; Capt. Albert S. Bowen to St. Louis, Mo., 2d Engineers; Capt. William H. Thearle to Chicago, Ill., 3d Engineers; Capt. Albert P. Clark to Boston, Mass., 4th Engineers; Capt. Joseph Casper to San Francisco, Cal., 5th Engineers; Capt. Edward L. Napier to Detroit, Mich., 6th Engineers; Capt. Wibb E. Coper to Atlanta, Ga., 7th Engineers; Capt. Howard Clarke to San Francisco, Cal., 8th Engineers; Capt. Daniel F. Maguire to Philadelphia, Pa., 9th Engineers. (May 16, War D.)

Capt. John P. Fletcher, M. C., El Paso, Texas, to Washington, field medical supply depot, temporary duty. (May 18, War D.)

Capt. Francis X. Strong, M. C., to charge of medical supply depot, El Paso, Texas. (May 18, War D.)

First Lieut. Paul A. Schule, M. C., to Fort Snelling, Minn., to establish field laboratory at that post. (May 18, War D.)

Major James I. Mabee, M. C., to Pittsburgh, 5th Reserve Engineers, for temporary duty. (May 21, War D.)

So much of Par. 31, S. O. 113, May 16, 1917, War D., as relates to Capt. Joseph Casper, M. C., is revoked. (May 21, War D.)

First Lieut. John P. Lord, M. R. C., to active duty at Fort Omaha. (May 19, War D.)

Following officers, M. R. C., to active duty and to place indicated for duty: First Lieuts. Ernest W. Cavaness to Kansas City, Mo.; Lloyd Thompson to Little Rock, Ark.; Marvin S. Veal, Daniel Boone, Ky., to Louisville, Ky.; Edward C. Ellett to Memphis, Tenn.; Benjamin B. Rowley, Whitefish Bay, Wis., to Milwaukee, Wis.; Capt. Joseph R. Hollowbush to Rock Island, Ill.; 1st Lieuts. David M. Berkman, Rochester, Minn., to St. Paul, Minn.; Harold S. Arnold, New Haven, Conn., to New London, Conn.; Peter L. Geaugh, Pawtucket, R. I., to Newport, R. I.; Rowland B. Moore to Portland, Me.; William H. McLan to Wheeling, W. Va.; Eric A. Fennel to Cincinnati, Ohio; Capt. John G. Stowe to Buffalo, N. Y.; 1st Lieuts. William J. Du Bois to Grand Rapids, Mich.; Francis X. Mulherin, Augusta, Ga., to Savannah, Ga.; Frank R. Ruff, Duke, N. C., to Wilmington, N. C., and Solomon P. Klotz, McComb, Miss., to Vicksburg, Miss.; Capt. Frederick T. Brown to New Orleans, La.; 1st Lieut. Horace F. Stiltner, Chickamauga, Ga., to Chattanooga, Tenn.; Major Francis L. Parker to Charleston, S. C.; 1st Lieut. Robert Goldthwaite to Montgomery, Ala.; Capt. John O. Rush to Mobile, Ala.; 1st Lieuts. Samuel Aronovitz to Jacksonville, Fla.; Jerre G. Lynch to Los Angeles, Cal.; George S. Buck to Portland, Ore.; Donald V. Trublood to Seattle, Wash.; Verne R. Mason to Baltimore, Md.; J. Adolph Rollings, Roda, Va., to Norfolk, Va., and Meredith I. Samuel to Wilmington, Del.; Capt. Moses H. Darnall to Washington; Capt. Walter H. Moursund to Dallas, Texas, and 1st Lieut. Eugene V. Powell, Fort Worth, Texas, to Galveston, Texas.

STATE COMMITTEES OF NATIONAL DEFENSE, MEDICAL SECTION

The General Medical Board of the Advisory Commission of the Council of National Defense announces that it has found it necessary in order to coordinate the activities of the various organizations now engaged in promoting medical preparedness to merge these organizations into a single body in each state. Since the various state committees of American Physicians for Medical Preparedness were organized about a year ago, and especially since the situation has become acute, many independent committees and other organizations have been formed, each vying with the other to show its patriotism and to accomplish the utmost good in a medical military way for the nation.

The existence of so many independent agencies involes duplication of effort and lacks directness of purpose. It is believed that these defects will be corrected by the plan that the Committee has just adopted. The committees and organizations that are to be merged in the new state committees include the following:

1. Members of the National Committee of the General Medical Board.
2. The original state Committees of American Physicians for Medical Preparedness.
3. The presidents and secretaries of the state medical societies.
4. The chairman of the Governor's committee of the State Committee of Defense.
5. Representatives of the American National Red Cross, the Medical Reserve Corps, medical officers of the National Guard and medical schools.
6. Members of the National Committee of the Committee of American Physicians for Medical Preparedness presiding in each state.
7. Other physicians who have been especially active in cooperating with various committees with the Surgeon-General's Office, and with the General Medical Board.

The new committees which will be known as the State Committees of National Defense, Medical Section, are as follows:

ALABAMA

Baker, James N., Chairman, Montgomery
Green, Henry, Pres., Dothan
Perry, Henry G., Sec., Montgomery
Blue, John H., Bell Bldg., Montgomery
Cole, Herbert P., Van Antwerp Bldg., Mobile
Drennan, W. Earle, Woodward Bldg., Birmingham
DuBose, F. G., 902 Alabama Ave., Selma
*Goldthwaite, R., 13½ S. Perry St., Montgomery
Hill, R. S., 21 S. Perry St., Montgomery
*Lowry, John, 727 1st Nat. Bk., Birmingham
McLester, James, Empire Bldg., Birmingham
Morris, L. C., Empire Bldg., Birmingham
*Rush, John R., 412 Antwerp Bldg., Mobile
Sanders, W. H., Chairman, State Com. Pub. Health, 418 S. Lawrence St., Montgomery
Wilson, Cunningham, 1107 S. 20th St., Birmingham

ARIZONA

Shine, F. E., Chairman, Bisbee
Ferguson, Robert, Pres., State Med. Assn., Bisbee
Yount, C. E., Sec., State Med. Assn., Prescott
Bacon, John E., Miami
Huffman, I. E., 40 S. Stone Ave., Tucson
Looney, Robert N., Sec., State Bd. of Health, Prescott
Palmer, E. Payne, Goodrich Bldg., Phoenix
Redewill, Francis H., 120 N. 1st Ave., Phoenix
*The Surgeon, Ft. Huachuca
*The Surgeon-U. S. Troops, Douglas
*The Surgeon, Ft. Apache
Thomas, John Wix, Sec., Bd. Med. Exam., Nat. Bk. of Ariz. Bldg., Phoenix
Tuthill, A. M., Morenci

* Examiners.

ARKANSAS

Smith, W. F., Chairman, Urquhart Bldg., Little Rock
Norwood, M. L., Pres., State Med. Assn., Lockesburg
Meriwether, C. P., State Med. Assn., Little Rock
Brooksher, W. R., First Nat. Bk. Bldg., Fort Smith
*Commanding Officer Army and Navy Gen. Hosp., Hot Springs
Garrison, C. W., State Health Officer, Little Rock
Jordan, A. C., Mchts. and Planters Bk. Bldg., Pine Bluff
Mann, R. H. T., Texarkana
Ogden, M. D., Bkrs. Tr. Bldg., Little Rock
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Stout, T. J., Sec., St. Med. Bd., Brinkley
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Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Power Company Surgeons Organize.—At a meeting of the surgeons of the Alabama Power Company, in Birmingham, April 16, Dr. Samuel R. Benedict, Birmingham, was elected president; Dr. Benjamin B. Simms, Talladega, vice president, and Dr. James P. Colvin, Lincoln, secretary-treasurer. The name of the new organization is the Association of Surgeons of the Alabama Power Company.

State Association Elects New Officers.—At the annual meeting of the Medical Association of the State of Alabama, held in Montgomery, April 17-20, under the presidency of Dr. Henry Green, Dothan, Birmingham was selected as the next place of meeting, and the following officers were elected: president, Dr. William D. Partlow, Tuscaloosa; vice president, Dr. William F. Betts, Evergreen; censors, Drs. William H. Sanders, Montgomery, and Benjamin L. Wyman, Birmingham, and councilors, Drs. Ross C. Speir, Furman; Norman G. James, Hayneville; Henry B. Disharoon, Roanoke; James C. Martin, Cullman, and Frank L. Chenault, Albany. Dr. Samuel W. Welch, Talladega, was elected state health officer, succeeding Dr. William H. Sanders, and Dr. William W. Dinsmore was elected state prison inspector. The Jerome Cochran lecture was delivered by Dr. William J. Mayo, Rochester, Minn., on "The Importance of Septic Infection in the Three Great Plagues."

ARIZONA

New Officers.—The Arizona Medical Association held its twenty-sixth annual meeting in Douglas, April 17 and 18, under the presidency of Dr. Robert Ferguson, Bisbee. The following officers were elected: president, Dr. William A. Holt, Globe; vice presidents, Drs. William W. Watkins, Phoenix; Turner B. Smith, Morenci, and Charles S. Vivian, Humboldt; secretary, Dr. Clarence E. Yount, Prescott (reelected); treasurer, Dr. Roderick D. Kennedy, Globe, and delegate to the American Medical Association, Dr. Joel I. Butler, Tucson.

CALIFORNIA

Personal.—Lieuts. Sylvan L. Haas, San Francisco, and Philip M. Thomas, Sacramento, M. O. R. C., have been placed on the active list, and ordered to duty at the Letterman General Hospital, San Francisco.

FLORIDA

Porter Resigns.—May 16, Dr. Joseph Y. Porter, state health officer since 1889, resigned to enter the military service. Dr. Joseph E. Taylor, Live Oak, has been appointed Dr. Porter's successor.

State Association Meeting.—The annual meeting of the Florida Medical Association was held at Atlantic Beach, May 18 and 19, under the presidency of Dr. Edmund W. Warren, Palatka. Tampa was selected as the next place of meeting, and the following officers were elected: president, Dr. Ralph N. Greene, Jacksonville; vice presidents, Drs. Henry C. Dozier, Ocala; D. A. McKinnon, Marianna, and Henry Hanson, Jacksonville, and secretary-treasurer, and editor of the medical journal, Dr. Graham E. Henson, Jacksonville.

ILLINOIS

Physician Brings Suit.—Dr. Hart F. Litchfield, Quincy, is reported to have brought suit against the Central Business Men's Association for failure to pay a claim for disability.

Sanatorium Contract Let.—The Peoria Tuberculosis Council at its meeting, May 12, awarded contracts for the construction of the sanatorium to be erected on the site recently purchased for $10,000. The buildings will cost about $49,000.

County Secretaries Elect Officers.—At the annual meeting of the Illinois County Secretaries Association at Bloomington, May 8, Dr. Flint Bondurant, Cairo, was elected president; Dr. Thomas D. Doan, Scottville, vice president, and Dr. Fernando C. Gale, Pekin, secretary.

Service at Home.—Lieut.-Col. Jacob Frank, surgeon-general of Illinois, has worked out a thorough and comprehensive plan, whereby physicians, dentists, druggists, nurses and hospitals will cooperate in furnishing free service to the needy families of men from Chicago who have entered the military service. The plan contemplates the division of the city into districts, in each of which physicians, who on account of age or for other reasons are disqualified for active service in the field, may render service.

Chicago

Landis Speaks Before Physicians.—At the meeting of the Physicians' Club of Chicago, May 24, Judge Kenesaw M. Landis urged every citizen to stand squarely behind the nation in this crisis.

Internal Medicine Society.—The Chicago Society of Internal Medicine held its eighteenth annual meeting in the Northwestern University building, May 28. Papers were read by Drs. Peter Bassoe, Charles Spencer Williamson, F. M. Smith, James B. Herrick and Walter W. Hamburger.

New Medical School.—The Rockefeller Foundation and General Education Board announced, May 25, that the University of Chicago, by raising $3,461,500, had secured the $2,000,000 fund offered by the foundation, toward building a medical school in Chicago, and which was contingent on the securing of this amount.

Slain Nurses Honored.—A committee has been appointed to provide bronze memorial tablets to be placed in the Illinois Training School for Nurses and in the Evanston Hospital, in memory of Miss Helen Burnett Wood and Mrs. Edith Ayres, nurses who were killed by a shell explosion while en route to France. The body of Miss Wood was brought to Evanston and buried with military honors, May 23.

Personal.—Dr. Sadie B. Adair has been named as a trustee of the board of education.——Dr. Otto T. Freer spoke at the monthly meeting of the Portland (Ore.) Academy of Medicine, May 10, on "Acute Rhinitis."——Dr. Henry W. Abelmann sustained painful injuries, May 7, in a collision between his car and another automobile.——Dr. Charles Louis Mix delivered an address on heart disease before the Shawnee County (Kan.) Medical Association at Topeka, May 4.

INDIANA

Societies Unite.—At a meeting of the Delaware County Medical Society, May 4, it was decided to unite with the Blackford County Medical Society, the joint body to be known as the Delaware-Blackford Medical Society.

District Society Meetings.—At the thirteenth annual meeting of the Fourth District Medical Society, held at Greensburg, May 22, North Vernon was selected as the next place of meeting and the following officers were elected: president, Dr. Elmer U. Wood, Columbus; vice president, Dr. Edward J. Libbert, Aurora; secretary, Dr. John H. Green, North Vernon, and treasurer, Dr. Dennis L. McAuliffe, North Vernon.——The annual meeting of the Ninth District Medical Society was held in Noblesville, May 18, and the following officers were elected: president, Dr. Fred A. Dennis, Crawfordsville; vice presidents, Drs. Omer D. Hutto, Kokomo, and Alvin R. Kerr, Attica, and secretary-treasurer, Dr. Herman A. Beck, Lebanon. Tipton was selected as the next place of meeting.

Personal.—The following officers of the Medical Officers Reserve Corps have been placed on active duty, and ordered to duty at the training camp at Fort Benjamin Harrison: Lieuts. Roy B. Storms, James M. Smith, Lehman M. Dunning, Claude Du Vall Holmes and Arthur F. Weyerbacher, all of Indianapolis.——Dr. Paul F. Martin, Indianapolis, has returned after several months' service in military hospitals in Bohemia and Austria.——Dr. Charles P. Emerson, Indianapolis, dean of the Indiana Medical School, has been appointed a member of the State Council of Defense.——Dr. C. Herbert Bruner, Greenfield, has resigned as lieutenant, M. C., Ind. N. G., to take up the practice of his father, the late Dr. C. K. Bruner. ——First Lieut. Perry C. Traver, M. C., U. S. R., South Bend, has been assigned to active duty at the Notre Dame University, Notre Dame, Ind., for the examination of applicants for admission to the citizens' training camps. On completion of this duty he will be relieved from further active duty.

MARYLAND

Meetings.—A joint meeting of the Carroll, Howard and Baltimore County medical societies was held at the Spring-

field State Hospital, Sykesville, May 24. There were two sessions, one at 10:30 a. m., and the other in the afternoon.

Doctors Subscribe to Liberty Loan.—At a meeting of the medical profession held at Osler Hall, Baltimore, May 23, $142,800 was subscribed for Liberty Loan Bonds. Dr. William S. Baer was the presiding officer. Subscriptions of from $50 to $10,000 were received. One hundred and twenty physicians and surgeons attended the meeting.

Seventy Thousand Dollars to School of Hygiene and Public Health.—The School of Hygiene and Public Health of the Johns Hopkins University has been given $70,000 for maintenance by the Rockefeller Foundation. The appropriation will be for the school's fiscal year, beginning July 1. The establishment of the department of hygiene and public health at Hopkins has been made entirely with money given by the Rockefeller Foundation, which to date has given about $167,000 for buildings and equipment. It is expected that the school will be open in October next. Dr. William H. Welch will be the director, and with Dr. William H. Howell, professor of physiology, has been in charge of the work of organization.

Gift to Johns Hopkins.—Dr. Frank J. Goodnow, president of Johns Hopkins University, has just announced that the Johns Hopkins Medical School has received a gift of $350,000 from the General Educational Board in New York. The money is to be divided between the laboratory department, which is to receive $250,000, and the department of pediatrics, which receives the remaining $100,000. This last named amount is to be used for the support of the Harriet Lane Home for Children, which has been enlarged and improved at considerable cost. Dr. John Howland is in charge of this department of the hospital. The departments of pathology and physical chemistry and several minor branches of the laboratory department will divide the $250,000. During the past two years the General Board of Education has contributed about $1,450,000 for full time medical teaching, which makes the gifts of this board to Johns Hopkins University total about $1,750,000.

Increase of Tuberculosis in Baltimore.—Eighty-one cases of tuberculosis, thirty-five of which were fatal, were reported to the health department during the past week. Health Commissioner John D. Blake stated that the disease was on the increase in the city, largely because the department is not properly equipped to handle it. More cases now come to the attention of the department because it is stringently enforcing the law requiring physicians to report infectious diseases; and also because the nurses in the tuberculosis division are doing more effective work in finding and having persons suffering with tuberculosis treated. The disease is being spread by the negro population, as inadequate provision is made for the treatment of this class. There are a few beds at Bay View Hospital, but the number is insufficient to meet the demands. As a result, those having the disease take care of themselves in their homes and even go out as laundresses and servants. The housing committee appointed recently by the mayor which is working out plans for better sanitary living conditions among negroes and white families in congested neighborhoods is expected to develop an effective agency in antituberculosis work.

For Care of the Crippled Soldiers.—Preparing for the work ahead when American troops take their places on the firing line in Europe, a group of local scientists and practical workers are planning to take care of the crippled soldiers who will return to this country. The plan is to reeducate the men and make them more or less self-supporting. Dr. John Broadus Watson, head of the psychologic department of the Johns Hopkins University, has been chosen by the American Psychological Association to work out the plan. The community workshop group is preparing to assist in this work. The Maryland Woman's War Relief Hospital will take care of the convalescent soldiers who need special care. Dr. Anna D. S. Abercrombie is the president of this organization. The Maryland Psychiatric Base Hospital is preparing to take charge of the soldiers who may become nervous wrecks as a result of the war. The Maryland Association for the Prevention and Relief of Tuberculosis will take charge of those who may contract that disease and take steps to prevent its spread. Those who are blinded or have their eyesight impaired will be looked after by the Maryland Workshop for the Blind. In addition several Red Cross groups are especially interested in this work.

Personal.—Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, has been appointed major in the United State Medical Corps, with orders to report for active duty at the office of Surgeon-General Gorgas, at the War Department in Washington, D. C. Although he will spend most of his time in Washington, Dr. Smith will continue to live at the hospital and keep in close touch with the administration. During Dr. Smith's absence, Dr. Ralph B. Seem will act as superintendent of the hospital.——Dr. William S. Thayer, Baltimore, is one of the 1908 Harvard graduates who have set out to raise a fund of $100,000, in order that the University's Reserve Officers' Training Corps may be equipped and maintained at a grade equal to that of a federal camp.——Dr. Howard A. Kelly has announced that through the generosity of Alfred I. Du Pont, Wilmington, Del., a considerable quantity of radium has been given to the Howard A. Kelly Hospital in Baltimore.——Dr. John D. Blake, health commissioner, has appointed Dr. William G. Clopton and Charles Norton as health wardens, to substitute for Major Frederick H. Vinup and Capt. Edmund A. Munoz, who have been called out as officers in the Fifth Maryland Regiment.——Dr. William George MacCallum of Columbia University has accepted the post as head of the department of pathology at the Johns Hopkins University, to succeed Dr. William H. Welch, who has given up this work to accept the direction of the School of Hygiene and Public Health. Dr. McCallum will begin his work in Baltimore in the fall.

MASSACHUSETTS

A Correction: Workmen's Compensation in Massachusetts.—In The Journal, May 12, appeared the statement that the workmen's compensation act of Massachusetts, which the governor had allowed to become a law without his signature, permitted injured workmen "in certain institutions under the provision of the workmen's compensation act to select their own physician for treatment." Dr. Arthur N. Broughton, chairman of the Committee on Workmen's Compensation Act of the Massachusetts Medical and Homeopathic Medical Society, states that the law gives free choice of physicians on the part of the workmen throughout the state, the only restriction being that the work of the physician, whether as the choice of the workman or as representing an insurance company, must be adequate.

NEW HAMPSHIRE

Bancroft Resigns.—Dr. Charles P. Bancroft, who succeeded his father as superintendent of the New Hampshire State Hospital, Concord, in 1882, has resigned, to take effect July 1.

New State Officers.—The one hundred and twenty-sixth annual meeting of the New Hampshire Medical Society was held in Concord, May 16, under the presidency of Dr. Emdon Fritz, Manchester, and the following officers were elected: president, Dr. Fred S. Towle, Portsmouth; vice president, Dr. Charles P. Bancroft, Concord; secretary, Dr. D. E. Sullivan, Concord (reelected); treasurer, Dr. David M. Currier, Newport; trustees, Drs. John M. Gile, Hanover; Herbert L. Smith, Nashua, and Charles R. Walker, Concord, and councilors, Drs. Charles S. Walker, Keene; Emery M. Fitch, Claremont; Robert J. Graves, Concord; Frank E. Kittredge, Nashua; Abram W. Mitchell, Epping; Forrest L. Keay, Rochester; Richard E. Wilder, Whitefield; Fred E. Clow, Wolfeboro; Alpha H. Harriman, Laconia, and Frederick von Tobel, Lebanon.

TENNESSEE

Personal.—Capt. Eugene R. Hochstetter, Jr., and Lieut. Douglas L. McPheeters, M. O. R. C., both of Chattanooga, have been placed on the active list, and directed to report for duty to the commanding officer at Fort Oglethorpe, Ga.

New Anatomical Building.—The cornerstone has just been laid for the new Anderson anatomical hall of Meharry Medical College, on ground opposite the George W. Hubbard Hospital. The building will cost $10,000, which represents what is probably the largest gift ever made by a representative of the colored race.

WYOMING

New State Officers.—At the annual meeting of the Wyoming State Medical Society, held in Douglas, recently, the following officers were elected: president, Dr. Robert W. Hale, Thermopolis; vice presidents, Drs. Homer R. Lathrop, Casper; Anna G. Hurd, Sheridan, and Bertha N. Hamilton, Greybull; secretary, Dr. Jesse D. Lewellen, Powell; treasurer and delegate to the American Medical Association, Dr. George P. Johnston, Cheyenne.

CANADA

Death of Major Jones.—Major H. Jones of Hamilton, Ont., in charge of the Fifth Canadian Field Ambulance, has succumbed to pneumonia, overseas, aged 46.

Death of Lieutenant-Colonel Hewetson.—The British exchanges give extensive notices of the death of Samuel W. Hewetson, lieutenant-colonel of the Canadian Army Medical Corps, aged 45. He died at London after an operation for perforative colitis. Some time ago it was reported that he was suffering from nervous breakdown and shell shock. He was born in Ontario and studied at McGill University. Soon after his graduation tuberculosis showed itself, and he became a patient under Trudeau at Saranac, remaining to be one of his assistants. He settled later at Pincher Creek, Alta., and later moved to Calgary. At the beginning of the war he was appointed A. D. M. S. of the Alberta district, and organized the Eighth Canadian Field Ambulance of which he was placed in command, proceeding overseas early in 1916.

GENERAL

College of Physicians to Meet.—The second convocation of the American College of Physicians will be held in the Hotel Nassau, Long Beach, Long Island, N. Y., June 5.

Musgrave Leaves Manila.—Dr. William E. Musgrave, Manila, has been appointed superintendent of the Children's Hospital in San Francisco, and has assumed the duties of his new position.

Pediatrists to Meet.—The American Association of Pediatrists will hold its eleventh annual meeting in New York, June 3, under the presidency of Dr. Lawrence R. DeBuys, New Orleans.

Gynecologists Meet.—The American Gynecological Society held its forty-second annual meeting at Pittsburgh, May 31 and June 1 and 2, under the presidency of Dr. Frank F. Simpson, Pittsburgh.

Anesthetists Meet.—The fifth annual meeting of the American Association of Anesthetists was held in the Hotel McAlpin, June 2, under the presidency of Dr. Walter M. Boothby, Boston.

Radium Society to Meet.—The second annual meeting of the American Radium Society, will be held at the Hotel Vanderbilt, New York, June 4, under the presidency of Dr. William H. B. Aikens, Toronto. The scientific session will be preceded by a clinic at the New York Sanitarium and succeeded by a dinner at the Vanderbilt.

Students of Epilepsy Meet.—The sixteenth annual meeting of the National Association for the study of epilepsy was held at the New Jersey State Village for Epileptics, Skillman, May 28 and 29, under the presidency of Dr. David F. Weeks, Skillman.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Mary's Free Hospital for Children, New York, $2,000 by the will of Mrs. Laura Frances Hoppack Hearn.

Dr. George S. Isham, Chicago, and his three children, the bulk of the estate of Mrs. Katharine Porter Isham, estimated at $1,000,000.

Academy of Medicine to Meet.—The forty-second annual meeting of the American Academy of Medicine will be held in New York, June 4 and 5, under the presidency of Dr. Jacob E. Tuckerman, Cleveland. Their topic for discussion is to be "Civilization in Its Effects on Morbidity and Mortality."

Dermatologists Elect Officers.—At the annual meeting of the American Dermatologists Association, held in Cincinnati, May 24 to 26, Dr. Abner Post, Boston, was elected president and Dr. Oliver S. Ormsby, Chicago, was reelected secretary-treasurer. Philadelphia was selected as the next place of meeting.

Tristate Hospital for Cripples.—The "Circle of Good Deeds of Kings Daughters of Memphis" has undertaken the establishment of a tristate hospital school in Memphis for the crippled children of Arkansas, Mississippi and Tennessee. The initial capacity of the hospital will be forty beds, and the purpose of the institution is to develop the minds of the children while their bodies are receiving the care of an orthopedic surgeon.

Cotton-Belt Surgeons.—At the annual meeting of the Cotton-Belt Railway Surgeons' Association, held at the hospital of the company in Texarkana, Texas, which was presided over by Dr. John L. Jelks, Memphis, Tenn., the following officers were elected: president, Dr. Edward H. Cary, Dallas, Texas; vice presidents, Drs. Fred T. Murphy, Brinkley, Ark.; Herschel F. Connally, Waco, Texas; John L. Jelks, Memphis, Tenn., and Thomas P. Lloyd, Shreveport, La., and secretary-treasurer, Dr. William Hibbitts, Texarkana, Texas.

Medical Milk Commission Meets.—The American Association of Medical Milk Commissions holds its eleventh annual meeting at Brooklyn, June 1-2 and 4, under the presidency of Dr. Walter D. Ludlum, Brooklyn. The National Certified Milk Contest will be conducted, for which three silver cups will be awarded, one by the association, one by the Certified Milk Producers of America and one by the Standard Cap and Seal Company. On the afternoon of June 2, a memorial service, to Dr. Henry L. Coit, the father of certified milk, was held at Mr. Francisco's Homestead, Fairfield, N. J.

National Tuberculosis Association Adopts Resolutions.—At the annual meeting of the National Association for the Study and Prevention of Tuberculosis, held in Cincinnati, May 10, resolutions were adopted offering the American Red Cross the services of the association in promoting Red Cross work; urging all public health nurses, and especially those with special training in tuberculosis, to continue to devote their energies to the local health problems; favoring national prohibition, both for soldiers and civilians, during the war period and for one year thereafter; condemning the action of the United States Department of Commerce in urging on the "patent medicine" interests of the country that they exploit China and the Chinese people as a lucrative field for business, and urging the registration and organization for the term of war of the tuberculosis workers of the country.

Conference of Charities and Correction.—At the forty-fourth annual meeting of the National Conference of Charities and Corrections at Pittsburgh, June 6-13, the social problems of the war will receive special attention. Mr. Herbert C. Hoover, chairman of the board of the National Council of Defense and of the American Council for Relief in Belgium, will deliver an address. On June 8, the relief of soldiers' families will be discussed. Economy of food and the maintenance of standards of living will be presented. Dr. Warren H. Wilson, New York, an authority on rural life problems, has prepared a program on mobilizing of rural communities. The demands of public health during the war will be voiced by a committee under the chairmanship of Dr. Charles E. A. Winslow of Yale University. Mobilization of the brain power of the nation will be the subject of an address by Dr. Stewart Paton of Princeton University. Food and drug control will be discussed by Dr. Carl L. Alsberg of the United States Department of Agriculture.

Malaria Eradication.—Dr. Frederick L. Hoffman, statistician of The Prudential Insurance Company of America, has just completed an extended trip through Louisiana in the private car of the state board of health, with Dr. Oscar Dowling, the president of the board; Dr. William H. Seemann, president of the Louisiana State Medical Society, and Dr. Henry R. Carter, senior surgeon of the United States Public Health Service, in the furtherance of the state-wide campaign for malaria eradication, improved accuracy and completeness in birth and death registration, and public health matters generally. The principal stops made were New Orleans, New Iberia, Lake Charles, De Ridder, Shreveport, Monroe, Tallulah, Baton Rouge and Alexandria. About twenty public meetings were held, including medical societies, high schools, churches, etc. A special effort was made to reach the negro population, in view of the fact that the death rate among that element of the Louisiana population, from all causes, as well as from malaria, is decidedly excessive. It is anticipated that as the result of the state-wide education, material progress will be made in the direction of malaria eradication and the required improvement in the accuracy and completeness of vital statistics, so as to qualify at least a number of parishes for admission to the United States Registration Area. Sanitary surveys were made of a number of important sections, and it is quite probable that the results of the trip and matters and data pertinent thereto will be presented in the form of an address on the occasion of the forthcoming meeting of the American Public Health Association in New Orleans.

Aid for Soldiers' Families.—The Hennepin County (Minn.) Medical Society has named a medical war board to work out a plan for giving free medical aid to the families of all men in government war service.——The physicians of Covington, Ky., have agreed to care for and protect the practices

of all physicians who enter the military service.——The Medical Society of Wyoming County, N. Y., has agreed that members called to attend cases in the practice of physicians who are in military service shall turn over one third of the fees collected to the physician or to his family.——Madison County (Ind.) Medical Society has adopted a resolution to turn over one third of the gross collections realized from the practices of the physicians called to the colors, to the physicians or dependents of these physicians.——Members of the Knox County (Tenn.) Medical Society have agreed to turn over one third of fees collected from patients, from physicians who volunteer for service in the army, to these physicians or their dependents. Similar action has been taken by the physicians of Chattanooga, Tenn.——The Monterey (Calif.) Medical Society has agreed to treat during the period of the war free of charge the dependents of men who are in the military service.——Members of the King County (Wash.) Medical Society have offered to perform free of charge all minor operations required to qualify otherwise ineligible applicants for military service, the hospital charges being paid by the patients.——Westchester County (N. Y.) Medical Society has adopted a resolution, stating that all physicians who remain at home consider it their patriotic duty and privilege to do their utmost to conserve the professional interests of their professional brethren in the military service.

FOREIGN

Physician Appointed Minister of Public Instruction in Spain.—J. E. Rodriguez, a physician of Madrid, and collaborator on the *Siglo Medico,* has been made minister of public instruction in the recent reorganization of the Spanish cabinet.

Statue of Berthelot.—A statue of Berthelot, the great organic chemist and founder of thermochemistry, the study of the action of heat on chemicals, was unveiled last month in the gardens of the College de France, Paris, where he did much of his pioneer work. He was born in 1827.

Antimalaria Mission to Macedonia.—The French military and public health authorities are organizing a special antimalaria unit to send to the Macedonia district, consisting of twenty physicians, 300 soldiers and their officers, eighteen automobile drivers and other personnel. The mission is to be in charge of Dr. Visbecq. Thirty tons of quinin is to be a part of its equipment.

Deaths in the Profession Abroad.—Lieut.-Col. **D. B. Chiles Evans,** Swansea, R. A. M. C., with No. 18 British Field Ambulance, aged 39.——Col. **J. H. E. Austin,** qualified in 1887; died at military hospital in London.——Sir **A. Ruffer,** president of the Egyptian Sanitary and Quarantine Council, one of the principal authorities on all matters relating to public health in Egypt. He was at first director of the institution at London which later became the Lister Institute, and published much on bacteriology and pathology, leaving in 1896 to be professor of bacteriology at the Cairo Medical School. He was the representative of Egypt at the sanitary conferences, and was a member of the Indian plague commission. His death is said to have occurred as he was returning from Saloniki, where he had been engaged in reorganizing the sanitary service of the provisional government of Greece.——**T. Salazar,** professor of therapeutics at the University of Lima, aged 87. On account of his unusually long incumbency of the chair of therapeutics he has seen the ebb and flow of more tides in medicine in the course of his instruction than falls to the lot of most professors.——**A. Corona,** professor of experimental physiology at the University of Parma, aged 65.——**R. del Castillo y Quartiellers** of Madrid, former senator, chief of the civil administration and the founder of the Instituto Medico-Quirurgico Encarnacion.

Recent Deaths in the Profession in England.—S. D. Rowland, bacteriologist of the Lister Institute, London, but during the war Major Rowland has been in charge of No. 1 Mobile Laboratory. His ingenuity in fitting up this laboratory made it the model for others subsequently sent out. In 1915 he organized and carried out a house-to-house search for typhoid carriers in the civil population of the area of British operations. It was while conducting a search for meningococcus carriers recently that he contracted cerebrospinal meningitis himself and succumbed, aged 45. In 1905 he was sent to Bombay to study means of prevention of bubonic plague and spent two years there. His monographs published in the *Journal of Hygiene* on vaccination against different diseases are said to be the most thorough and quantitative researches in this domain of immunology.——**M. J. Whitty,** lieutenant-colonel and chief medical recruiting officer for the Liverpool district, aged 54. He was of old Irish stock of which many generations had given brilliant men to the army.——**L. K. H. Hackman** of Portsmouth, England, medical officer in charge of the staff and departments and families of the Portsmouth garrison (England). He was also instructor of the police officers and constables in first aid duties.——**C. Stiebel,** killed in action, aged 40. He was a medical missionary of the Salvation Army in India for some years, having charge in turn of two of their hospitals. Since the war began he has served in hospitals in England and in Mesopotamia.——**R. H. Kinsey,** chairman of the ethical committee of the British Medical Association, member of the town council of Bedford, England, aged 77.——**F. P. Lansdown,** a prominent surgeon of Bristol, aged 83. His father, himself and his son have served in turn as surgeon to the Bristol general hospital.

LONDON LETTER

London, May 7, 1917.

The War

THE FOOD PROBLEM

A vigorous campaign to promote economy in the use of food is being carried on so as to counteract, as far as possible, the destruction of food by the submarines. Meetings are held all over the country at which the need for reduced consumption and the elimination of waste is enjoined. Bread is the most important and the most difficult problem, for the situation is aggavated by a shortage of the world's yield of cereals. A proclamation by the king has been read in the churches pointing out that abstention from all unnecessary consumption of grain is the most effectual means of defeating the enemy. He exhorts all who have the means of procuring articles of food other than wheaten corn to practice the greatest economy and frugality in the use of every species of grain, and charges all heads of households to reduce the consumption of bread in their families by at least one fourth, to abstain from the use of flour in pastry, and to restrict, or wherever possible to abandon, its use in all other articles than bread. He exhorts those who keep horses to abandon the practice of feeding them on oats or other grain. It is interesting that an almost identical proclamation was issued by George III in the year 1800, the time of the Napoleonic wars. An order is to be issued making the waste of any kind of food penal. The threatened shortage of grain has brought about a reform which previous methods failed to do. A few years ago an agitation was carried on in the press in favor of what was called "standard bread," that is, bread containing the wheat germ, which it was the practice to remove to satisfy the public craze for a white loaf, but it was not a great success. Now the millers are compelled to extract a high percentage from the grain (as stated in previous letters), and therefore the dark looking loaf, which alone is available, is a much more nutritious food.

This was pointed out by Captain Bathurst, parliamentary secretary to the ministry of food, at a meeting of the Royal Society of Arts. He said that it was probable that the relative availibility and economic use of bread here and in Germany would prove the determining factor of the war. National necessity had forced on the public mind the important issue of what constituted bread properly so called, which reformers had so long preached to the unheeding and skeptical. As long ago as 1882, Mr. Stephen Terry pointed out that there were four coatings to the wheat berry, and that all except one, the bran, contained elements fit for human consumption and necessary for human efficiency. We should be careful how we interfere with any of Nature's gifts and destroy her provision by reason of prejudice or from purely esthetic considerations, such as prevailed in the production of white bread. War bread was almost a complete human food, and when combined with either butter or margarin formed a complete food. This certainly was not true of the anemic loaf in use before the onset of war.

INDUSTRIAL EFFICIENCY AND FATIGUE IN MUNITION WORKERS

The Health of Munition Workers Committee has issued an interim report on efficiency and fatigue. Workers complain of "staleness," which is due almost solely to persistent long hours and deprivation of weekly rest. The committee thinks that proper attention earlier in the war to the need for weekly rest would have prevented a large part of the diminished capacity of this kind, and averted wasteful expediture on

imperfect work. For the avoidance of "staleness" in conditions of strenuous labor it is not enough to treat the workmen in the bulk and to regulate daily and weekly rests on an average; individual workmen must be considered. In many cases a single day off at the right time would have avoided wasteful reduction of capacity. In a sudden national emergency, the accumulation of fatigue and its results in workers might temporarily be disregarded; but now, though the special need persists, the race is to be a long one, and failure to conserve the maximum efficiency of the workers must be disadvantageous. Attempts to stimulate them to feverish activity in the supposed interests of the country are likely to be as damaging to the desired result as the cheers of partisans would be if they encouraged a long-distance runner in futile sprinting early in his race.

Report of the Radium Institute

An important report of the Radium Institute for the two years ending last December has just been issued. The policy of refusing to treat operable malignant disease, except rodent ulcer, and cases in which the patient positively declines operation, has been followed. In epitheliomas of the buccal, laryngeal and pharyngeal mucous membranes, temporary improvement was frequently obtained; but the final result was disappointing. Of fifty-eight such patients treated to a conclusion, sixteen were dead at the time of the report, thirteen were not improved, twenty-five were improved, and four were apparently cured. In addition, thirty patients abandoned treatment, and fourteen were examined but not treated. In some rare instances, isolated nodules in the tongue responded well to burying in them a tiny powerful emanation tube of 50 mg. or more initial activity, screened with 1 mm. of silver or 3 mm. of platinum for a period of from eighteen to twenty-four hours. Brisk reaction, fibrous changes in the nodule, and arrest of the diseases followed. Under this method, small circumscribed growths in the soft palate did well; and of all epitheliomatous lesions in the mouth or fauces, these are regarded as the most suitable for radium therapy. Of six patients with vaginal epithelioma, four were apparently cured, one was improved, and one was not improved. Primary epithelioma of this region usually reacted well to prolonged exposures with powerful applicators heavily screened, and if of recent origin and without such surrounding induration, were often completely removed. In inoperable carcinoma of the uterus, striking symptomatic improvement was almost invariable—arrest of hemorrhage, diminution of discharge, healing of ulceration, reduction of infiltration, diminution of rate of growth, and amelioration of pain. Some cases previously declared to be inoperable became operable.

The treatment was repeated at intervals of six weeks or two months. A 50 or 100 mg. tube, screened with 2 mm. of lead and three mm. of rubber, is introduced into the cervical canal, or, if this is impracticable, into the posterior fornix. A powerful flat applicator containing from 80 to 100 mg., similarly screened, is placed on the abdominal wall over the fundus. The exposure is from thirty to sixty hours, spaced over from five to ten days. When the disease is confined to the cervix and the growth is of the fungating type, preliminary curetting is recommended. In carcinoma of the rectum the results varied greatly. The best results were obtained in persons over 50 in whom the growth was annular, vascular, and situated in the upper half of the rectum. The plaque-like growth with much surrounding infiltration was rarely improved. In annular, vascular and exuberant growths with a tortuous and constricted lumen, radium often relieved the threatened obstruction. But sooner or later, both in this type and in spongy growths, fibroid contraction occurred, necessitating colostomy or dilation. When the growth is extensive and ulcerated, colostomy is recommended before radium treatment, both to prevent pain and, when the growth is high, to enable the upper portion to be treated by the passing of a tube through the colostomy aperture down the sigmoid. Of fifty-one patients with cancer of the rectum treated to a conclusion, thirty-three were improved, ten were not improved, eight died, and fourteen abandoned treatment.

In cancer of the breast it is held that radium should never be used in the early stage as a substitute for operation. In rapidly growing medullary cancer, radium had little effect, but in slow cases of the atrophic type it checked the disease, arrested ulceration, and even caused it to heal, diminished induration and lymphatic engorgement, and relieved pain. Frequently it caused disappearance of small cutaneous nodules and reduced infected glands. Of 111 patients treated to a conclusion, six were apparently cured, sixty-seven were improved, twenty-four were not improved, and fourteen died. Rodent ulcer which had not been subjected to previous treatment with Roentgen rays, carbon dioxid snow, or ionization, did not affect mucous membrane, bone or cartilage, and did not exceed 3 cm. in diameter was almost invariably cured by one treatment. A full strength applicator is used unscreened and an exposure of from one and a half to three hours is given, the time being determined by the amount of induration and infiltration. The number of patients with rodent ulcer treated to a conclusion was 169; 122 were apparently cured, thirty-seven improved, eight were not improved, two died, and six abandoned treatment. In sarcoma before dissemination into the viscera, the results were usually good. Vigorous treatment—burying emanation tubes in the growth and applying externally powerful screened apparatus—is recommended. In lymphosarcoma the response was remarkable, the growths commencing to shrink in a few days after termination of the treatment and rapidly disappearing. In fibroid disease of the uterus in which ordinary methods failed to relieve hemorrhage and the patient declines operation, radium is held to be worth a trial. It will almost certainly diminish or abolish hemorrhage and will sometimes produce considerable diminution of the uterus. In lupus vulgaris which has not responded to the Finsen light, radium offers a fair prospect if used vigorously. Lupus erythematosus frequently responded. In obstinate pruritus, associated with leukoplakia or hyperkeratosis, radium was often of great use, but not when there was no lesion and the trouble was purely nervous. In arthritis deformans the daily administration of 250 c.c. of radium emanation solution of a strength of not less than 1 millicurie per liter often produced remarkable improvement, especially in persons under 40, in whom the disease had been of short duration and of infective origin, the changes being periarticular and affecting many joints.

PARIS LETTER

PARIS, May 3, 1917.

Personal

The Academy of Sciences recently held an election to fill the vacancy occasioned by the death of Bouchard. E. Quénu, professor of clinical surgery of the Faculty of Medicine of Paris and member of the Academy of Medicine, was elected on the second ballot, receiving thirty-one votes, against fourteen for Pozzi and five for Bazy. Quénu is known for his work in surgery. Since the beginning of the war he has taken an active part in solving the great problems of war surgery, notably in his successful advocacy of intervention in abdominal wounds.

Death of Dr. Frédéric Labadie-Lagrave

Dr. Frédéric Labadie-Lagrave, former physician of the hospitals of Paris, died at the age of 73. He was a clinician of repute and published many works, notably a treatise on gynecology, written in collaboration with Professor Legueu.

The War

MEATLESS DINNERS

The decree of April 14 regulated the sale and consumption of meat by instituting two meatless days each week, but difficulties of transportation due to military operations, as well as difficulty in obtaining a sufficient quantity of vegetables on account of the rigor of the weather, obliged the minister of food control to modify this restriction. A new decree has been signed, therefore, which requires that the butcher shops, as well as retail meat markets of all sorts, shall be closed at 1 o'clock every day, and the sale of fresh, frozen, salt or preserved meats is interdicted during the closed hours. Beginning April 25, the consumption of meat, whatever be its form of preparation, is interdicted at and after 6 p. m., except on Sunday. In consequence, in all establishments open to the public (hotels, boarding houses, restaurants, buffets, wagon restaurants, cafés, etc.) they must not inscribe on their menus or serve any meat or dish containing meat, including poultry, rabbit or game. The minister of food control, however, has abrogated the rule of January 25 which instituted the regimen of "two dishes" (only one of meat) in the restaurants.

IS THORACOTOMY INDICATED TO ARREST HEMORRHAGE RESULTING FROM WOUNDS OF THE CHEST?

In a previous letter I referred to a report made by Dr. Pierre Duval of fourteen cases of urgent surgery in cases of

wounds of the lung. In ten of these a cure was obtained; therefore, Duval concludes that surgical intervention is indicated in these cases, particularly to arrest a pulmonary hemorrhage which threatens the life of the patient. This question was the subject of discussion at a meeting of the Surgical Society of Paris. R. Grégoire, A. Courcoux and G. Gross related their experiences at one of the hospitals at the front. During a period of twenty-nine months they saw 404 cases of wounds of the chest, and as a result of their observations they stated that hemostatic operations in cases of traumatic pleural effusions are rarely indicated. Without doubt there are cases in which early intervention is not only indicated but even demanded, and in which such an operation is possible as well as practicable. Some of these patients die at the first aid stations and in the distributing hospitals. The cases that are suited for this operation are those that are seen at the base hospitals, and here such an urgent operation is only exceptionally required. In the 404 cases reported the operation was necessitated only five times. These wounded sometimes die before they can be given help. Can the surgeon determine whether or not the patient is bleeding? Neither the shock nor the height of the effusion are sufficient signs. Three phenomena indicate that the hemorrhage is still active: (1) If blood is still flowing, the fluid obtained by puncture will coagulate in the syringe; (2) the symptoms of mediastinal compression steadily become more embarrassing; (3) the symptoms of shock continue to develop, notwithstanding the treatment. When these signs and symptoms are present, immediate intervention is indicated, but these cases are but rarely seen by the surgeon.

Hartmann did not concur with Duval, basing his opinion on personal observations made in the surgical automobile hospitals. It is true that at Grégoire's hospital it is not practicable to perform a thoracotomy for the purpose of arresting hemorrhage. There were thirty-seven deaths among 290 cases (12.7 per cent. mortality). On the other hand, at the hospital at which Duval is stationed, the mortality was 18 per cent. (thirty deaths among 163 cases). At Jeanbrau's hospital there were sixty deaths among 223 cases of wounds of the chest, but twenty-three of these deaths were caused by other lesions (multiple wounds, wounds of the brain and spinal cord, and wounds of the thorax and abdomen) leaving 200 cases of chest wounds with thirty-seven deaths, or 18 per cent., mortality, the same as at Duval's hospital. Because of these findings, Hartmann asked whether the good results following the nonoperative treatment of these hemorrhages were not due to the fact that the surgeons at the surgical automobile hospitals receive only the selected cases; whether the indications for surgical intervention were not more often present there than in the hospitals of the first line. These patients are often received late, as he has been able to confirm. Of eighty-five patients arriving within a given time, twenty-five were received dead. Six of these died of multiple wounds: one each of a wound of the brain, of the spinal cord, a thoraco-abdominal injury, and complete section of the vessels and nerves of the arm; two died suddenly, although only a slight hemothorax was present. One died from a severe fracture of the scapula and ribs, and four from large destructive wounds of the thorax. In one case there were no details given as to the cause of death. Only one patient, who died after about twelve hours from a hemopneumothorax, could, perhaps, have been benefited by the operation. Of the surviving sixty patients, not one presented any grave symptoms as the result of the hemorrhage. In one other first line hospital there were, in a given period, fifty-nine cases of chest wounds with eight deaths, three from pneumonia, one each from pulmonary congestion, a pleuropulmonary infection, pleurisy, septicemia and syncope, the last-mentioned occurring at the time an exploratory puncture was made (at the necropsy 700 gm. of fluid were found in the pleural cavity). In the fifty-nine cases there was at no time any indication for surgical intervention to check the bleeding, and not one of these patients died from hemorrhage. An examination of 534 cases of chest wounds, in which the patients were received at the surgical automobile hospitals and the first line hospitals during one of the battles, leads to the conclusion that thoracotomy as a primary operation to arrest pulmonary hemorrhage is correct in theory, but practically it is not to be considered.

Pierre Duval reported an additional series of thirteen cases with operation since his first report. Eight of these patients were operated on to check a threatened hemorrhage; three died and five were cured. Duval is convinced that this is indicated in all cases of open wounds of the thorax and in all cases of immediate grave hemorrhages. Thoracotomy with suture of the lung will save two thirds of these patients. The operation on the lung is also indicated in cases of fracture of the ribs accompanied by wounds of the lung. In these cases spicules of bone nearly always puncture the lung, and cause an immediate grave hemorrhage with subsequent suppuration of the pleura and lung, occurring more or less rapidly. The indication to remove such bone fragments must be met promptly.

At one of the last meetings of the Paris Medical Society, Dr. Maisonnet presented some statistics of cases he had observed while attached to one of the hospitals of the first line in Artois. He has had only one case of wounding of both lungs, and this case terminated fatally. Among 104 cases of wounds of one lung there were eleven deaths, all occurring within the first forty-eight hours. In no case was there found at the necropsy a vascular lesion which would account for the bleeding. Furthermore, he has never been of the opinion that the patient died of a division of the vessels. He has had four deaths from the seventh to the tenth day of pneumonia, six deaths after the tenth day (three from empyema, one from liver cirrhosis, one from meningitis incident to a cranial lesion, and one from pneumonia). The total mortality at this hospital was 20 per cent. If one adds to these deaths the rapid deaths occurring before the arrival of the wounded at the various base hospitals (from large, open wounds of the thorax and severe hemothorax), one sees that the mortality of wounds of the chest is considerable.

Hartmann concluded, from the experience of Maisonnet, Grégoire, Courcoux and Gross, as well as his own, that the indication for thoracotomy to arrest hemorrhage is never present. Furthermore, one can wonder at the frequency with which Duval has encountered it. Perhaps the men with hemorrhages would be benefited by early intervention at properly equipped first aid stations. In the hospitals of the first line, and more so in the surgical automobile hospitals situated farther back, the results obtained have shown that absolute immobilization gives results superior to those obtained from operative intervention. The cases of severe hemorrhage have usually proved fatal before the patient arrived at these hospitals.

MECHANOTHERAPY AND REEDUCATION

The National Union of Cripples has opened an inquiry on the status of mechanotherapy in France, and has appointed a committee of which the president will be Eugène Rochard, general secretary of the Surgical Society of Paris. It seems that at present the health service is interested only in giving professional reeducation. Rochard thinks that aside from this, mechanotherapy ought not be neglected. This concerns notably men injured by fractures and who are liable, during treatment, to ankyloses or muscular atrophies, and who in their working capacity will be in a state of inferiority as compared with their noncrippled fellows. They may recover in a great majority of cases and be returned to their combatant units, or be restored to their full working capacity. Mechanotherapy alone can attain this result. Rochard thinks that the question of mechanotherapy has been badly handled from the beginning of the war. In the first place, the proper way would have been to appoint a commission of surgeons who would have studied all existing apparatus, chosen the best among them and advised their adoption by the health service. Instead of that, they employed, without preliminary inquiry, apparatus badly conceived, awkward, and not effective for its purpose. This has resulted in neglect of the method, and mechanotherapy is discredited. It is time yet to return to this practice, which alone can restore the motility of ankylosed articulations, and the activity of atrophied muscles.

INTERALLIES CONFERENCE ON THE DISABLED

This conference, sitting in the Grand-Palais, May 8 to 12, inclusive, will be presided over by the President of the Republic. The six questions to be discussed are: (1) physical reeducation; (2) professional reeducation; (3) the placement and economic establishment of cripples; (4) the economic and social interests of the crippled; (5) the blind, the deaf, and those invalided by central nervous troubles, and (6) publications and propaganda. In addition to attendance on the sessions, visits will be made to the school for professional reeducation of Paris, to the National Professional Institute for Invalids of the War at Saint Maurice, and to the Belgian Military Institute for Professional Reeducation of Port-Villez (Eure).

Marriages

WILLIAM TARVIN FENKER, M.D., State Soldiers' Home, Ohio, to Miss Lillian Cheetham of New Straitsville, Ohio, at Monroe, Mich., May 5.

EDGAR HAMILL HUGHES, M.D., Northampton, Mass., to Miss Florence A. Martindale of Camden, N. J., at Holyoke, Mass., May 21.

RALPH WAITE DENNEN, M.D., Waltham, Mass., to Miss Margaret May Alexander of East Boston, Mass., May 10.

THEODORE WILLIAM NEUMANN, M.D., to Miss Florence Middleton Pilgrim, both of Poughkeepsie, N. Y., April 30.

DANIEL DAVIS, M.D., Baltimore, to WILLA MAE FRICKE, M.D., of Rochester, Minn., at Wausau, Wis., May 17.

JACOB LEON HERMAN, M.D., Philadelphia, to Mrs. Leonora Owsley Ackley, in Norristown, Pa., May 12.

ALLEN G. CALDWELL, M.D., Covington, Ky., to Miss Antoinette Yeager of Cincinnati, May 12.

BALDUIN HARMANN LUCKE, M.D., Philadelphia, to MARIAN HAGUE REA, M.D., Boston, March 2.

Deaths

Joseph Carter Hearne, M.D., San Diego, Calif.; Jefferson Medical College, 1872; aged 66; a Fellow of the American Medical Association and a member of the Pacific Association of Railway Surgeons; local surgeon of the Sante Fe System; a veteran of the Civil War; formerly chief surgeon of the Hannibal and St. Joseph Railroad, and secretary of the Missouri State Board of Health; president of the San Diego City Board of Health and surgeon to the Pacific Coast Steamship Company; died at his home, May 9.

Charles A. von Hoffman, M.D., San Francisco; University of Leipzig, Germany, 1875; aged 65; a Fellow of the American Medical Association; emeritus professor of gynecology in the University of California; gynecologist to St. Luke's Hospital; obstetrician to the Maternity Cottage; consulting gynecologist to the German Hospital and consulting physician to the San Francisco Lying-In Hospital and the Florence Crittenton Home; died at his home, May 13, from cerebral hemorrhage.

Frank Albert Applegate Stoney, M.D., Brooklyn; Long Island College Hospital, 1897; aged 42; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; a member of the staff of the Bay Ridge Hospital; formerly division chief in the bureau of contagious diseases of the New York Department of Health, and chief of the tuberculosis clinic; died at Seaton Hall, Lakewood, N. J., May 13, from heart disease.

John Carpenter Schapps, M.D., Butte, Mont.; Bellevue Hospital Medical College, 1880; aged 60; a Fellow of the American Medical Association; a member of the American Orthopedic Association and once first vice president of the Medical Association of Montana; formerly orthopedic surgeon to St. Mary's and Kings County hospitals, Brooklyn; orthopedic surgeon to the Murray Hospital and Paul Clark Home, Butte; died at his home, May 16.

James Harvey Spruance, M.D., Wilmington, Del.; Jefferson Medical College, 1889; aged 50; formerly a Fellow of the American Medical Association; a member of the Delaware State Medical Society; formerly mayor of Wilmington; a member of the state legislature, state board of pharmacy and local board of education; died at his home, May 16, from pneumonia.

Charles Dake Crank, M.D., Cincinnati; Hahnemann Medical College, Philadelphia, 1871; aged 73; emeritus professor of pediatrics and one of the founders of Pulte Medical College, Cincinnati; attending physician to the Cincinnati Orphans' Hospital and a member of the staff of the Bethesda Hospital; chief of staff of the Home for the Friendless and Foundlings; died at his home, about May 7.

Robert Ream, M.D., Maryville, Mo.; Missouri Medical College, St. Louis, 1895; aged 47; for many years a druggist; died at the home of his brother in Van Wert, Ohio, March 5, from a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, while despondent on account of ill health.

William Hassert Biggam, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1881; aged 61; formerly a Fellow of the American Medical Association; gynecologist to the Eastern District Hospital and visiting physician to the Home for the Aged, Brooklyn; died in that city, May 9, from heart disease.

Samuel Watson Acton, M.D., Trussville, Ala.; University of Alabama, Mobile, 1860; aged 83; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; surgeon in the Confederate service during the Civil War; died at his home, May 6.

Otto W. A. Schirmer, M.D., New York; University of Greifswald, Germany, 1888; aged 52; professor of diseases of the eye in the New York Post-Graduate Medical School; ophthalmologist to the Knapp Memorial, St. Mark's and Bronx hospitals; died in the Polyclinic Hospital, New York, May 6.

James Edward Taylor, M.D., Ovid, Mich.; Western Reserve University, Cleveland, 1886; aged 55; a Fellow of the American Medical Association, and once president of the Clinton County Medical Association; health officer of Ovid village and township; died at his home, May 13, from heart disease.

Nathan Johnson, M.D., Fitchville, Conn.; New York University, New York, 1878; aged 66; health officer and medical examiner (coroner) of Bozrah Township since 1892; for several years a member of the Fitchville Board of Education; died at Bozrah, Conn., April 17, from arteriosclerosis.

Samuel Warren Holloway, M.D., Louisville, Ky.; Louisville Medical College, 1891; aged 49; formerly assistant in surgery and clinical surgery in the Kentucky School of Medicine, Louisville; died at the home of his mother in Louisville, April 19, from intestinal obstruction.

William C. Rohu, M.D., Chicago; Bennett Medical College, Chicago, 1891; aged 64; formerly a Fellow of the American Medical Association; for seventeen years in charge of the dispensary of the Passavant Memorial Hospital, Chicago; died at his home, May 20, from diabetes.

Louis N. Wells, Chicago (license, Indiana, 1897); aged 77; formerly a member of the Indiana State Medical Association; for many years a practitioner of De Motte, Ind.; a veteran of the Civil War; died at the home of his sister in De Motte, May 3, from cerebral hemorrhage.

John Lorenzo Davison, M.D., Toronto, Ont.; Trinity Medical College, Toronto, 1884; M.R.C.S. (Eng.), 1885; at one time professor of clinical medicine in the University of Toronto; died at the home of his brother in Napanee, Ont., April 27, from heart disease.

Henry A. Willis, M.D., Whitehall, S. C.; Medical College of the State of South Carolina, Charleston, 1897; aged 46; a member of the South Carolina Medical Association and surgeon of the Savannah River Lumber Company; died in a hospital in Charleston, April 30.

Cyril P. Brown, M.D., Spring Lake, Mich.; Rush Medical College, 1870; aged 72; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; a veteran of the Civil War; died at his home, May 4, from pneumonia.

Walter Demarest, M.D., New York and Chicago; College of Physicians and Surgeons in the City of New York, 1878; aged 62; well known as an organist; died in the New Jersey State Hospital, Morris Plains, May 5, after an invalidism of twenty-three years.

Hyman Solomon Shlevin, M.D., Brooklyn; Yale University, New Haven, Conn., 1892; aged 52; a member of the Medical Society of the State of New York; died from cerebral hemorrhage, May 12, while working under his motor car in front of his home.

Jeremiah Wilson, M.D., Morehead, Ky.; Kentucky School of Medicine, Louisville, 1889; aged 64; health officer and county physician of Rowan County, Ky.; local surgeon to the Chesapeake and Ohio System; died at his home, April 25.

James W. Teams, M.D., Ridgeway, S. C.; Medical College of the State of South Carolina, Charleston, 1894; aged 44; a member of the South Carolina Medical Association; died at his home, February 24, from nephritis.

John W. Spear, M.D., Mason City, Ill.; Rush Medical College, 1875; aged 68; a Fellow of the American Medical Association; for many years local surgeon for the Illinois Central Railway; died at his home, May 5.

Alexander Loew, M.D., Chicago; University of Vienna, Austria, 1868; aged 70; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, May 11.

William Fremont Hubbard, M.D., Portland, Ore.; University of Michigan, Ann Arbor, 1893; aged 61; a Fellow of the American Medical Association; a specialist in the diseases of women; died at his home, May 6.

Harriet Noble Watson, M.D., Albion, N. Y.; New York Medical College and Hospital for Women, New York, 1878; a member of the Medical Society of the State of New York; aged 81; died, May 2.

Theophilus H. East, M.D., La Junta, Colo.; University Medical College, Kansas City, Mo., 1900; aged 63; died in La Junta, March 19, from surgical shock following a laparotomy.

Hall Staples, M.D., West Acton, Mass.; Dartmouth Medical School, Hanover, N. H., 1892; aged 46; a member of the Massachusetts Medical Association; died at his home, March 7.

James E. Brennan, M.D., Louisville, Ky.; Louisville (Ky.) Medical College, 1890; aged 49; formerly a member of the Kentucky State Medical Association; died at his home, April 26.

Frederick William Colman, M.D., Lodi, Calif.; Cooper Medical College, San Francisco, 1873; aged 78; formerly health officer of Lodi; died at his home, April 24, from senile debility.

James B. Orwig, M.D., Toledo, Ohio; Cleveland Homeopathic Medical College, 1899; aged 42; formerly consulting physician to the Oil City (Pa.) Hospital; died at his home, May 10.

Alfred James Hamilton, M.D., Cassville, Pa.; University of Michigan, Ann Arbor, 1870; aged 71; formerly a member of the Michigan State Medical Society; died at his home, May 6.

Orlando E. Black, M.D., Wilsonville, Ala.; University of the South, Sewanee, Tenn., 1900; aged 41; a Fellow of the American Medical Association; died at his home, March 13.

William David McIlmoyle, M.D., Bracebridge, Ont.; University of Toronto, Ont., 1908; aged 32; died February 21, twenty-four hours after an operation on the tonsils.

Courtney T. Allen, M.D., Dorchester, N. B.; College of Physicians and Surgeons, Baltimore, 1903; aged 38; died at his home, February 19, from cerebral hemorrhage.

Benjamin Franklin Freeman, M.D., Ridgeville, Ind.; Medical College of Indianapolis, 1898; aged 39; died at his home, April 1, from chronic parenchymatous nephritis.

James A. McPherson, M.D., Grand Rapids, Mich.; Detroit Medical College, 1872; aged 69; a Fellow of the American Medical Association; died at his home, May 5.

Hiram Becker, M.D., Albany, N. Y.; Albany Medical College, 1864; aged 76; for many years a practitioner of Slingerlands, N. Y.; died at his home, May 6.

Donald Alexander McCrimmon, M.D., Ripley, Ont.; McGill University, Montreal, 1860; aged 81; died at his home, March 2, from chronic interstitial nephritis.

Claude Lucas Wilson, M.D., Middletown, Conn.; College of Physicians and Surgeons in the City of New York, 1899; aged 45; died at his home, April 25.

Herbert Eugene Aldrich, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1883; aged 60; died at his home, May 10, from heart disease.

Don E. Ashley, M.D., Guys Mills, Pa.; Western Reserve University, Cleveland, 1871; aged 71; died at his home, May 8, from cerebral hemorrhage.

William Thomas Burdick, M.D., Tolesboro, Ky.; Syracuse (N. Y.) University, 1875; aged 67; died at his home, April 17, from cerebral hemorrhage.

Frank Henry Flood, M.D., Elmira, N. Y.; New York University, New York, 1873; aged 65; formerly mayor of Elmira; died at his home, May 9.

Carl Paul Rafael Cramer, M.D., Cedar Grove, Ind.; Eclectic Medical Institute, Cincinnati, 1910; aged 47; died at his home, May 5.

Lenore Perky Webster, M.D., Washington, D. C.; Hahnemann Medical College, Chicago, 1890; aged 59; died at her home, May 3.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TANLAC TESTIMONIALS

Dead Men and Live Newspapers Endorse a Humbug

Most of our readers are familiar with "Tanlac." The flamboyant advertisements of this nostrum are particularly in evidence in those parts of the country where the sale of alcoholics under their own names is prohibited by law. The stuff has been analyzed in the Association's laboratory and the chemists' report when stripped down to essentials was to the effect that Tanlac is a wine containing 17 per cent. alcohol to which had been added some bitters, a small amount of laxative and some glycerin. Mr. Samuel Hopkins Adams has at different times paid his respects to Tanlac, and one of his articles has been reprinted in connection with the other matter dealing with Tanlac appearing in our pamphlet "Miscellaneous Nostrums." More recently Mr. Adams again reverts to Tanlac, and in the New York *Tribune* for April 29 he tells how the Tanlac concern hired as its legal counsel the president of the Atlanta (Ga.) Ad Men's Club. He tells further how this individual, one P. C. McDuffie, appeared before the Shreveport (La.) Ad Club to defend the nostrum which the Shreveport Ad Club's Vigilance Committe had hit by declaring its advertising to be "misleading, deceptive and spurious."

Mr. Adams, in telling the story which appeared in the *Tribune* for April 29, 1917, said in part:

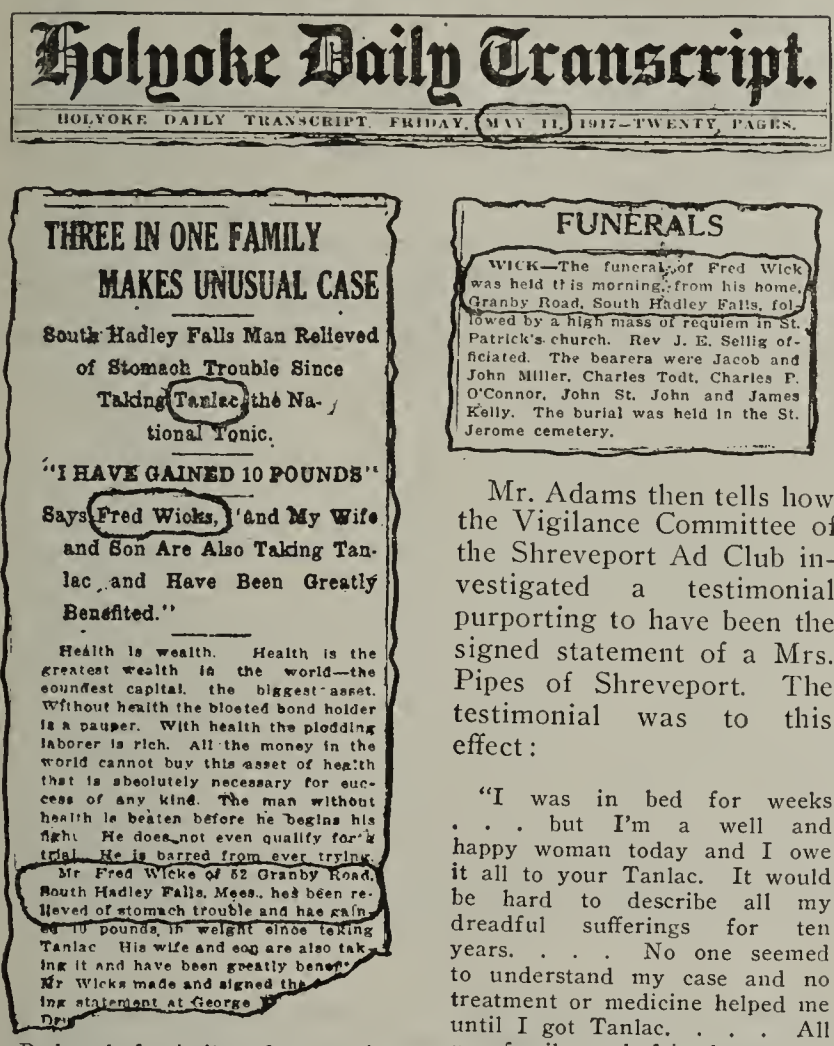
"Who are the true friends of a quack medicine? Not those who extol its benefits through testimonials in the public prints. Their eulogies are commonly the toll paid by ignorance to flattery or trickery; sometimes the return for bribery. In time the eulogists learn (if they live long enough) that the nostrums which they commend have done them no good. But the behind-the-scenes testimonial writers, those who lend their influence and support to quackery when it is on its defense, never supposing that they will be publicly held to account for their shameless name-peddling—these are the patent medicine faker's true friends. In this category are listed the newspapers and, in rare instances, the advertising club officials who, in exchange for the money of the frauds, deliver their impressive but worthless guarantees of good faith. For them the old, cynical slogan of the led captain and the purchased pen stands sufficient and expressive: 'Whose bread I eat, his song I sing.'

"It is my pleasant privilege here to draw forth from their modest retreat in the shadows and to set out in the light of plain print the chorus of those who have been singing, with purchased voices, the song of that famous fake medicine, Tanlac. Here is the roll of dishonor:

The Atlanta *Constitution*
The Atlanta *Journal*
The Birmingham *Age-Herald*
The Birmingham *News*
The Birmingham *Ledger*
P. C. McDuffie, President of the Atlanta Ad-Men's Club
The Memphis *Commercial Appeal*
The Memphis *News Scimitar*
The Montgomery *Advertiser*
The Montgomery *Journal*
The Nashville *Banner*
The Shreveport *Times*

"According to its claims, Tanlac is a 'magic medicine.' Its magic is derived from the great wizard, Alcohol. It's a disguised booze, and barely disguised at that, except on the label. It purports to be the 'discovery' of one L. T. Cooper. Cooper is a confessed and convicted fraud, having pleaded guilty to an indictment in Kentucky, three years ago, when he was nostrum-pedling in that state. Since then he has been doing a tremendous Tanlac business through the South, the principal outlet being G. F. Willis, the Southern distributing agent, with headquarters at Atlanta, Ga. The *Tribune* has already illuminated some of Willis' activities. It was he who put out a manufactured testimonial from a Chattanooga woman, on whom Tanlac 'wished' in print not only an assortment of ills from which she had never suffered but also a family of children which she never had! Subsequently he attempted to impose a press consorship on the

Mobile *Tribune,* which was exposing his fake; and for a time succeeded in keeping real facts about Tanlac out of print through an injunction, which, however, was vacated by Judge Henry D. Clayton. Instead of suffering injury from the attack made on it by the quack concern, the Mobile *Tribune* gained such prestige from its courageous fight for freedom of the press that it shortly after blossomed out from a weekly into a daily paper."



Holyoke Daily Transcript.

HOLYOKE DAILY TRANSCRIPT, FRIDAY, MAY 11, 1917—TWENTY PAGES.

THREE IN ONE FAMILY MAKES UNUSUAL CASE

South Hadley Falls Man Relieved of Stomach Trouble Since Taking Tanlac the National Tonic.

"I HAVE GAINED 10 POUNDS"

Says Fred Wicks, "and My Wife and Son Are Also Taking Tanlac and Have Been Greatly Benefited."

Health is wealth. Health is the greatest wealth in the world—the soundest capital, the biggest asset. Without health the bloated bond holder is a pauper. With health the plodding laborer is rich. All the money in the world cannot buy this asset of health that is absolutely necessary for success of any kind. The man without health is beaten before he begins his fight. He does not even qualify for a trial. He is barred from ever trying.

Mr Fred Wicke of 52 Granby Road, South Hadley Falls, Mass., has been relieved of stomach trouble and has gained 10 pounds in weight since taking Tanlac. His wife and son are also taking it and have been greatly benefited. Mr Wicks made and signed the following statement at George [illegible] Drug

FUNERALS

WICK—The funeral of Fred Wick was held this morning from his home, Granby Road, South Hadley Falls, followed by a high mass of requiem in St. Patrick's church. Rev J. E. Sellig officiated. The bearers were Jacob and John Miller, Charles Todt, Charles P. O'Connor, John St. John and James Kelly. The burial was held in the St. Jerome cemetery.

Reduced facsimile of two clippings from the Holyoke Daily Transcript, May 11, 1917. On the left the Tanlac advertisement tells the public that Mr. Fred Wick "has been relieved of stomach trouble"; on the right the reader is advised that "the funeral of Fred Wick was held this morning . . ."

Mr. Adams then tells how the Vigilance Committee of the Shreveport Ad Club investigated a testimonial purporting to have been the signed statement of a Mrs. Pipes of Shreveport. The testimonial was to this effect:

"I was in bed for weeks . . . but I'm a well and happy woman today and I owe it all to your Tanlac. It would be hard to describe all my dreadful sufferings for ten years. . . . No one seemed to understand my case and no treatment or medicine helped me until I got Tanlac. . . . All my family and friends are delighted over my recovery."

The facts were that at the time this testimonial was published in the Shreveport papers Mrs. Pipes was suffering from cancer of the breast which had reached a hopeless stage. She has since died. As Mr. Adams says:

"And while her life was being eaten away by the dreadful scourge the Tanlac ghouls in Atlanta were making capital out of her agony and writing in above her alcohol-wheedled signature references to her 'recovery' and the assertion 'I'm a well and happy woman today.'"

These facts, learned by the Vigilance Committee of the Shreveport Ad Club, were but part of the evidence it had accumulated which caused it to denounce the Tanlac advertising. Some further evidence in the committee's possession was also the facts of "a Cincinnati testimonial for Tanlac published several days after the testimonial giver had died of the condition of which Tanlac had 'cured' him."

The unenviable publicity thus given Tanlac in Shreveport caused, apparently, a falling off of the sales, with the result that the local drug store having the Tanlac agency telegraphed to Atlanta for help. The help came in the person of P. C. McDuffie, counsel for the Tanlac concern and president of the Atlanta Ad Men's Club. McDuffie demanded retraction and exoneration from the Shreveport Ad Club when he appeared before that body with his principal, G. F. Willis. What follows is thus described by Mr. Adams:

"Up rose Mr. Hudson, of the Vigilance Committee, and asked:

"'Have you the testimonial of Mrs. T. W. Pipes?'

"'We have,' said McDuffie.

"'Will you be good enough to read it?'

"'Mr. McDuffie obliged. Then another questioner popped up (indeed, from this time the queries were fired at McDuffie and Willis from all parts of the room):

"'Who wrote that testimonial?'

"'It was handled in the Atlanta office of the Massingale Advertising Agency.' (St. Elmo Massingale, head of the Massingale Agency, is a former president of the Atlanta Ad Men's Club, which, by the way, appears to be considerably tinged with Tanlac.)

"'Was the questionnaire form filled out there?'

"Here Willis rose. 'I personally edit and supervise the copy of every testimonial we put out,' was his significant statement.

"'Did Mrs. Pipes write that she was "well and happy," as the testimonial states?'

"Neither McDuffie nor Willis would state that she wrote it. Indeed, they could not well do so, in view of the fact that the answers to the form questions were not in her writing.

"'Was it written in Atlanta?'

"'It was edited in Atlanta.'

"'Where do you get that "well and happy" stuff?'

"McDuffie read what purported to be a statement of Mrs. Pipes' case. It did not assert that she was well and happy. 'But if it doesn't mean that, what does it mean?' he challenged.

"'That lady,' said a local physician 'is now at the Charity Hospital, where she was operated on by Dr. Sidney Williams for cancer of long standing. Did you know that?'

"But Mr. McDuffie didn't want to talk about that. He dodged.

"'Is it true,' asked some one else, 'that Mrs. Pipes' daughter told your agent that the testimonial was false and demanded that it be withdrawn?'

"'She said something to Mr. Reid about it. He said that all he could do was to communicate with us.'

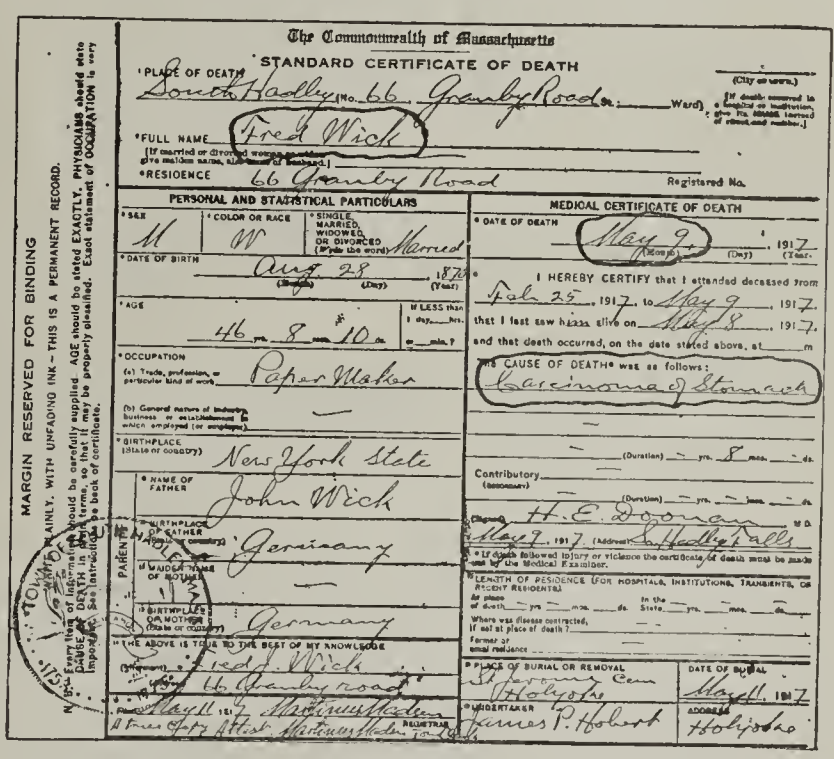
"'Did he do that?'

"'Yes,' spoke up Willis, 'I got his letter.'

"'What have you done about it?'

"'Nothing up to the present. I saw no reason to withdraw the testimonial.'

"Subsequently it was withdrawn. The testimonial in the Cincinnati papers from a dead man was then brought up for discussion. Mr. McDuffie explained that this was a regrettable mistake. After some arguments a motion was carried, against the heated protest of McDuffie, to refer the whole



The Commonwealth of Massachusetts

STANDARD CERTIFICATE OF DEATH

PLACE OF DEATH: South Hadley (No. 66 Granby Road St.) (City or town.)

FULL NAME: Fred Wick

RESIDENCE: 66 Granby Road

PERSONAL AND STATISTICAL PARTICULARS

SEX: M | COLOR OR RACE: W | SINGLE, MARRIED, WIDOWED, OR DIVORCED: Married

DATE OF BIRTH: Aug 28 1873

AGE: 46 yrs. 8 mos. 10 ds.

OCCUPATION: (a) Trade, profession, or particular kind of work: Paper Maker

BIRTHPLACE: New York State

NAME OF FATHER: John Wick

BIRTHPLACE OF FATHER: Germany

MAIDEN NAME OF MOTHER:

BIRTHPLACE OF MOTHER: Germany

THE ABOVE IS TRUE TO THE BEST OF MY KNOWLEDGE: Fred J. Wick

66 Granby road

May 11 1917

MEDICAL CERTIFICATE OF DEATH

DATE OF DEATH: May 9 1917

I HEREBY CERTIFY that I attended deceased from Feb 25 1917 to May 9 1917 that I last saw him alive on May 8 1917 and that death occurred, on the date stated above, at m

CAUSE OF DEATH was as follows: Carcinoma of Stomach

Duration: 8 mos.

Contributory:

H. E. Doonan M.D.

May 7 1917 Address South Hadley Falls

PLACE OF BURIAL OR REMOVAL: St Jerome Cem Holyoke

DATE OF BURIAL: May 11 1917

UNDERTAKER: James P. Hobert

ADDRESS: Holyoke

MARGIN RESERVED FOR BINDING

Reduced facsimile of the death certificate of Fred Wick. Note that he died of cancer of the stomach May 9, although the Tanlac concern told the public on May 11 that he had been "relieved of stomach trouble."

matter back to the Vigilance Committee. When a motion to adjourn followed the lawyer-president of the Atlanta Ad Men's Club hammered the table and shouted: 'You shall not adjourn until you have exonerated us!' 'Exoneration' would have been worth a hundred thousand dollars to Tanlac as advertising material.

"They didn't get it. But that wasn't for lack of a final appeal, based on newspaper support."

Mr. Adams tells how McDuffie then presented letters and telegrams from various newspaper publishers, the papers in question being the ones listed at the beginning of this article. He then continues:

"Some other interesting Tanlac matter has since come to light. 'Prominent' physicians who have given testimonials have been shown to be drug-store-counter practitioners. Heyder Barr, left fielder of the Shreveport nine, testified to his desperate condition; how he ran down until he was too weak to play ball, before Tanlac put him on his feet again. If he was too weak to play ball he concealed it admirably, for neither the club physician nor the club pay-roll ever found it out. John T. Elliott is another Shreveport man who was supplied with some desperate symptoms by the Tanlac testimonial experts. Although his ailments had been terrifying him for twenty years (according to the advertisement) he forgot all about them when he was examined for life insurance, and the examining physician found no trace of them. Then there is—or was—Mrs. Jacquet, who gave public thanks for Tanlac in print, and died last week."

In connection with what has been written above, a further interesting side-light on the Tanlac quackery was brought to the attention of THE JOURNAL during the past few days. Dr. F. L. Leland of South Hadley Falls, Mass., sent to THE JOURNAL office a copy of the Holyoke *Daily Transcript* of May 11. This single issue of the paper contained two items. One of these was an advertisement stating that Mr. Fred Wick of Granby Road, South Hadley Falls, Mass., "has been relieved of stomach trouble and has gained ten pounds in weight since taking Tanlac." The other item, under the ominous black-faced heading "Funerals," advised the readers that "the funeral of Fred Wick was held this morning from his home, Granby Road, South Hadley Falls. . . ." Through the further courtesy of Dr. Leland we have received a certified copy of the death certificate of Fred Wick which shows that the poor fellow instead of having "been relieved of stomach trouble" by the use of Tanlac had in fact died of carcinoma of the stomach, TWO DAYS BEFORE THE TESTIMONIAL WAS PUBLISHED.

We do not expect that the recounting of these damning facts will result in the withdrawal of Tanlac from the market. It is hopeless to expect that the men who are exploiting it and the newspapers that are sharing the profits of its sale will be in the least affected by any facts that may be brought out regarding Tanlac. All that can be hoped is that by repeated publication of such instances as these the public and also the decent advertisers of honest and meritorious products will at last be aroused to the point where it will cost the newspapers more to accept advertisements of such humbugs as Tanlac than to reject them. When that time comes, and commercial expediency accomplishes what moral responsibility failed to accomplish, Tanlac and its congeners will be no more.

How Syphilis is Treated in France.—Carle and Carrère have taken advantage of the unprecedented opportunity in the military hospitals for seeking out syphilitics and investigating the treatment they have had. As the soldiers come from all parts of the country and the colonies they were thus able to get an extensive oversight on the way in which syphilis is treated throughout the country. They tabulate their findings in the *Annales de Dermatologie,* 1917, **6,** 277, grouping the cases by the adequacy of treatment. They were impressed by the almost universal change from internal to subcutaneous or intravenous treatment, even in the remotest hamlets. But in over 14 per cent. the syphilis was not recognized until in a late stage, and in over 22 per cent. it had never been suspected. Only 4.74 per cent. were entirely free from manifestations of the disease of those having a record of thorough treatment. This group, however, included 6.16 per cent. still with syphilitic lesions, notwithstanding the thorough treatment. Only 11.85 per cent. of the total had been given internal treatment alone. Only 40 per cent. had been given injection treatment, but it had been far from adequate, and most of them presented serious syphilitic lesions. It is evident from these findings that physicians gencrally in France do not give adequate doses and do not keep them up long enough to actually exterminate the syphilis.

Correspondence

THE PATIENT'S SIDE

To the Editor:—The following letter is an interesting human document. Perhaps we hospital physicians who are habituated to all kinds of distress and suffering do not always pay sufficient attention to the sensitive temperaments of certain patients, and the effect it has on them to hear themselves and their ailments discussed.

The writer of the letter is a patient who recovered, some ten or twelve years ago, from what was apparently malignant endocarditis, and on whose face the therapeutic history is written in the form of silver staining. He was left with a chronic lesion which compelled him to give up his career and remain at home, a semi-invalid, helping his sister in her millinery business. Recently what seemed to be the threatenings of a relapse induced me to send him to the hospital again. He stayed, however, only a few days, and writes this letter in apology for his insistence on returning home against my advice. SOLOMON SOLIS COHEN, M.D., Philadelphia.

My Dear Doctor Solis Cohen:—And so I am home again. I feel that I owe you a statement why I could not stay in this most beautiful of institutions and everybody treating me so kindly.

For the last few years since my health improved I was mostly among healthy people; everybody looked at me as at his equal and I have tried to forget my troubles and condition. The kind advices and encouragement I received from you and the love of those who surrounded me really made me feel stronger all the time and I even began to hope for a more active life. But coming to the hospital I became transformed from a person into a case, into a very peculiar case worth while examining, and every physician—and there are a great many coming, younger and older men—came over to see the phenomenon (I know that it is their duty and have really nothing against them) and to every one I had to repeat my ill-fated history, tell the story of my broken life. I have a romantic temperament (whether to my credit or discredit), so all this injured me deep in my heart. The discussions about my condition opened old wounds anew, and I felt like a criminal in the court of justice awaiting his sentence of life and death. Thus I have decided that so long as my condition permits me, I shall stay home and try to enjoy life while it lasts.

AMERICA'S FINANCIAL CONTRIBUTION TO GERMANY ON ACCOUNT OF OUR PATENT LAWS

To the Editor:—I have read several articles in which the medical fraternity has been proud of the fact that no death-dealing instrument used in the present war has been invented by their profession, but that their part as usual is to alleviate suffering humanity. I also have read that our patent laws are such that every physician and druggist who purchased aspirin before the war had to pay 43 cents an ounce in the United States, whereas the same was sold in Austria-Hungary at 4 cents an ounce and in the British Isles at 6 cents an ounce, we paying 37 cents an ounce more than any other country. Now, if we have been paying this much more in proportion on all drugs on which Germany has a patent, will some one who has access to the records showing the importations of this class of goods please see how much the physicians and druggists have been taxed indirectly by Germany to accumulate the enormous amount of money she has used in the war? It seems that we have paid our part of the taxes to Germany. I am opposed to being taxed indirectly by Germany in order to help her try to exterminate the rest of humanity. While we are urging the abolition of the patent on salvarsan, let us also insist on only a reasonable profit for Germany on all patents she has on medicines.

H. SCHMIDT, M.D., Addieville, Ill.

PUT "NOSTRUMS AND QUACKERY" IN THE LIBRARY

To the Editor:—The Propaganda Department of the American Medical Association merits from the medical profession the heartiest support. My copy of "Nostrums and Quackery," as a circulating library of one volume, is constantly busy. If I be entitled to a suggestion it would be this: A copy of the above named publication should be placed, by physicians, in every public library in America.

EDGAR C. DENNY, M.D., Milton, Ind.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, Montgomery.

ALASKA: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, July 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular: New Haven, July 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Eclectic: New Haven, July 10. Chairman, Dr. John W. Fyfe, Saugatuck.

CONNECTICUT: Homeopathic: New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DELAWARE: Dover and Wilmington, June 19-21. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

DISTRICT OF COLUMBIA: Washington, July 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

FLORIDA, Regular: Palatka, June 19-20. Sec., Dr. E. W. Warren, Palatka.

ILLINOIS: Chicago, June 14-16. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 10-12. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

IOWA: Iowa City, June 7-9. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 19-21. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 19-21. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 7-9. Sec., Dr. J. A. Henderson, 921 Canal St., New Orleans.

MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, June 19. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, July 10-12. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MICHIGAN: Ann Arbor, June 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 5-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 19-20. Sec., Dr. W. S. Leathers, Oxford.

MISSOURI: St. Louis, June 18. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

NEW JERSEY: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, 438 East State St., Trenton.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.

NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.

OHIO: Columbus, June 11-14. Sec., Dr. George H. Matson, State House, Columbus.

OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. R. V. Smith, Tulsa.

OREGON: Portland, June 5. Sec., Dr. Herbert S. Nichols, Corbett Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-12. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

SOUTH CAROLINA: Columbia, June 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. Park B. Jenkins, Waubay.

TENNESSEE: Knoxville, Memphis and Nashville, June 15-16. Sec., Dr. A. B. De Loach, Scimitar Bldg., Memphis.

TEXAS: Austin, June 19-21. Sec., Dr. M. F. Bettencourt, Mart.

VERMONT: Burlington, July 10-12. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 19-22. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WASHINGTON: Seattle, July 3-5. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 10. Sec., Dr. S. L. Jepson, Capitol Bldg., Charleston.

WISCONSIN: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.

Recognizes National Board

An amendment to the Delaware medical practice act, which was approved April 16, 1917, provides that applicants examined and approved by the National Board of Medical Examiners will be licensed in Delaware without further examination on the payment of the usual reciprocity fee of $50. This is the eleventh state to provide, either by board ruling or by an amendment to the practice act, for the recognition of the certificate of the National Board of Medical Examiners. The other states are: Colorado, Idaho, Iowa, Kentucky, Maryland, New Hampshire, North Carolina, North Dakota, Pennsylvania and Rhode Island.

Texas June Reports

Dr. J. S. McCelvey, secretary of the Texas State Board of Medical Examiners, reports the practical and written examination held at San Antonio, June 27-29, 1916. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 92, of whom 80 passed, including 3 osteopaths, and 12 failed, including 2 osteopaths. Forty-eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1916)	90.2
Rush Medical College	(1895)	88.2; (1914)	81.5
University of Louisville		(1892)	81.5
Tulane University of Louisiana	(1907)	75; (1916) 79.2, 83.2, 85.5, 85.5, 87.5, 91.2	
St. Louis University		(1916)	83.2
Meharry Medical College	(1916)	75, 79.2, 81.6, 82.5, 83.6, 86.5	
University of Tennessee	(1914)	84.5; (1915) 81.5; (1916)	84.5
Vanderbilt University		(1916) 84, 89.5, 90.5, 91.5, 92.5	
Baylor University	(1916)	75, 75, 79.5, 79.5, 80.5, 81.5, 81.5, 83.5, 83.5, 84.5, 85.2, 85.5, 85.5, 86, 86.5, 86.5, 87.7, 88.5, 89.7	
Fort Worth School of Medicine	(1916)	76.5, 77, 82.5, 84.5	
University of Texas	(1915)	85.5; (1916) 75, 79.5, 79.5, 80.5, 83.5, 83.5, 83.5, 83.5, 83.5, 84.2, 84.2, 84.5, 84.5, 84.7, 85, 85.2, 85.2, 85.5, 86, 86, 86.7, 87, 87.5, 87.5, 88.5, 88.5, 92.5	

College	FAILED	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons		(1914)	63.5
Meharry Medical College		(1915) 62.7; (1916)	71.7
Baylor University		(1916) 67.5, 67.5, 69.5, 71,	72.5
Fort Worth School of Medicine		(1916)	70.5
National School of Medicine, Mexico		(1906)	70

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Little Rock		(1910)	Arkansas
University of Arkansas	(1902)	(1912)	Arkansas
University of Colorado		(1913)	Colorado
Georgetown University		(1912)	Dist. Colum.
George Washington University		(1911)	Vermont
Atlanta College of Physicians and Surgeons	(1903)	(1913)	Georgia
Atlanta Medical College		(1915)	Georgia
University of Illinois		(1915)	Oklahoma
Central College of Physicians and Surgeons		(1897)	Indiana
Louisville and Hospital Medical College		(1908)	Mississippi
University of Louisville	(1893)	Kentucky; (1911)	Mississippi
Bowdoin Medical School		(1897)	Vermont
Baltimore Medical College		(1904)	Arkansas
Michigan College of Medicine and Surgery		(1896)	Oklahoma
University of Michigan Homeo. Medical School		(1888)	Michigan
American Medical College		(1902)	Kansas
Barnes Medical College		(1901)	Missouri
Eclectic Medical University*		(1915)	Arkansas
National University of Arts and Sciences		(1915)	Missouri
St. Louis College of Physicians and Surgeons		(1915)	Missouri
University Med. Coll., Kansas City	(1901)	Kansas; (1911) (1912) Oklahoma	Missouri;
Washington University		(1901)	Missouri
John A. Creighton Medical College		(1915)	Nebraska
Bellevue Hospital Medical College		(1893)	Louisiana
University of Oklahoma		(1913) (1914)	Oklahoma
Medico-Chirurgical College of Philadelphia		(1899)	Penna.
Meharry Medical College		(1913)	Tennessee
Memphis Hosp. Med. Coll.	(1902)	Oklahoma; (1910, 2)	Tennessee
University of Nashville		(1905)	Tennessee
Vanderbilt University		(1913) (1914) (1915)	Tennessee
Baylor University		(1913)	Tennessee
University of Texas		(1913)	Missouri
Medical College of Virginia		(1914)	W. Virginia
Faculty of Med., Surg. and Pharmacy, Bahia		(1887)	Brazil
National School of Medicine, Mexico		(1879) (1896)	Mexico
School of Medicine of Nuevo Leon		(1898) (1901)	Mexico

*College reported not recognized by the Missouri State Board of Health.

Arizona April Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners, reports the written examination held at Phoenix, April 3-4, 1917. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number examined was 14, of whom 11 passed, including 3 osteopaths, and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College		(1912)	75
University of California		(1916)	80.1
Rush Medical College		(1889)	74.3*
University of Illinois	(1913)	81.4; (1914)	76.8
Syracuse University		(1896)	70.6*
Willamette University		(1906)	75.5
Jefferson Med. College of Philadelphia		(1911)	82.1

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore		(1885)	36.2
Northwestern Medical College, St. Joseph		(1894)	56.2
National School of Medicine, Mexico		(1910)	57.4

*Credit allowed for years of practice.

Book Notices

How to Run an Automobile. A Concise, Practical Treatise Written in Simple Language Explaining the Functions of Modern Gasoline Automobile Parts with Complete Instructions for Driving and Care. Includes the Most Thorough and Easily Understood Illustrated Instructions on 1917 Automobile Control Systems Ever Published. By Victor W. Page, M. E. Cloth. Price, $1. Pp. 178, with 72 illustrations. New York: Norman W. Henley Publishing Company, 1917.

This is a concise. simply worded course of instruction bearing on the functions of the modern gasoline automobile. It does not tell one how to build an automobile, but it does aim to make for better driving and care of an automobile by describing and explaining the functions of the various parts of a machine. General starting and driving instructions include lubrication, starting the motor, handling spark and throttle levers, brake application and many other things it would be well for the driver to know. How many drivers know why the spark lever is advanced and how it should be manipulated to get a maximum speed with a minimum fuel consumption? Rules of the road and motoring courtesies are given in a special section. It is short, but full of useful suggestions. The 1917 control systems as installed in twenty-six cars are described fully. Many useful hints are contained in the chapter on the care of automobiles. This book fills a real need because it is written for the owner who drives his own car and yet knows nothing as to its construction or handling.

Les Blessures des Vaisseaux. Par L. Sencert, Professeur agrégé à la Faculté de Médecine de Nancy. Paper. Price, 4 francs. Pp. 226, with 70 illustrations. Paris: Masson & Cie, 1917.

The author's consideration of vessel injuries is from much the same point of view as that which prevailed before the onset of the war. The book, nevertheless, is valuable because of its exposition of vessel injuries in their anatomic, physiologic and operative aspects, with practical illustrations in numerous cases of injuries of the main vessels of the body. The different types of injuries resulting from the various missiles are enumerated, together with their subsequent evolution resulting in thrombosis, hemorrhage, gangrene, aneurysms, etc. The symptoms and diagnosis of internal hemorrhage into the body cavities, with the production of diffuse hematomas in the tissue spaces, are described. In the chapter on treatment, blood transfusion is discussed, but little consideration is given to the recent advances which have been made in this country along that line. In the second part of the volume, which deals with injuries of vessels of the various regions of the body, operative treatment figures prominently. The book is to be especially recommended to those going into army service.

A Manual of Nervous Diseases. By Irving J. Spear, M.D., Professor of Neurology at the University of Maryland. Cloth. Price, $2.75 net. Pp. 660, with 169 illustrations. Philadelphia: W. B. Saunders Company, 1916.

A person who is content to limit himself to one small book on diseases of the nervous system will find this work as good as any. If the student or practitioner wishes a fair smattering of everything and a really good article on nothing, he has it here. There is everything from the anatomy and physiology of the nervous system, through tabes, brain tumor and epilepsy to angioneurotic edema and achondroplasia. For a work which aims to be condensed and practical, some of the apportionment of space is odd. There is a page for the corpus callosum, nearly one for the fornix, and the same for the septum lucidum and velum interpositum, structures which have practically nothing to do with clinical neurology, while there is only one page for functions of the cerebral cortex. There are six and a half pages on Raynaud's disease, which a general practitioner may see about once in five or ten years, and seven and a half on migraine, which he is called on to treat many times every year. The usefulness of the book is greatly impaired by a looseness of style, a lack in definiteness of statement. "Diseased conditions" are mentioned without in the least indicating what these conditions may be. "Patients who are pale and debilitated should receive arsenic" (page 542), apparently regardless of whether they are so because of chlorosis, streptococcus infection, nephritis, loss of sleep, or lack of food. There are too many careless statements. The author writes of "increase of albumin in the cells," when presumably he means "and of the cells." He says that herpes is a common complication of sciatica and of brachial neuralgia, which is teaching a pathology which probably he himself would promptly repudiate. In the article on multiple neuritis, he puts typhoid, influenza, beriberi and leprosy among the infections, and rheumatism, tuberculosis and syphilis in "general diseased states" along with senility, malignant growths and arteriosclerosis. In the treatment of neuralgia, he advises the injection of alcohol without noting any distinction between purely sensory and mixed nerves. A reader depending on this book might inject 80 per cent. alcohol into the sciatic nerve and for the next year or so regret the paralysis he had caused. The book gives an excellent outline of the nervous system and its diseases. For nurses who are not required to take their neurology very seriously, it might be an excellent textbook; but for the medical student or practitioner it is neither a sufficiently competent nor an entirely safe guide.

Public Health Nursing. By Mary Sewall Gardner, R.N., Superintendent of the Providence District Nursing Association. With an Introduction by M. Adelaide Nutting. Cloth. Price, $1.75. Pp. 372. New York: The Macmillan Company, 1916.

Miss Gardner's book is in part the revision of articles which have appeared in the *Public Health Nurse Quarterly*. The first portion of the book is devoted to a discussion of the history of public health nursing, the second to the organization and machinery of visiting nursing, including chapters on how to organize a visiting nurse association, the board of managers, the superintendent, the pupil nurse, and methods of organization and administration, while the third part is given up to special topics on public health nursing. This includes nursing of tuberculous patients, welfare nursing, school nursing, mental hygiene nursing, and industrial nursing. An appendix contains an outline of the national organization for public health nursing. The book contains a large amount of information, and should be of great assistance in the organization of public health nursing in any locality.

An Adequate Diet. By Percy G. Stiles, Ph.D., Assistant Professor of Physiology in Harvard University. (Harvard Health Talks.) Cloth. Price, 50 cents. Pp. 48. Cambridge: Harvard University Press, 1916.

Adenoids and Tonsils. By Algernon Coolidge, M.D., Professor of Laryngology in Harvard University. (Harvard Health Talks.) Cloth. Price, 50 cents. Pp. 46. Cambridge: Harvard University Press, 1916.

These little books present the substance of some of the public lectures delivered at the Medical School of Harvard University, the intention being to provide in easily accessible form modern and authoritative information on medical subjects. Stiles' book on "An Adequate Diet" tells in simple language the essential facts of nutrition in accordance with our best present day knowledge. A short bibliography is included. Coolidge's book on "Adenoids and Tonsils" explains in ordinary language and by the use of diagrams the nature of these structures and the diseases to which they are subject. Both of these books can safely be put into the hands of patients.

The Growth of Medicine from the Earliest Times to About 1800. By Albert H. Buck, B.A., M.D. Cloth. Price, $5. Pp. 582, with 28 illustrations. New Haven: Yale University Press, 1917.

Probably no subject connected with medicine is so neglected as the history of the growth and development of professional knowledge and methods. The few books on this subject are either erudite and heavy to a degree that is repellent to the average reader, or so superficial as to be of little value. Dr. Buck has endeavored with marked success to write a history of medicine that should be both accurate and entertaining. That it is based largely on Neuburger's more voluminous work can hardly be regarded as a disadvantage since most American readers would probably never come in contact with the three volumes of the Viennese historian. Dr. Buck's first volume brings the history of medicine up to the beginning of modern times. It is divided into three main parts, ancient medicine, medieval medicine and the medicine

of the Renaissance, covering eight of the nine epochs into which Neuburger has divided the history of medicine, or all of them except modern medicine from the beginning of the seventeenth century to the present time. Especially interesting are the chapters on Oriental medicine, the Arab renaissance, and the advance of surgery during medieval times. The illustrations, especially the portraits, add greatly to the attractiveness of the book, while the interesting style of the author quickly commends itself to the reader.

MENTAL CONFLICTS AND MISCONDUCT. By William Healy, Director of Psychopathic Institute, Juvenile Court, Chicago. Cloth. Price, $2.50 net. Pp. 330. Boston: Little, Brown & Co., 1917.

This is the fourth of a series of books by Dr. Healy, formerly director of the Psychopathic Institute of the Juvenile Court of Chicago. The others dealt with the individual delinquent, pathologic lying, accusation and swindling, and with honesty and dishonesty among children. The present volume considers the influence on conduct in children of mental conditions and especially of mental conflicts and observations. Whether or not one agrees with the conclusions of the author, the histories which he cites cannot fail to throw light on many cases of delinquency and misconduct in children which have heretofore been inexplicable. The close connection between misconduct, especially along social lines, and the mental shocks caused by unexpected experience or knowledge for which the recipient was unprepared is clearly shown. No one can read the records of personal experience without acquiring an entirely different attitude toward the apparently inexplicable actions of children and young persons still in the impressionable stage.

UNIVERSAL MILITARY EDUCATION AND SERVICE. The Swiss System for the United States. By Lucien Howe. Cloth. Price, $1. Pp. 138. New York: G. P. Putnam's Sons, 1916.

Dr. Howe's answer to the question, why a student of medicine should undertake to discuss universal military education, is that, a third of a century ago, in examining the eyes of more than a thousand public school pupils and finding many cases of near-sightedness, he found "setting-up" exercises of great value in improving the physical condition of these children. He is also a strong believer in the utility of systematic military training in developing broadness, exactness, restraint, efficiency and other personal qualities. He discusses the necessity of preparedness as a foundation for peace, and compares the volunteer system with the Swiss and Australian systems, advocating universal military education on account of its value to the growing boy as well as for a foundation to a universal military service system. Dr. Howe argues his case well, and his subject is certainly a timely one.

THE KINGDOM OF THE MIND. How to Promote Intelligent Living and Avert Mental Disaster. By James Mortimer Keniston, M.D. Cloth. Price, $1.25. Pp. 245. New York: G. P. Putnam's Sons, 1916.

From the experience drawn from years spent in caring for those of unsound minds, Dr. Keniston endeavors to tell his readers how to promote intelligent living and how to avert mental disaster. In his opinion, the vagaries of the disordered mind enable us the better to understand the normal processes of the healthy mind. The book is an enlargement of a series of lectures delivered before various social organizations, and is intended for the young as well as for adults, being an effort to present in simple language an analysis of the mental faculties so that the reader may learn to use his faculties intelligently and to conquer doubts and fears. Physicians in search of a suitable book for patients in need of mental discipline would do well to consider Dr. Keniston's volume.

A HANDBOOK OF SURGICAL OPERATIONS DESIGNED FOR THE USE OF STUDENTS OF SURGERY. By K. K. Chatterji, F.R.C.S.I., Surgeon, Campbell Hospital, Calcutta, with a Foreward by Lt. Col. R. Bird, I.M.S., Cloth. Price, 7 shillings 6 pence net. Pp. 238, with 26 illustrations. London: Butterworth & Co., 1916.

The author has given a simple, brief description of the commoner surgical operations, which may be of value to the student in the cadaver room. There is nothing new in the work, and the illustrations, most of which are in colors, are not up to present day standards.

Social Medicine, Medical Economics and Miscellany

THE ECONOMIC PRINCIPLES INVOLVED IN FEE DIVISION

CHARLES S. ELDER, M.D.
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DENVER

Among those who divide fees are some who canvass vigorously and bid extravagantly for patients with the purpose of doing a large amount of work. Even in these men one must recognize a commendable yearning for wide experience and technical accomplishment. They are but following familiar paths which men of better purposes have beaten. Other surgeons of more amiable motives share their fees with those referring them patients. These surgeons assert that the physician's fee is small as compared with their own, which the physician has made it possible for them to secure. Their defense of the "combined bill' is that it tends to equalize the return to the two branches of medicine, the pursuit of which is assumed to demand equal talent.

The fellows of the American College of Surgeons are united by a solemn pledge which spurns in the most positive terms all manner and all appearance of fee division. In that pledge, however, one finds this asseveration:

> I pledge myself . . . to teach the patient his financial duty to the physician.

How comes it that the surgeon must assume this task? Is this not the physician's patient? Has not the physician, in all probability, attended him before, and when a bill was rendered for such service was it not promptly paid? How can such a patient be taught his financial duty? The physician is the patient's friend and adviser. Any instruction relating to financial duties would more properly come from the physician. This pledge should, therefore, be turned inside out and made to read:

> I pledge myself to seek the physician's assistance in teaching his patient one's financial duty to one's surgeon.

Such a rendition seems more humorous than sincere. But why so? The reason is, the fellows of the American College of Surgeons feel, what the most generous fee divider affirms, that there is an unjust disparity in the rewards of the physician's work as compared with those of the surgeon.

There is, then, one central fact implied in the statements and performances of all persons concerned in the question of fee division. On this fact the antagonisms of principle and action depend. The fact is that there is a difference in the genesis and in the amount of the physician's and the surgeon's fees. Let us turn our efforts, then, to an explication of them both.

A physician charges a definite sum for office calls, another for house calls, another for an initial examination, and so forth. Though these fees are not absolutely stable and uniform in all physicians' practices, they tend, nevertheless, toward stability and uniformity. It is important to note, in anticipation of what is to follow, that the cost of service does not vary with the utility of the service. Whether the patient survives because of medical care or perishes in spite of it, the charge for each item of attention is the same as for similar items in other cases. There is, moreover, little if any tendency to change the cost of treatment because of the financial resources of the patient. Large discounts may, indeed, be made in cases of pressing poverty, but it is noticeable that they are spoken of as "discounts," as something subtracted from the customary and correct charge.

It must be clear that if the physician's fee depended only on his will it would vary immeasurably in different cases. It would always be a maximum charge. It would bear some relation to the financial resources of the patient. Otherwise it could not be a maximum charge. As variability is not a characteristic of medical fees, and as there is no discernible relation between them and the wealth of patients, it follows

that the rewards of medical service are regulated by some power external to the physician himself. As to what that power is, one need not long be in doubt.

The call of the community as a whole for services of a particular kind and the relative amount of talent which can be directed to the performance of those services will, operating together, strike a balance which shall be the compensation that talent is to receive. This principle of supply and demand is the essential factor operating everywhere to determine wages. It frequently happens that the physician is urged to charge more for his services, by some one who, let us hope, knows more of physical than of social science. The prudent answer to this alluring importunity is apt to be, "Others will do the work for such a price, how dare I ask more?" This reply shows a conception of the most obvious factors in the regulation of wages in general, and implies, what never should have been doubted, that even the high duties of the physician come within the purview of economic law.

Let him think twice who is about to disregard this law of wages. If a physician asks more for his services than do his fellows, he must justify his charges by assuming an attitude of superior learning and abilities which are presumed to place him above the plane of competitive activity. Unsupported pretensions will not long endure. Unless one's endowments are genuinely and ostensibly appropriate to one's claims, it were better not to try the hazardous experiment.

Such an experiment is being tried by those audacious physicians who charge an extraordinary fee for the examination of a patient with a disease that is to be treated by surgical means. In doing so the physician not only violates the custom of the community relating to medical fees, but, probably, the precedents established by his own example. Having made other examinations as extensive or even more so for the customary fee, it will be difficult for the patient to understand why, when the unusual expense of a surgical operation falls on him, the cost of his examination should rise to an extraordinary sum.

The diagnosis of diseases of the nervous system and of those organs within the chest demand medical attainments of a high order. Consider how many senses are employed in the examination of the heart and lungs: the revelations of sight; the many appeals to the auditory sense as one listens to the heart sounds, the breath sounds, the voice sounds, and the many adventitious sounds; add to this the fine gradations of the percussion note and the beautiful way in which the facts revealed by one sense are verified by another. Yet these are but hints of the admirable refinement to which diagnosis in this region may be carried. Any one watching a skilful physician examine the chest or nervous system could hardly fail to be impressed with the dexterity with which the investigation is conducted and with the number and import of the facts which it reveals. The diseases so discovered are rarely treated by surgery. The fee for the examination must, therefore, rest on its own merits. It may rarely be augmented from a part of a surgeon's fee. It is, as might be expected, comparatively low and uniform.

The diseases of the abdomen present a strange contrast to those just mentioned. The diagnostic methods used in discovering them are the crudest of those in use in any part of the body. With a little sifting of significant events from the history of the disorder, and a little palpation for stiff and tender places, the deed is almost done. If the disease turns out to be a transient disorder of digestion, the attendant would not dignify his examination with a name. He sends his bill for the call or calls made. If, however, the point of his index finger happens on tenderness and rigidity midway between the anterior superior spine of the ilium and the umbilicus, that which before was but casual inquiry suddenly becomes an examination of high financial dignity.

How is this obtrusive inconsistency to be explained? Even though the bill for such an examination is paid without apparent reluctance, suspicion must still lurk in the patient's mind. The coveted relation of fidelity and trust between physician and patient has received a severe strain, if it has not snapped asunder. In the common attempt at justification of this unusual fee, a certain case is imagined from which the facts for mental experiment may readily be derived. This case is usually appendicitis of a character which, without surgical treatment, would prove fatal, but which, with an operation, results in complete recovery. The operation having proved a life-saving measure, the surgeon's service has been of the highest conceivable utility. The surgeon is justified, so it is contended, in charging for his work the highest price which the patient can be expected, within reason, to meet. The physician, too, has played no small or unessential part in accomplishing this great purpose. His recognition of impending danger and his timely alarm were necessary parts of the life-saving process. He is, then, according to the same principle, entitled to a share in the high award. He must receive his compensation from the surgeon, or, if that should be adjudged questionable practice, he must make an independent charge for his diagnosis and direction.

To this reasoning the just objection should be made that comparatively few surgical operations are life-saving measures. The illustration cannot, therefore, represent all cases in which large fees appear. But the crucial question is this: "Does the value[1] of a commodity or of a service depend on its utility?" The answer is short, unanimous and decisive. "Never." Air and water are necessary to life. They are of the greatest possible utility. Neither has value. Yet it is possible that in the midst of a desert a drink of water might command the highest price compatible with the wealth of the purchaser. To have value, a thing must be so limited in quantity that there is not enough available to satisfy the demand for it. It is difficulty of attainment which gives value to useful things.

It is a familiar fact that the services of physicians may be secured at moderate prices. Not only do others offer their counsel at such prices, but in all probability the physician in question has set his own price and example. Look at it as one may, this plan of deriving unwonted profit from surgical cases cannot be shown to be justifiable or expedient. It cannot be continued without entailing ultimate loss to the physician and distrust of his profession. In spite of the most vigorous and eloquent exhortation to adopt a higher rate of fees, the services of the physician will be determined by those relentless agents which fix the reward of every kind of effort that is subject to competition.

This consideration of the nature of the physician's fee and of the factors acting toward its determination will make easier the study of the financial returns for surgical activity. It has cleared the ground of several confusing circumstances. It will show by strange contrast that what is of dominant influence in the one is but faintly perceptible in the other. That the fee of the surgeon is due to the utility of his work, to his great therapeutic power, may be dismissed at once in view of the very brief glance which has been permitted of the nature of value.

The cost of surgical operations maintains a close relation to the wealth, income or earning power of the patient. One of the largest surgical clinics in this country has a well-organized bureau for ascertaining the financial standing of those who apply at that clinic for treatment, the motive being the adjustment of the fee for operation to the means of the patient. It will hardly be questioned that this practice is general and not limited to persons and places. The fee must, therefore, vary greatly, being low in some cases and of opulent proportions in others. That which depends on the wealth of the patients cannot also depend on the subtractive influence of competition. Both the nature of the surgeon's fee—its irregularity—and the chief fact which enters into its determination—the wealth of the patient—show that competition does not sensibly affect it.

Any industry which is not affected by competition is, necessarily, a monopoly. The word "monopoly" signifies unified control over a certain commodity or a service. That the surgeon's fee is monopolistic in character is verified by the

1. Value is here used in its economic sense of the desirability or worth of a thing as compared with the desirability or worth of other things. If a thing cannot be sold or bartered for other things, it has no value but still may be highly useful.

following incidents: The physician sometimes asserts that he is entitled to a share of the surgeon's fee becausc he might have sent his patient to whom he wished. The selection of a particular surgcon is a special mark of favor. And gratitude, if nothing else, should prompt generostiy. To this the surgeon replies that howcver benevolent the motives on both sides, such a transaction amounts to the selling and buying of patients. Now, that is not bought which cannot be delivered; therefore in both statements there is implied the absolute control of the physician over the patient. If the physician endowed with such authority acts with the surgeon, both as one man, in keeping the patient under the care of either, a monopoly is undeniably established.

If further proof were needed, it will be supplied by noting that monopoly signifies such control over certain articles or services as will make it possible to raise thcir prices higher than the level of prices fixed by free competition. Monopolies, naturally, aim to secure the greatest nct profit. The price which will yield this profit is monopoly price. It is a maximum price. There can be no other purpose in ascertaining the financial resources of the patient than the fixing of a maximum price for his care. This does not mean that all the patient has is to be taken from him. That would not be a maximum price. It means that as much will be taken as will prove at once profitable and in no way detrimental to the business. The determination of such a price is always a delicate mathcmatical exercisc. The patient must be dismissed satisfied, as it is desired that he should come again if in need of a similar service, and that he should commend his attendant to others. Were the price too high, the patient might decide to bear his ills rather than fly to others, poverty bcing among them. He might, too, look abroad for other and more economical sources of help, in which event competition would arise.

It has alrcady been stated that an essential characteristic of value is difficulty of attainment. In the majority of instances the difficulty of attaining a thing is conditioned, largely, on the amount of labor required in its production. Thc output of a monopoly bears the value which labor imposes on it, together with that increment made possible by thc exclusion of competition. If, now, one acccpts the proposition so invariably advanced by those who inveigh against all manner of fee division, namely, that wealth should go to its producers, or that what one earns one should get, no more and no less, the surgeon's fee should be distributed in this wise: All that amount of money which arises from labor, allowance being made for those abilities, native and acquired, which were exercisod in the case, should go to the surgeon. All that money arising from monopoly should be divided among those forming the monopoly in proportion to their services tlierein. If this division is not madc, it will be thc surgeon who has receivcd and kept an unearned increment, a practice which he has justly denonunced as being immoral and beneath professional dignity.

When the physician sees clearly, what he has hitherto but dimly discerned, that he is an agent in the creation of the surgeon's fee, he will either insist on its division, or he will refuse, henceforth, to cooperate to the surgeon's sole advantage. Human nature does not justify the hope that he will be content to sigh with Virgil, "It is not for yourselves, O, bees, that you make honey."

Were the argument to end here, this paper would be taken as an attempt at justification of fee division. But is it really so? Have we not been asking and answering the wrong question? The inquiry we have addressed to our conscience is, "Should the surgeon's fee be divided with the physician referring the patient?" The question we are now called on to answer is this: "Is it justifiable for the physician and surgeon to enter into collusion with the motive of excluding competition from other capable men when such united action entails increased expense to the patient?"

It will probably be hard to find any one who would answer this question in the affirmative, whatever might be inferred from one's professional conduct. When the conscientious physician has seen his relation to the surgeon, as this paper has attempted to reveal it, and a patient presents himself with a disease properly treated by surgical measures, the physician will write down the name of every man in the community capable of doing such work and deserving of such trust. With this guidance the patient will be able to consult with any one or with as many as he may wish. When such a plan has been adopted, what will happen to the surgeon's fee? Will the surgeon still inquire how much the patient has, or will he wonder what was the figure of the lowest bidder? Will any one need to explain to that patient where his money went?

The patient has two concerns respecting his operation: first, what service he is to receive, and next, what price he is to pay. Every possible effort has been made throughout the history of medicine to make it of greater and greater service. There has been no inattention to the first of the patient's wants. Toward the second we have been both imprudent and unjust. At one extreme we have been too charitable, at the other too covetous. The purpose of this essay is to make the way clear along which both of the desires of the patient may be satisfied—a high service and a low fee.

CONCLUSIONS

When the relation between the physician and surgeon, as at present maintained, is clearly understood, some form of fee division will be an obligatory consequence.

The pledge of the American College of Surgeons encourages this relation, while attempting to suppress its results.

Fee division will cease when patients are referred in an impersonal way to any one capable of doing the required work and when the surgeon's fee has been reduced and, in a measure, standardized by competition.

550 Metropolitan Building.

Work of the Municipality in Industrial Hygiene

The *Monthly Bulletin* of the New York Department of Health devotes a recent issue to a discussion of this subject. The first annual report of the division of industrial hygiene is published and the various activities of this division described. Placards giving precautions have been prepared for the fur and hatter's fur trades. There have been distributed among union painters 10,000 copies of a questionnaire outlining the principal signs of lead, turpentine, wood alcohol, benzin and benzene (benzol, C_6H_6) poisoning, and urging the necessity of consulting a physician or the occupational clinic staff if there appears reason to believe that any form of occupational disease exists. Health suggestions for bakers are now ready for printing, and appropriate advice on health matters is being prepared for other trades. Over twenty-eight lectures on industrial hygiene have been delivered before various medical societies, civic organizations, labor unions, public schools, etc. Addresses have also been made before various manufacturers' associations. The occupational clinic during its first year of active work has examined 8,912 bakers, 8,236 pedlers, 23,440 waiters, cooks and other food handlers, 886 furriers, 225 painters, 110 trade school girls and 203 employed in other industries, making a total of 42,042. Since the examination of all food handlers was an undertaking requiring a much larger force of physicians than were available, private physicians were given permission to conduct such examinations. During a period of nine months 1,196 physicians examined 33,700 persons. Among these, 8 cases of tuberculosis with positive sputum were found, and 17 doubtful cases and cases of clinical tuberculosis without positive sputum; only one case of active syphilis was found; there were 68 cases of latent syphilis and 6 doubtful cases in which the Wassermann test was refused or the person failed to return for probation inspection. There were 8 cases of acute gonorrhea, the persons being excluded from work. Four typhoid carrier suspects were found. The twenty clinic physicians examining 23,440 persons found 30 cases of tuberculosis with positive sputum, and 79 doubtful cases in which the Wassermann was refused and the person failed to return; 22 cases of active gonorrhea, and 4 typical typhoid carrier suspects. Two branches of the occupational clinic have been established in the Bronx and Brooklyn, respectively.

Medicolegal

Disclosure of Confidential Information

(*Smith vs. Driscoll et al.* (*Wash.*), *162 Pac. R. 572*)

The Supreme Court of Washington affirms a judgment which dismissed, on a demurrer to the complaint, this action against the defendants, licensed and practicing physicians and surgeons, who were sued for damages for an alleged wrongful publication and disclosure of confidential information acquired by them in their professional capacity. The complaint stated that they and each of them had as witnesses in a certain case in a justice court slandered the plaintiff by testifying, over the timely and strenuous objection of the plaintiff, as to facts, information and communications having come to their knowledge in their capacity as physicians and surgeons, and gained in attending the plaintiff, such information being necessary to enable them to prescribe for him. The court says that it will not go into the question of whether the action was improperly designated as one for slander, for, if the facts set forth in the complaint entitled the plaintiff to relief, it was wholly immaterial by what name the action was called. Neither is it necessary to pursue at length the inquiry of whether a cause of action lies in favor of a patient against a physician for wrongfully divulging confidential communications. For the purposes of what the court has to say it will be assumed that, for so palpable a wrong, the law provides a remedy. The question presented was not the naked one of whether a physician is liable in damages at the suit of a patient for wrongfully divulging confidential communications, but: Is a physician, who, while testifying as a witness in the course of a judicial proceeding, discloses confidential communications made to him, or professional information acquired by him, while prescribing for a patient, liable in damages to the patient for so testifying? This question cannot be answered categorically. He may or may not be liable, depending on the facts of the particular case. While the court has been unable to find any cases directly in point, the applicable principles of law are not difficult to discover. To the ordinary mind it would seem that a physician, while testifying in a court of justice, is in the same situation as any other witness, and his rights and liabilities are to be determined by the same legal standards that are applied to a witness who is not a physician. The court can conceive of no possible reason why the protection, which the law in the interest of a due administration of justice and on considerations of sound public policy places about witnesses generally, should be denied to a particular witness merely because he is a physician. If this immunity is withdrawn in his case, surely the situation of the physician as a witness is not an enviable one. If he is interrogated, and required by the court to answer, concerning confidential communications in his professional keeping, and does so, he will be rewarded for his obedience to the law by being mulcted in damages to the aggrieved patient. If, on the other hand, he considers it to be his paramount duty to preserve in its integrity his obligation to his patient and refuses to testify, he will be rewarded for his professional loyalty by being committed to jail. Manifestly no such barbarous rule would be tolerated by any system of civilized jurisprudence. While the question of the civil liability of a witness for statements made by him while on the witness stand usually arises in cases of slander, there is no reason to believe that the same immunity is not enjoyed by a physician while testifying, subject to this qualification, if it may be said to be such: Where a lay witness is sought to be held liable as for slander for defamatory utterances by him while testifying in court, in addition to showing that the privilege of the occasion was abused, it must also be shown that the statements complained of were false and malicious; while in an action against a physician for divulging confidential information when testifying in the course of a judicial proceeding, it is necessary only to show that the privilege of the witness was abused. The important issue in an action against a physician for divulging confidential communications while testifying in the trial of a case is whether the testimony complained of was admissible in the case in which it was given and was relevant and pertinent to the issues. The allegation in the complaint in this case invited the inference that the testimony was given in response to questions and in obedience to the ruling of the court, in which event the defendants would not be liable, even though the testimony were both inadmissible and irrelevant.

Things a Physician by Implication Guarantees—Negligence in Treating Fracture

(*Priestley vs. Stafford* (*Calif.*), *158 Pac. R. 776*)

The District Court of Appeal, Second District of California, in affirming a judgment in favor of the plaintiff, a child, for damages (amount not stated) for alleged negligence in the treatment of a fracture of the radius and ulna of his right arm, says that while in actions of this character the injury and the fact that it resulted from the professional treatment administered must be established, such finding standing alone will not justify a recovery of damages by a plaintiff. On the part of a physician who undertakes the treatment of one suffering from disease or injury, there is no implied contract that such treatment will prove a success, or that ill and serious results may not follow as the direct result of such treatment. While "not a warrantor of cures," he nevertheless by implication guarantees that he possesses that reasonable degree of learning and skill possessed by others of his profession, and that he will in the treatment of his patient exercise reasonable and ordinary care and skill in the application of such knowledge to accomplish the purpose for which he is employed. And where he possesses such degree of learning and in applying it exercises ordinary care and skill, he is not liable for results that follow. In this case, since the contrary was not made to appear, it must be conceded that the defendant possessed the requisite professional skill and learning. But there was testimony of physicians which clearly tended to prove not only that the defendant was negligent by reason of the fact that he applied the splints and bandages in a manner which made no allowance for the swelling of the arm accompanying such fractures, but also that he was negligent when, on being informed within an hour after leaving the child that he was suffering excruciating pain and complaining that the splints were too tight, he did not remove the splints himself or have them removed; and likewise negligent, when he visted the child the following morning and discovered the condition of the hand and arm, in not removing the splints in order to relieve the undue pressure which was then apparent. These facts, as well as others which the evidence clearly tended to establish, fully supported a finding of the court that the defendant, in treating the fractured arm of the plaintiff, did not exercise that degree of skill and care ordinarily exercised by the members of his profession practicing in that and similar localities. That the child's hand and arm were badly crippled and deformed was conclusively shown; and since it must be conceded on the evidence that the condition of the hand and arm was due to undue pressure caused by the fact that the splints were adjusted in a manner which did not allow for the usual swelling accompanying such cases, the question as to whether or not such omission constituted negligence was one for expert testimony.

A Severance of Hand Not Within Terms of Accident Policy

(*Continental Casualty Company vs. Bows* (*Fla.*), *72 So. R. 728*)

The Supreme Court of Florida, in reversing a judgment for $500 which was rendered in favor of plaintiff Bows, holds that, in an action at law, instituted by the insured against an insurance company on an accident insurance policy which provides an indemnity "for loss of either hand by complete severance at or above the wrist," the insured is not entitled to a recovery under such provision, when the evidence adduced fails to show a complete severance of the hand at or above the wrist, even though it may establish that the small portion of the hand so left is practically of no use or service to the insured.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, NEW YORK, JUNE 4-8.

American Academy of Medicine, New York, June 4-5.
American Association of Anesthetists, New York, June 2.
Am. Association Medical Milk Commissions, Brooklyn, June 1-4.
American Gynecological Society, Pittsburgh, May 31-June 2.
Am. Laryn., Rhin. and Otol. Society, Niagara Falls, Can., June 1-2.
American Proctologic Society, New York, June 4-5.
American Radium Society, New York, June 4.
American Society of Tropical Medicine, New York, June 4-5.
American Surgical Association, Boston, May 31-June 2.
American Therapeutic Society, New York, June 1-2.
Assn. of Am. Teachers of the Diseases of Children, New York, June 4.
Idaho State Medical Association, Sandpoint, June 25-26.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Montana Medical Association, Kalispell, July 11-12.
Oregon State Medical Association, Portland, June 28-30.
Washington State Medical Association, Spokane, June 17-19.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Eleventh Annual Meeting, held at Utica, April 24-26, 1917

The president, DR. MARTIN B. TINKER, Ithaca, in the Chair

Health Insurance

The Committee on Economics presented a report which dealt largely with health insurance. Those medical men opposing health insurance were thus grouped: 1. Honest objectors who dissent on the questions of the principles involved in health insurance. 2. Objectors who are not questioning the underlying principles involved, but who fear a reproduction in America of all evils which foreign systems have shown obtain in the various foreign countries in which health insurance is in force. 3. Interested insurance men, or men who are helping the insurance companies either to defeat the proposed measure or cause a compromise between the insurance interests and the proponents of the measure so that private insurance companies may do business under the act. 4. Objectors who are considering neither public nor professional welfare, but who fear that their own incomes may be damaged. They suffer no serious pecuniary damage under the proposed act because their private incomes from medical practice are now quite small, but they see in this bill a chance to enlarge them, and hence by combining with other objectors they are endeavoring to procure for themselves the best possible bargain. 5. Objectors who, while willing to accept the principles and also the suggested outline of the medical organization, are dissatisfied with one or more details of the plan, and, therefore, condemn the whole question. 6. Finally, the great mass of the profession which is uninformed as to health insurance and opposes the measure for the time being in an effort to gain time to inform itself regarding it.

Those favoring health insurance from a medical standpoint are grouped as follows: 1. Those who do or do not believe in the principles involved, yet hold that it is a measure involving intelligent communal philanthropy, which, by levying a small general tax on the whole community, will lighten a heavy burden now carried by a part of the community least able to bear it. 2. Those who believe it will mitigate the evils of lodge practice, and hospital and dispensary abuse. 3. Those who, whether or not personally favoring it, still believe that it is the next step in social legislation in this state, and honestly think that sooner or later, and most likely sooner than it is realized, some form of this type of legislation will be enacted into law. They firmly hold to the belief that under these conditions and with this situation confronting the medical profession it is best to favor the proposed legislation, and to seek to modify the medical provisions so that the public welfare, and the economic condition of the profession, as well as the inherent interests of physicians in the maintenance of their high standards and in the advancement of preventive medicine may be safeguarded properly under the proposed legislation.

The committee feels that health insurance legislation is imminent, and in the effort to carry out its functions it suggests the following fundamentals as being necessary to safeguard all the interests concerned from the medical point of view:

MEDICAL STANDARDS FOR HEALTH INSURANCE

1. The medical profession should be represented on the Health Insurance Commission. 2. On each subdivision of the administrative departments the profession should also have definite representation. 3. There should be coordinate representation in all administrative departments by the public health authorities without, however, any increase in the police power of the health department. 4. The entire profession should be eligible to positions under the act. All legally qualified practitioners of medicine should be eligible to the "panels." 5. In the actual working of the law, provision should be made to separate the physician who treats the sick, and the physician (medical officer) who serves the funds or carriers as their official in determining the rights to cash or other benefits permitted by the fund. 6. The medical officer should be a legally qualified physician who shall have such other qualifications as the state medical advisory board may prescribe (this board being elected representatives from all the state medical societies), and who shall in addition be approved by the "panel" physicians or their elected representatives. 7. A limitation should be placed on the number any given physician is called on to treat. This to be equally applicable whether the given fund uses the panel system, the salaried physician or a combination of these two systems. 8. Once the rate of remuneration for the panel physicians is determined, the law should be made to read that when salaried physicians are employed, the salary shall in no case be less than the average sum of money earned by panel physicians in the same community. (This is to prevent the hiring of cheaper priced men to take the work from the panels.) 9. Absolutely free choice in regard to their medical attendant should be allowed patients. 10. In every community, especially in those in which the so-called "closed hospitals" exist, the commission should either establish sufficient "open hospitals" or the carriers should be made to make contracts with enough "open hospitals," so that no legally qualified practitioner shall be deprived of his right to continue to treat a patient whose removal to a hospital is imperative for any reason, the patient having chosen the given physician to treat him during the given illness. 11. The physicians on the panel should register themselves as general practitioners, surgeons or specialists, naming their specialty in a manner and form to be determined by this society, so as to prevent illegal and unethical advertising, and to keep all on the lists on a given level of equality. 12. No individual contracts between carriers and funds and physicians should be permitted, except when salaried men are employed, and then the ideas given under Paragraph 8 are to obtain. All contracts should be made with the panels as a whole, and the panels should be empowered to enforce their contracts. 13. A standard of visitation fees should be worked out, promulgated and based on the prevailing rates of medical fees in any given community so as to give a reasonable annual income to physicians who elect to practice under the act. Such a standardization of visitation fees should not necessarily be written into the law, but should be the standard to govern the carriers and the physicians in making contracts. 14. In the case of committees having to do with medical matters and disputes between medical men, these should be composed of medical men. 15. The advisory board of the commission should consist of medical men elected in proportion to their numerical strength from all the state medical societies.

RECOMMENDATIONS

1. The committee again recommends that no action be taken at this time either for or against health insurance as a whole. 2. That the Committee on Economics be empowered to continue its conferences with the proponents of the health insurance measure to the end that the medical fundamentals and standards as enumerated above be embodied in the act.

3. That this committee be further instructed to continue its efforts to elicit constructive suggestions and make a further report as more details are worked out, in the interest of this society. 4. That a tentative draft of an insurance law which conforms to the essentials and standards laid down above be approved, but that such approval shall not be construed as approving any specific bill before the legislature. 5. That in the event of a bill being introduced in the legislature, a specific study and report on the same be first submitted to the house of delegates before the society is committed either for or against such a bill. 6. That in the event of there being created in this state an official investigation commission on health insurance, this committee present to such commission the essentials and standards which this society regards as necessary to protect both the public welfare and the interests of our membership. 7. That there be added to this committee in an advisory capacity, and for purposes of closer cooperation, one member from each county society, selected by the presidents of county societies for such positions. 8. That for the purpose of closer cooperation, the chairman of the Committee on Legislation be made an ex officio member of this advisory committee during the time that health insurance matters are pending in the legislature.

Present Status of Drug Therapy

Dr. Warren Coleman, New York: A remedy which has been found useful by generations of physicians should not be discarded merely because its actions have not been subjected to the tests of a modern laboratory or necessarily when the experimental and clinical results are at variance. The experimental method may be lacking control quite as much as the clinical. The conclusions reached by different experimenters concerning the same therapeutic agent do not always agree. A consideration of the present attitude toward strychnin would serve to illustrate my meaning. A few years ago, opinion was practically unanimous that strychnin is a reliable cardiovascular stimulant. Today its actions are in dispute among both pharmacologists and clinicians. Dixon states that strychnin is an important cardiovascular stimulant. Sollmann denies that it has such action, except in subtoxic or toxic cases. Among clinicians, Cook and Briggs find that strychnin raises blood pressure in disease, but Cabot is unable to observe a rise. The preponderance of evidence derived from bedside studies with the sphygmomanometer indicates that strychnin does not, at least uniformly, cause a rise in blood pressure. On the strength of this evidence, many clinicians deny that strychnin possesses any value as a cardiovascular stimulant in disease. My criticism of this conclusion is that experiments lack proper control. The conclusion is based entirely on the assumption that to act as a cardiovascular stimulant a drug must increase blood pressure. I do not believe that this is true. The action of digitalis proves indisputably that it is not true, for digitalis, at times, may either not affect blood pressure or may cause it to fall. I have seen it fall 30 mm. In the face of conflicting opinions concerning the action of a drug, each clinician is compelled to depend on his own experience. My experience has led me to believe that strychnin is one of the most reliable cardiovascular stimulants. I am convinced, also, that there are characters in the pulse, discernible through the tactile and muscle sense, which no instrument of precision yet devised is capable of depicting. They are not the grosser changes that come early or late in circulatory failure, such as arrhythmia. They concern rather the tonus of the artery, the shape of the wave passing under the finger and the "push" behind the wave. It is characters such as these that are summed up in the word "quality."

Present Status of Physiologic Therapy

Dr. J. J. Levy, Syracuse: There has been a gradual drifting away from drug therapy in chronic conditions, and this has been due to the growth of sanatoriums, in which drugs play an inferior rôle in treatment, and the physical agents are the important therapeutic aids. Several advances have been made in the past few years which merit attention: 1. Psychanalysis in the treatment of nervous disorders. 2. The work of Cannon, who has shown that depressive emotions, such as anger, fear and grief, cause excessive stimulation of the endocrine glands through the sympathetic system. This chronic emotional stimulation is an important factor in the causation of many of the chronic disorders, and must be considered. 3. Use of the physical agents in the after-treatment of fractures, especially in the treatment of adhesions resulting from trauma. There is bound to be a wonderful future for physical therapy on account of the compensation act. 4. The use of the gamma rays, especially in many gynecologic conditions of a nonmalignant nature, when there is an excessive uterine hemorrhage, and in the treatment of fibroids. 5. Disappearance of the old idea that we are merely to treat cases with drugs, and the use of the physical agents, such as fresh air, sunlight, proper diet, mechanotherapy and electrotherapy, which are bound to play a more and more important part in relieving and alleviating the sufferings of humanity.

DISCUSSION

Dr. L. F. Bishop, New York: I think the older practitioners have not been willing to take up physical methods, especially in the treatment of chronic diseases. Dr. Levy has called attention to the fact that the compensation act has stimulated the efforts of physicians to get their patients back to work. That is true. We must not try to seek any special method of treating these patients but a combination of methods, a sum of a great many different methods. Diet, for instance, is of prime importance and it should be considered more carefully.

Dr. Mary E. Rose, New York: I am interested in vaccine therapy. I should not wish to treat a case of leukorrhea unless vaccines were used as an adjunct.

Dr. W. Dewey Alsever, Syracuse: One great difficulty which we encounter is in attempting to get the pharmacologists and physicians together. There should be more cooperation. One makes bedside observations and the other makes observations in the laboratory, which, of course, leads to many errors. With regard to strychnin, many men have for years believed it to be a cardiovascular stimulant. Dr. Coleman says this is not the case, except in toxic conditions. Strychnin is a powerful stimulant of the nervous system.

Dr. John M. Swan, Rochester: I must disagree with the statement of Dr. Rose. She should not treat the leukorrhea but the woman who has leukorrhea. There is a tendency for medical men to prescribe medicines without having made a most careful study. They should not prescribe anything, except when in their judgment the agent seems capable of producing good.

Dr. J. O. Stranahan, Rome: In a case of streptococcic infection of the throat, I advised the use of active strains of vaccines, and obtained most gratifying results.

Carrel-Dakin Treatment of Infected Wounds

Dr. C. L. Gibson, New York: The Carrel method of wound irrigation requires intelligent attention to every detail. Bacterial destruction is accomplished by the reaction on the proteins of the body. The application of the solution must be constant and prolonged. Unless administered frequently, it disappears. In experiments in using the solution in one half of the wound, the half in which it is used rapidly clears up, and the bacterial count diminishes. The solution is dangerous if introduced into the circulation, causing rapid hemolysis, and it is necessary to make a careful hemostasis. It should not be introduced into deep wounds in which there is fear of its entering an artery. Irrigation is practiced every two hours. The skin can be protected with cloths containing yellow petrolatum, and the tubes are changed according to the condition of the wound. The average wound becomes sterile in ten days. There are no constitutional symptoms, and the bacteria diminish steadily. In eighty compound fractures, not one suppurated. Great care is observed in the preparation of the solution, which depends on the titer of the chlorinated lime, the other ingredients being in accordance with this titer. If the solution irritates at all, it is wrongly made.

DISCUSSION

DR. JOHN VAN DUYN, Syracuse: There is nothing new in the method, except the scientific application of it. The only new point is the late closure of the wound. Success depends on appreciating all points of technic, getting the solution over every part of the surface, and having the solution pure. With repeated practice and patience, the results can be obtained.

DR. HENRY H. M. LYLE, New York: The method seeks to sterilize the wound by chemical means, the response of the tissues and bacteria on the surface to the solution. The flow of the solution, per se, dissolves out the tissue. It is not a continuous reaction, but delivers a definite chemical to every portion of the wound. The key to complete success is gentleness and thoroughness, in other words, good surgery. In the American Ambulance Hospital there was a drop in mortality of 11.8 to 7.8 after the use of the method. There is an economic side; it cost $2 per day per wound, and if the wound can be healed in twenty days, instead of three months, the advantage can be appreciated.

DR. ALBERT VANDER VEER, Albany: My experience in military surgery began in June, 1862, at the Battle of Richmond. It was hot weather and wounds were not dressed for four or five days. The difficulties of military surgery under such conditions are great. We made wide incisions and washed the wound with such preparations as were recommended at that time, and, after eighteen months' work, a solution was provided for the surgeon for keeping the wounds clean. It was called Labarraque's solution of chlorinated soda, and it was the best preparation the army had. What is the real difference between Labarraque's solution and Dakin's neutral solution of chlorinated soda? If the wound has been dressed, how often has the dressing to be removed? I have heard that with the continuous irrigation the dressings do not soil and the wound is kept quiet. That point was appreciated in the last eighteen months of the Civil War. The wounds were kept quiet. In amputations, silk ligatures acted as drainage tubes. Suppurating wounds were dressed twice a day, and handling of the wound was distressing. A free incision with washing by Labarraque's solution was the best treatment, and wounds healed under this method.

Treatment of Syphilis of the Brain and Cord by Subdural Injections of Salvarsanized-Mercurialized Serum

DR. S. T. NICHOLSON, Clifton Springs: Fourteen patients with syphilitic infection of the central nervous system have been treated by subdural injections of salvarsanized-mercurialized serum; nine with tabes dorsalis showed marked improvement. Two patients with paresis did not do well; in two cases diagnosed as cerebrospinal syphilis, the patients showed improvement, and a third patient discontinued treatment too early to permit conclusive observations. One of the most striking features in reviewing these cases was the difficulty of getting the patients to return for observation and treatment until the beneficial results, as evidenced by the laboratory findings, were as satisfactory as the functional improvement. In the interstitial type, in which there is gumma formation, the most rapid results as regards functional recovery were obtained. The methods of choice of intraspinal therapy are: (1) the salvarsanized serum of Swift and Ellis; (2) the Ogilvie method, and (3) the Byrnes method. I have used the first and the third combined, and the results have been so encouraging that I shall continue the method. The treatment is elastic and may easily be adjusted to the individual problem presented by each case. The mercurialized serum is a stable product, and may be used at any time after its preparation. Pain, muscular spasm, nervousness, headache, ataxia and reduced or lost sphincter control have all been relieved in full or in part, but by far the most important result is the possibility of restoration of some of the patients to their active pursuits of life.

DISCUSSION

DR. MALCOLM S. WOODBURY, Clifton Springs: None of the patients treated by this method have shown any severe reactions. I have known of instances in which quite severe reactions have followed the subdural use of medicaments. The paretic patients have not done well.

DR. HENRY LYLE WINTERS, Cornwall: My experience has been somewhat similar to Dr. Nicholson's. Good results are obtained in the active syphilitic processes. I have been able to arrest the progress of the disease in 75 per cent. of perhaps thirty cases treated in that way. In early tabes cases I have not been so successful.

(To be continued)

CHICAGO INSTITUTE OF MEDICINE

Meeting held March 30, 1917

Psychanalysis and the Practice of Medicine

DR. WILLIAM A. WHITE, Washington, D. C.—See THE JOURNAL, this issue, page 1591.

DISCUSSION

PROF. JAMES R. ANGELL, University of Chicago: Dr. White has given you so persuasive and reasonable a statement of freudianism that I somewhat hesitate to read a document which I have brought with the purpose of suggesting one fairly common view of the movement. May I say that Dr. White has just published a book, "The Mechanism of Character Formation," in which he has embodied many of the same views that he has set forth so interestingly this evening. His book is the sanest and most lucid exposition of the conceptions of psychanalysts that I have met. I venture to read a few sentences from an article by the celebrated biologist, Yves Delage (*Journal of Mental Science,* January, 1917, p. 61):

> In the event of a contagious malady making its appearance in any country, it is the duty of the medical man who first has cognizance of the evil to raise a cry of alarm, so as to ensure the adoption without delay of the necessary prophylactic measures.
>
> To sound this note of alarm is the object of this article.
>
> This new affection, which threatens to invade France, had its birth in Austria, in Vienna, some twenty years ago. . . .
>
> It is a malady without any apparent lesion of the central nervous system, a purely psychical affection; in a word, a psychosis. Its name, coined by the very persons who are its victims, is *Psycho-analysis.*
>
> Psycho-analysis, defined in the most general terms, is an affection in consequence of which the unfortunates who are attacked by it become incapable of accepting just for what they are the most insignificant gestures, the very simplest acts, the most banal words of persons with whom they have intercourse; in everything there must be discovered some profoundly hidden meaning. The detection of this pretended hidden meaning becomes for the patient a veritable obsession.
>
> Like all madmen, the psycho-analyst lives in an imaginary world, which it is necessary for us to recognize in order to understand what goes on within him.
>
> Reader, what is your opinion?
>
> I am of the opinion, you will answer, that there is no outrage on the most elementary common sense which psycho-analysts are not prepared to perpetrate in their efforts to square the very simplest and clearest facts with their preposterous notions.

Without pursuing further the quotations, you will probably agree with me that the conservative statement which we have heard this evening is perhaps freudianism at its best. I understand psychanalysis already to have reached a stage at which it has begun to subdivide into cults and schools, so that it is no longer possible to say anything about it which shall be in any universal sense true. Freud himself has changed his views, has grown and developed. His disciples have likewise changed their views, and any attempt to evaluate the movement as though it consisted of a single body of well organized opinion is impracticable.

I understand by freudianism partly a theory of the nature of the psychic organism and partly a system of therapeutics. On the therapeutic side I should hardly dare to express myself. I hazard a single comment in passing. If one is to judge psychanalysis by its *results,* it is reasonable to bring it into context with other methods which, dealing also with the same specialized group of diseases, demand that they be judged by their results and not by their antecedent medical history. While the context is in some way unfair and superficial, if one is really turning to results for a criterion, one may well ask whether Christian Science and mind cure and chiropractic and osteopathy and suggestion and hypnotism and psychic reeducation and all the other things which have had more

or less vogue in the treatment of nervous disorders may not lay equal claim to success. Frankly, I do not pretend to know what the answer is—whether the freudians' successes are more readily gained, or are more permanent, or whether they cover a wider range of cases. But I am disposed to think that the question suggested has some propriety.

Let me pass at once, however, to the few comments I have to make on the other side of the question, i. e., freudianism as a psychology, and more particularly its relation to other current psychologic beliefs.

I wish to speak first of a thing for which I think psychology greatly indebted to freudianism. I believe Dr. White did not speak about dreams in his paper. But it is a statement of the most obvious fact to say that freudianism has taught modern psychology that the dream is an absolutely significant and fundamental part of the psychic life of the individual, a thing which psychology prior to Freud had never in any frank, thoroughgoing way acknowledged. We had had all sorts of studies of dreams, but they were mostly on the descriptive level, and beyond affording a theory of the stimuli provoking the beginning of the dream, they had little to offer. They were, as a rule, wholly uninterested in the course of the dream or in its interpretation. I am far from wishing to imply that the freudian type of interpretation is altogether acceptable, but there is a rapidly growing conviction that the analysis and interpretation of dreams presents a very real problem to our psychology. In passing it will not be overlooked that psychanalysis applied to dreams is at least as old as Pharaoh, for it will be remembered that that eminent potentate had his dreams analyzed by a distinguished expert with disastrous results.

We are also under some obligation to freudianism for again turning our notice to the far prehistoric past of man as bearing essentially on our conception of how the mind has come to be what it is. From one point of view it is, of course, true that this idea has been a commonplace ever since we learned to think in spencerian and darwinian terms. We have come to believe that you cannot understand the mind of living man today without recognizing that it has in it changes which are not only prehistoric but prehuman. Nevertheless, the freudian has thrown a new light on the conception and has enabled us to take a more plastic and flexible view of the makeup of the individual than was heretofore the case. It is no more than fair, therefore, that we should acknowledge our indebtedness. We may also be allowed to voice a mild protest against the extravagant claims of certain freudians as to their originality in this matter.

So far as concerns the antiquity of man's psychic past, our modern notion is not so different from that of the freudian as might be supposed. It has been a familiar teaching of our psychologic textbooks for many years past that every individual brings into the world with him a heritage of animal instincts, appetites and tendencies, which in part reflect his descent from the race as such, and in part are due to peculiarities which may have become established in his own particular family stock. We have also come to recognize that there is mentally, as well as physically, an element of variation in every individual which comes to the surface in impulsive traits—tastes, prejudices, wishes and the like—which enjoy much the same kind of imperious claim over his attention as do those tendencies which derive more obviously from the common racial stem. Moreover, we have been for several generations thinking of the evolution of mental processes in the individual as taking place about systemized ideas and forms of reaction which at once suggest the freudian complexes. These ideational systems grow up as centers of control in childhood and adolescence, and in maturity constitute the great groups of attitudes by which we maintain our social equilibrium. Underneath them all is ever to be discerned the foundation of instinctive impulses to which I have referred above. A serious disturbance in these impulses either in the way of undue repression or in the way of exaggerated growth is sure to be reflected in disturbances of the social attitudes and of the intellectual life.

The exploitation of wish fulfilment, or the "libido" which the freudians generally indulge, if taken in its earlier form as intrinsically synonymous with purely sexual impulses, has seemed to most psychologists grotesquely one-sided. When enlarged to take in all the basic appetites of life, as in later freudian writings appears to be the disposition, the doctrine either becomes substantially synonymous with the common views described in the preceding paragraphs, or it thins out into a formula so general as to be incapable of either proof or disproof. Modern psychology has given quite as central a place to emotion as has the freudian, and in the movement headed by William James, the identification of emotional with instinctive behavior is substantially complete. The types of disturbances, therefore, which freudians find originating from thwarted wish fulfilment, so far as these wishes are incorporated in emotional experiences, are easily assimilated to the conventional psychologic views, and, so far as concerns their theoretical implications, are in no sense radically novel. Psychologists are quite ready to recognize the wide reverberation of the sexual impulses in the psychic life of the individual, but they have not for the most part been at all ready to accept the earlier and more extravagant formulations of the freudians tending to make this group of impulses absolutely predominant over all the others. Hunger and thirst, anger and fear, to mention no other items, all figure in primitive behavior in a fashion clearly distinguishable from purely sexual considerations, and any one may readily be implicated in disorders of the psychic life of the individual. To leave out these factors, or to slur them in the way in which freudians have sometimes done, has seemed to psychologists to involve a distortion of the true conception of the psychic organism.

There is another matter on which Dr. White did not dwell, although it is admirably set forth in his book, that deserves consideration in this matter, namely, the freudian notion of symbolism.* No doubt you are aware how fundamental symbolism is to the freudian conception of the dream structure. You also know how, in the analysis of dreams, the psychanalyst distinguishes between the "manifest content," the thing we common-sense individuals are confronted by when we hear a dream described or face one of our own, and the symbolic implication of the dream. We are told that only when we get the true symbolic clue can we understand what the dream really means. This assertion hangs together with the conception of the dream as a device for relieving repressions and permitting suppressed wishes to come into the mind in this veiled and roundabout fashion.

It is quite out of the question in the limited time here available to enter with any thoroughness on this matter. Suffice it to say, that in a certain sense our conscious processes are all fundamentally symbolic. Language, the great medium of thought, is nothing other than an elaborate system of symbols. One does not need to turn to dream consciousness to verify the reality of the symbol as a feature of mental operations. What psychologists of the nonfreudian stripe have objected to has been the utterly weird and uncontrolled interpretation of dreams under the freudian methods of analysis. The point is not that we are always in a position to prove the falsity of the alleged freudian symbols, but that we are by no means bound to accept the wholly inconclusive evidence which the freudian himself frequently offers for his own symbolic interpretation. Not even his ingenious search of the obscenities of primitive religious rites and practices has brought conviction to the rank and file of psychologic onlookers. Moreover, there is more than a little ground to suspect that just as in the "Salpêtrière" Charcot succeeded in unconsciously establishing a group of apparently real but actually artificial hypnotic states, so the freudians are by their own procedure unconsciously generating a uniformity of symbolic interpretation which has little or no real convincing evidential basis.

Another interesting freudian device, the censor, Dr. White also passed by in silence. The censor is the freudian "god from the machine." On his behalf apparently is established the unbelievably elaborate system of symbols, by means of which he is coaxed into quiescence while these scapegraces pass out from the field of repression into the open pastures of the dream. Who he is, where he comes from, whether he is anything more than the accumulated moral habits of the indi-

vidual—these and many other interesting questions about him are left unanswered. Meantime, he presents all the external characteristics of the medieval witch.

In conclusion, I should like to comment briefly on one remark which Dr. White made in referring to the impossibility of securing a just impression of mental conditions under the ordinary procedure of the psychologic tests of the laboratory. It is quite true that our present forms of laboratory procedure are in some particulars ill adapted to the purposes of the alienist. But it would be wholly misleading to imply, as I think Dr. White perhaps unwittingly did, that all laboratory forms of procedure lack practical value. Nobody who is familiar with the wide range of applications now being made in our laboratories and elsewhere of the principles of psychology to the practical problems of education, business and industry can for a moment accept any such implication. Moreover, it should not be forgotten that the most revolutionary contribution which has been made in recent years to the study of mental retardation and mental deficiency in children is the contribution of a psychologist, Alfred Binet, and rests on distinctly psychologic methods. I venture to believe, therefore, that while in general it may be true that the psychologic laboratories are at present largely working on problems whose solutions do not contribute immediately to the interests of the alienist, it is wholly beside the mark to deny to them very large contributions of a practical kind to modern enterprises of various sorts, and in general I think it may be fairly said that the actual procedure of the psychanalyst will be found to have been in considerable degree borrowed from the extant ideas and practices of our conventional psychology.

DR. RALPH C. HAMILL: Concerning the rôle of symbols, I shall report several cases which clear the situation a little. [Dr. Hamill reported analyses of three cases.] Dr. White spoke of the habit of taking things to replace others. At one time Dr. Healy at the Juvenile Court worked on this among many other things. [Dr. Hamill then reported a case of kleptomania with analysis.] If we did not follow up the symbols in the analysis, it would be a tremendous waste of the evidence that is offered to us. We are criticized for using them and told that they may mean anything; that may be true; but if we do not use the material which is offered, we certainly cannot expect to succeed.

DR. HUGH T. PATRICK: That the majority of the most highly educated practitioners neglect the psychic factors in sickness is only too apparent to me. They make all the laboratory tests, but so far as the vital life of the patient is concerned, content themselves with a few superficial questions about overwork, worry, etc. They cultivate an intimate aquaintance with his organs and fluids, but do not know the man himself, his total character, with all his passions, desires, fears, his susceptibilities, his attitude on duty, religion, love, health, heaven and hell; and this is simply the human animal plus the resultant of his reactions, all the influences which have been brought to bear on him, certain of which we call abnormal because they are occasional. How are we to understand a given one and handle it intelligently unless we find how it came about? The question whether or not psychanalysis is the best way to find out and also the best way to treat the trouble has not yet been answered to every one's satisfaction. The value of any therapeutic procedure cannot be affirmed and estimated on *a priori* grounds, but only by intelligent comparison of its results with those of other methods. Consequently psychanalysis is not to be determined by psychologic investigation. A man who has not used it cannot know whether it is better or worse than methods he has been using, and the psychanalyst who does not understand the older methods has no grounds for evaluating his procedure. This brings me to my personal feeling, if I am entitled to an opinion, being neither a psychologist nor a psychanalyst, but an old style practitioner:

1. A good deal of psychanalysis is intelligent, painstaking and detailed history taking. This, I am convinced, pays. In many cases, after the patient's confidence has been secured, it pays to ask leading and intimate questions. That, I presume, Dr. White would repudiate as a process of psychanalysis, but I do not repudiate it as a practical procedure.

2. There can be no doubt that experiences the patient has forgotten are of importance in psychanalysis. Probably something the patient has not forgotten is overlooked because it has no apparent connection with the psychic disorder, and the doctor does not dig it out.

[Dr. Patrick gave some details of a case in which the chief thing the patient complained of, after some quizzing, was several forms of agoraphobia. The patient was nervous and apprehensive, and did not wish to call on her neighbors and friends or have them call on her. There was a dread about seeing them come, and she felt like running away. She was leading a decidedly uncomfortable life. The development of the minute details of the history of the case revealed a terrible sex trauma at one time in the patient's life, which seemed to be at the bottom of her difficulty, and an explanation on that ground cleared up the symptoms.]

3. Libido. I think this might be called in a rough way a longing for the happy life. "Be good and you will be happy" is an old admonition. To many of us, "Be happy and you will be good" is quite as applicable. Could we at one stroke make the world happy we should have a better and healthier world. Each one has an inherent hunger for something more than food, and if that is not gratified we react some way in the way of some nervous disease.

4. The statements of patients are to be discredited for three reasons: First, they may have forgotten essential things; second, they suppress things they should give you; third, they may not be fully conscious of present states of mind. For instance, a patient will honestly, vigorously and emphatically deny fear, jealousy, unsatisfied desire of some sort, when such a state is not only present, but intensely so.

5. One final simple point which I believe is sometimes overlooked by psychanalysts as well as by others: By means of psychanalysis the old suppression and substitution are laid bare; the patient sees how the symptoms come about; sees the process and understands it as the physician does; he is satisfied and hence is cured. But is he cured because the true explanation has been given him? Not at all. He is cured because he believes or feels that the true explanation has been given.

Quite recently a colleague said, "The work of a medical expert is exceedingly simple and easy. All he has to do is to tell the truth, or, failing to tell it, convince the jury that he is telling the truth." The psychanalyst or the ordinary physician may present the patient with a true analysis of his disorder, but if the explanation does not completely satisfy him he is not cured. On the other hand, a quack or a Christian Science healer may give him some spurious logic which appeals to him and he is cured.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS

Fourth Annual Meeting, held at New York, April 6-7, 1917
(Continued from page 1578)

Absorption of Foreign Protein by Anaphylactic Tissues and Hepatic Reaction in Anaphylaxis

DRS. W. H. MANWARING, Stanford University, Calif., and H. E CROWE: In a sensitized guinea-pig, if the lungs are repeatedly perfused with 1 per cent. foreign serum, diluted with Locke's solution, or 50 per cent. defibrinated normal blood, the lungs show typical anaphylactic reaction. Quantitative titrations of the perfusion fluid furnish no evidence of absorption or appreciable amount of foreign proteins by the anaphylactic tissues, or of destruction by blood enzymes. If 1 per cent. goat serum in 50 per cent. defibrinated normal blood is repeatedly perfused through the liver of a normal or of an immunized guinea-pig, a slight reduction in the toxicity of the perfusion fluid is usually observed on subsequent test with the isolated anaphylactic lungs. The detoxicating action of the normal or immune liver is not sufficient to render the perfusion fluid nontoxic. Perfusion made through the anaphylactic liver makes the fluid nontoxic for the anaphylactic lungs. This nontoxicity is not accompanied by quantitative decrease in the amount of goat protein

in the prefused fluid. The detoxicating action of the anaphylactic liver is, therefore, due to the explosive liberation of an antianaphylactic hepatic internal secretion.

The Specificity of Intracutaneous Absorption

Drs. G. H. Smith and M. W. Cook, Glen Olden, Pa.: When both specific and heterologous antigens are injected into the cutaneous tissues of immunized, sensitized and normal guinea-pigs, the specific antigen is absorbed from the tissues of the immunized and sensitized animals more quickly than the heterologous antigen, while the rate of absorption of both antigens from normal animals is much the same. The antigens used were horse serum as specific antigen and goat serum as heterologous. The most marked difference was noted in the absorption of the two antigens from the skin of the immunized animals. While horse serum was absorbed with a rapidity far in excess of that exhibited by the sensitized and normal tissues, goat serum, the heterologous antigen, disappeared from the skin of the immunized pigs much less rapidly than from that of normal and sensitized animals.

Cutaneous Antibodies

Drs. M. W. Cook and G. H. Smith, Glen Olden, Pa.: The presence of cutaneous antibodies in the skin of immunized and sensitized guinea-pigs was demonstrated by determining in the filtered emulsions of skin the content in precipitins for the specific antigen. The possibility that circulating antibodies might be responsible for the positive reactions obtained was excluded by perfusing the animals with salt solution and demonstrating the completeness of removal of circulating guinea-pig serum by titering the perfused skin emulsions with rabbit antiguinea-pig serum. While slightly positive results were obtained in these titrations, the fact that the circulating guinea-pig serum had been removed was confirmed by failure to find in the tissue emulsions any trace of a heterologous serum which was injected intravenously into the guinea-pig a short interval before death.

Classification of Strains of Meningococci

Dr. G. H. Robinson, Providence, R. I.: Horses were immunized against type strains of meningococci. Mice were injected with the serum of these horses, and the protective value of the serum against other strains of cocci was determined. By this method, the strains tested fall into two distinct groups and another heterogeneous group, which as yet has not been completely analyzed. Of the tested strains, 40 per cent. belong in the first and second groups, and 20 per cent. in the third group. Concordant results are obtained by actively immunizing the mice and then estimating the protective value against the strains to be tested.

The Selection of Horses for the Production of Diphtheria Antitoxin by an Intrapalpebral Toxin Test

Drs. A. P. Hitchens and E. K. Tingley, Glen Olden, Pa.: The work of Park and Zingher has shown that persons possessing natural diphtheria antitoxin react to injections with the production of antitoxin more readily than do those who have little or no diphtheria immunity. We thought this might be true also of horses, and that with a modification of the Schick test we could indicate the productive possibilities of horses with regard to diphtheria antitoxin. The injections were made intrapalpebrally. The technic was similar to that of Moussu in testing cattle with tuberculin. With a sterile 1 c.c. record syringe, 0.2 c.c. of diluted diphtheria toxin was injected as superficially as possible into the conjunctival mucous membrane of the lower lid. Usually the left eye was used for the test, the right for control. After twenty-four and forty-eight hours, readings were made. Fulness of lid, tenderness and watery discharge is indicated by +; lid swollen, eye half closed, ++; lid badly swollen, eye nearly closed, painful, photophobia, profuse purulent discharge, +++. The reactions usually last several days. Pseudoreactions are classed as negative.

DISCUSSION

Dr. J. A. Kolmer, Philadelphia: I should like to ask Drs. Tingley and Hitchens if they titrated out the serum in negative animals for antitoxin, as in the Schick test the negative reaction indicates natural antitoxin.

Dr. A. P. Hitchens, Glen Olden, Pa.: Seventy-five per cent. of those reacting negatively became productive against 14 per cent. positively reacting. This is the first indication we have had that a horse would produce antitoxin. One horse had twenty-five units per cubic centimeter of natural antitoxin.

Dr. Collins: Over what time did this test apply? Did you do the mallein test; if so, before or after? How long does it take horses to clear up so that if not acceptable they can be returned?

Dr. A. P. Hitchens, Glen Olden, Pa.: We are not depending on the mallein test; we think complement fixation is more reliable. The mallein test is made in the stable in which the horse is purchased. The intrapalpebral tests are made after the horse is received at Glen Olden. We have accepted all horses, regardless of reaction, so far, and may continue to do that to get more data.

Dr. J. A. Kolmer, Philadelphia: How long does the reaction last? Is there necrosis of the cornea?

Dr. E. K. Tingley: The reaction lasts about a week. The cornea is not at all affected.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, CLIII, No. 5

1 *Chemotherapy in Tuberculosis. P. A. Lewis, Philadelphia.—p. 625.
2 Strangulated Retroperitoneal Hernia into Paraduodenal Fossa: Operation; Death. W. P. Bramlett and A. P. C. Ashhurst, Philadelphia.—p. 641.
3 *Mineral Metabolism of Experimental Scurvy of Guinea-Pig. L. Baumann and C. P. Howard, Iowa City, Iowa.—p. 650.
4 Principles and Practice of Registering Heart Sounds by Direct Methods. C. J. Wiggers and A. Dean, Jr., New York.—p. 666.
5 *Metabolism and Dietetic Treatment of Rheumatoid Arthritis. R. Pemberton, Philadelphia.—p. 678.
6 Symptomatology and Treatment of Arteriosclerosis. W. C. Stoner, Cleveland.—p. 693.
7 Focal Sepsis in Genito-Urinary Tract as Cause of Constitutional Disease. B. A. Thomas, Philadelphia.—p. 701.
8 *Head Colds from Standpoint of Internist; Their Results and Treatment. T. F. Reilly, New York.—p. 709.
9 Diagnosis of Melanoma (Melanotic Sarcoma) by Means of Resultant Effusions. C. C. W. Judd, Baltimore.—p. 717.
10 *Effect of Castration on Osteomalacia in Male. C. A. Elliott and W. H. Nadler, Chicago.—p. 722.
11 Autointoxication and Its Treatment by (Trans) Duodenal Lavage. M. E. Jutte, New York.—p. 732.
12 *Comparative Study of Toxic Effects of Natural and Synthetic Salicylic Acids. P. Bartholow and A. McNeil, New York.—p. 738.

1. **Chemotherapy in Tuberculosis.**—The accomplishments of the laboratory of the Henry Phipps Institute up to the present in the endeavor to study tuberculosis from the chemotherapeutic point of view are summarized by Lewis as follows: "We have built up several substances which in the test tube are capable of restraining the growth of the tubercle bacillus in marked and measurably specific degree, and which when injected into the living tuberculous animal are capable of penetrating to the center of the masses of diseased tissue."

3. **Mineral Metabolism in Experimental Scurvy.**—An examination of the evidence, both experimental and clinical, obtained by Baumann and Howard leads to the view that scurvy, and perhaps the allied diseases as well, are due to the absence of certain substances in the dietary. The lack of this material appears to have a profound effect on the mineral metabolism of the guinea-pig.

5. **Metabolism and Treatment of Arthritis.**—Experiments are cited by Pemberton in which it has been possible to relieve patients of all or practically all, symptoms of diffuse arthritis by a large curtailment of carbohydrate, coincidently

with the ingestion of fat in such increased amounts as to make up or exceed this caloric deficit. When the protein intake has been kept approximately constant some such patients have actually gained weight while convalescing. This evidence by exclusion ascribes an injurious rôle to carbohydrate, is additional to that already published and is corroboratory of it. Pemberton finds it difficult to avoid the conclusion that fat, while it cannot be used with impunity in treating these cases, plays a relatively harmless rôle in marked contrast to carbohydrate. It can apparently be used in many cases to meet, more or less, the loss of weight which would otherwise ensue, and, in certain selected cases, to meet it entirely or even to cause the patient to gain weight. The difference in the effects of large amounts of carbohydrate when ingested by normal individuals and by subjects of rheumatoid arthritis is not reflected in the carbon dioxid tension of the alveolar air under the limited conditions of the experiments.

8. **Treatment of Head Colds.**—Head colds according to Reilly are always infections. He treats the condition first, by restricting the diet. Partaking of large quantities of protein food increases the nasal congestion. Second, purgation is caused early and often. Third, a hot mustard foot bath also acts as a derivative, and is particularly valuable on the first and second day of the cold. Fourth, the stereotyped advice should always be given to avoid draughts, wet feet and crowded places. Fifth, tobacco must be interdicted for a few days at least, and alcohol in the form of beer, whisky or rum is absolutely contraindicated. Sixth, Reilly has little use for drugs, especially quinin and Dover's powder. Local treatment is by far the most important, he says. He uses an alkaline spray, repeated until a mild blowing of the nose is not followed by mucopus. Ordinarily after the alkaline spray the following spray is used: phenol, 3 minims; iodin, 6 grains; potassium iodid, 6 grains; peppermint water, ½ ounce; glycerin, ½ ounce; water, sufficient to make 3 ounces. This is sprayed until it reaches the throat. After this an oil spray containing oil of cloves, camphor, menthol, oil of pine and liquid petrolatum is used.

10. **Castration in Osteomalacia.**—Five years after castration the case reported by Elliott and Nadler shows no actual improvement in bone structure. A probable remission has occurred, which may have been influenced by the operation. In the authors' opinion the result of castration in this patient would seem to indicate that osteomalacia is not a disease of the sexual glands.

12. **Toxic Effects of Salicylic Acid.**—In order to institute a comparison, Bartholow and McNeil examined the acids and their sodium salts, and made some clinical studies of the action of the following substances described as complementary: cinnamate of sodium, phthalic acid, saligenin, salicin, methyl salicylate. The authors found that the difference between the natural and synthetic salicylates in man is somewhat more distinct. In the case of the natural acid when administered to adults there was less gastric disturbance, the cerebral effects were slighter, and in general it may be said that this substance is better borne than the commercial acid. It is not so toxic in very large doses, though when more than 75 grains are given in twenty-four hours there is a tendency to delirium in the susceptible to salivation and flushing of the integument. The noises in the ears are noticed on the second day, as a rule, of administration. It seems clear that the natural acid has less cumulative effect.

American Journal of Orthopedic Surgery, Boston

May, XV, No. 5

13 *An Experimental Study of Reaction of Rabbit's Joint to Mechanical Injury. J. E. Paulson, San Francisco.—p. 337.
14 *Osteochondromatosis of Knee Joint. M. S. Henderson, Rochester, Minn.—p. 351.
15 *Tabetic Spinal Arthropathy (Charcot's Spine) Treated by Intradural Injections of Mercurialized Serum. R. W. Billington, Nashville, Tenn.—p. 357.
16 Scoliosis. E. G. Abbott, Portland, Me.—p. 362.
17 New Methods in Preparation and Use of Plaster-of-Paris. R. C. Barrett, Philadelphia.—p. 418.

13. **Joint Reaction to Mechanical Injury.**—In none of the experimental cases studied by Paulson did injury to the knee joint, in the form of removal of the articular cartilages and a thin layer of the underlying bone, cause any apparent loss of efficiency of the joint. In all the cases there was regeneration, to greater or less extent, of bone and cartilage, except in a case in which infection was present. The bone apparently regenerated from the osteogenetic tissue in the marrow spaces. The regeneration of cartilage apparently took place in the following manner: (1) degeneration of a few cells at the border of the injury; (2) proliferation and hypertrophy of the next layer of cells; (3) outgrowth of cartilage from the remaining cartilage, periosteum and tissue of the marrow spaces; (4) transformation of the fibrous tissue into fibrocartilage, the process being apparent first in the vicinity of the old cartilage and at the junction of the fibrous tissue and bone, (5) and finally transformation of the fibrocartilage into hyaline cartilage. In some cases there was formation of exostoses, and this was very marked in one case. In these cases there were large areas of apparently isolated cartilage, and bone formation seemed to be progressing from them. The bone formation in the exostoses was all of the cancellous variety.

14. **Osteochondromatosis of Knee Joint.**—In the case reported by Henderson there was a history of severe trauma at the onset. The roentgenogram revealed also multiple loose bodies in the knee joint. The specimen removed from the femur at operation showed the tumor to be the osteochondroma type, the cells not appearing malignant. The synovial membrane of the joint apparently was participating in the new growth. The synovia was hypertrophied and pouched. In places the pouches were pedunculated, with the tips becoming cartilaginous; some were of good size, being larger than a pea. The new growth from the bone had already broken through into the joint by way of the internal condyle, forming an exostosis in the joint cavity itself. After operation the tumor rapidly recurred and increased in size. A second specimen showed a mixed cell sarcoma, and amputation was performed. When the patient was dismissed the roentgenogram showed metastasis in the lungs.

15. **Mercurialized Serum in Tabetic Spinal Arthropathy.**—Billington gave his patient at intervals of two weeks, four intradural injections of mercurialized serum (1/40 gr. bichlorid at each dose), followed by potassium iodid and inunctions of mercury for a year. At the fourth injection, the spinal fluid examination showed practically no change. The reactions were rather severe, and further injection was refused. He was then put in a plaster jacket, with moderate correction, for two months, followed by a brace, which he still wears. The gastric crises and lightning pains ceased immediately, and have not returned, except for an occasional slight leg pain which he scarcely notices. He has gained about 10 pounds in weight, and he says both bowel and bladder control are much improved. His gait is somewhat steadier, probably due to increased strength and the spinal support. Spinal deformity is somewhat less noticeable, and flexibility is considerably decreased in the lumbar region, a certain amount of fixation having taken place. It is now fifteen months since the beginning of treatment. The patient's general condition is definitely improved, but there has been no apparent checking of the progress of the vertebral disease.

American Journal of Syphilis, St. Louis

April, I, No. 2

18 Spirochetes. H. Noguchi, New York.—p. 261.
19 Action of Vanadium with Particular Reference to Syphilis. F. Proescher, and H. A. Seil, Pittsburgh; A. W. Stillians, Chicago. —p. 347.
20 Procedure for Serum Diagnosis of Syphilis Especially Recommended for Hospital Routine. J. Bronfenbrenner and M. J. Schlesinger, Pittsburgh.—p. 406.
21 Palmar Syphilids. H. Fox, New York.—p. 422.
22. *Series of Ruptured Aortic Aneurysms. P. G. Woolley, Cincinnati. —p. 426.
23 Serological Diagnosis of Syphilis with Special Reference to Hecht-Gradwohl Test. R. B. H. Gradwohl, St. Louis—p. 450.
24 Influence of Wassermann Test on Surgery. T. L. Rhoads, Cristobal.—p. 468.

25 *Syphilis of Duodenum; Report of Case. J. L. Mortimer, Denver.—p. 473.
26 Experimental Syphilis Produced Through Local Applications to Mucous Membranes. M. A. Reasoner, Washington, D. C.—p. 478.

22. **Ruptured Aortic Aneurysms.**—The cases which form the basis of Woolley's communication form an interesting group because they illustrate the directions which aneurysms may take in relation to other organs. In one case the perforation was external, through the sternum; in one it was into the superior vena cava; in one it was into the left pleural cavity by way of the diaphragm; in one it was retroperitoneal; in one it was into the left pleural cavity by way of the left lung; in two it was into the left main bronchus; in one it was into the left ventricle; and in one it was into the pulmonary artery; six were therefore aneurysms which sprang from the arch of the aorta. Two were developed from the abdominal aorta.

25. **Syphilis of Duodenum.**—A diagnosis of duodenal syphilis was made by Mortimer for the following reasons: 1. History of onset one year after marriage, the birth of a syphilitic child; husband died of paresis. Both Wassermann reactions and symptoms cleared up previously under antisyphilitic therapy. 2. Presence of a hard irregular mass in the right hypochondrium. 3. Roentgen signs which show decisive evidence of postpyloric pathology. 4. Positive Wassermann reaction. 5. The marked improvement under antisyphilitic therapy, the patient stating that she was entirely free of abdominal pain and tenderness. The diminution in the size of the tumor.

Annals of Surgery, Philadelphia

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27 Kidney with Double Pelvis and Double Ureter; Nephrolithiasis; Pyonephrosis; Nephrectomy; Report of Case. L. S. Pilcher, Brooklyn.—p. 534.
28 Problem of Prostatic Obstruction. J. H. Cunningham, Jr., Boston.—p. 538.
29 Congenital Strictures and Spiral Twists of Ureters; Report of Case. D. N. Eisendrath, Chicago.—p. 552.
30 *Anomalies of Urinary Tract. M. Krotoszyner, San Francisco.—p. 560.
31 Indications in Kidney Surgery. G. Kolischer, Chicago.—p. 573.
32 Case of Bilateral Polycystic Kidney. F. R. Hagner, Washington, D. C.—p. 580.
33 Echinococcus Disease of Kidney; Report of Case. J. I. Russell and E. F. Kilbane, New York.—p. 585.
34 Preliminary Renal Drainage with Special Reference to Two-Stage Operation on Kidney. J. R. Caulk, St. Louis.—p. 593.
35 *Influence of Venous Collateral Circulation of Kidney on Hydronephrosis. J. D. Barney, Boston.—p. 597.
36 *Unusual Case of Renal Tuberculosis. B. A. Thomas and J. C. Birdsall, Philadelphia.—p. 602.
37 Case of Bilateral Renal Calculi. E. O. Smith, Cincinnati.—p. 606.
38 Experience with Papaverin in Treatment of Ureteral Calculus. H. A. Fowler, Washington, D. C.—p. 611.
39 Recent Observations in Cystoscopic Technic. W. F. Braasch, Rochester, Minn.—p. 615.
40 *Value of Bacillus Bulgaricus in Treatment of Coccus Infections of Bladder. R. F. O'Neil, Boston.—p. 621.
41 Sarcoma of Bladder in Child. C. G. Mixter, Boston.—p. 628.
42 *Use of Radium and Punch Operation in Desperate Cases of Enlarged Prostate. H. H. Young, Baltimore.—p. 633.
43 Sidelights on Prostatic Abscess. J. F. McCarthy, New York.—p. 642.
44 Nongonorrheal and Nontuberculous Epididymitis. I. S. Koll, Chicago.—p. 646.
45 Surgical Significance of Estimation of Nonprotein Nitrogenous Constituents of Blood. H. J. Scherck and R. B. G. Gradwohl, St. Louis.—p. 648.
46 *Results of Operations for Tumors of Breast; Benign and Malignant. P. M. Pilcher, Brooklyn.—p. 654.

30. **Anomalies of Urinary Tract.**—Krotoszyner reports the following cases: 1. Renal hypoplasia (rudimentary kidney) and hydro-ureter on the left side. 2. Horseshoe kidney (fused type); bilateral nephrolithiasis; pyonephrosis of right side. 3. Double bladder in a prostatic; ascending pyelonephritis. 4. Congenital diverticulum of the bladder, hypertrophy of prostate, chronic cystitis.

35. **Collateral Circulation in Hydronephrosis.**—The conclusions drawn by Barney from his experimental observations are: 1. Sudden, complete and permanent obstruction and one ureter produces hydronephrosis in animals in the vast majority of cases, but (2) atrophy of the kidney may develop in rare instances; (3) when hydronephrosis occurs the venous collaterals of the kidney are well developed; when atrophy of the kidney takes place it is due to a lack of development of these collaterals; (4) atrophy of the kidney may be produced experimentally, by simultaneous ligation of the ureter and of the veins which maintain the collateral venous circulation of the kidney; (5) when the obstruction to the ureter is partial or intermittent the hydronephrosis is of greater size than when the obstruction is complete, sudden and permanent, for in the latter event, urinary secretion ceases before the venous collateral circulation has time to develop.

36. **Renal Tuberculosis.**—In this case a calcified plaque in the internal iliac artery was mistaken for a ureteral calculus. It subsequently proved at operation to be a reno-ureteral tuberculosis without calcification.

40. **Acid Urine in Coccus Infections of Bladder.**—In all cultures of O'Neil's cases of incrusted cystitis the culture showed a growth of streptococci and staphylococci, *Bacillus proteus* and *B. coli.* Beyond this no attempt was made to plate out any given strain of bacteria. The cultures after treatment showed, with two exceptions, colon bacilli only. Emulsions made from tablets were used in the earlier cases. These were not very satisfactory. Later the liquid culture was used. Twenty c.c. were injected into the bladder through a catheter after preliminary cleansing irrigations. From the analysis of seven personal cases, O'Neil feels justified in drawing the following conclusions: 1. That the incrustations met with in this form of coccus infection, with an alkaline urine, can be removed more rapidly and permanently by the acidulation of the urine by the bacteria than by any other means. 2. That in certain cases in which the incrustations are associated with alkaline urine and a marked tendency to the formation of soft phosphatic calculi, their recurrence may be prevented to a considerable extent by maintaining a strongly acid urine by this means. 3. That the method may be of value in the treatment and prevention of the incrustations sometimes seen in urinary wounds. 4. That the treatment to be of value must be carried out at regular intervals and will show better results in private practice or when patients are confined in the hospital than when treated in outpatient departments. 5. That the method is of little permanent value where the infection is not confined to the bladder. 6. That the treatment is entirely without any untoward effects.

42. **Radium and Punch Operation in Prostate Hypertrophy.**—Young's report serves to show that with radium the hypertrophied prostate may be made to atrophy so that a minor operation will suffice to restore normal urination. The long duration of treatment, however, suggests that it be confined to cases with severe complicating conditions which preclude perineal prostatectomy.

46. **Results of Operations for Breast Tumors.**—Pilcher's paper is summarized as follows: In the early period in the development of every cancer of the breast it is absolutely curable. If this fact were brought home to every woman, there would no longer be any deaths from cancer of the breast. Even a large and long active surgical experience does not qualify any man to say positively in many cases of chronic cystic mastitis (secondary cytoplasia) whether there is a malignant element present or not. Recognizing the frequency with which the supraclavicular glands are invaded in tumors in the upper quadrants of the breast, it is urged that every advanced case should have the benefit not only of axillary gland dissection, but also removal of the supraclavicular glands as a part of the primary operation. Cases of recurrence, even in which the opposite axilla or other breast becomes involved, are not necessarily fatal.

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLVI, No. 3

47 Primary Pupillary Response to Light an Autonomic Reflex. Argyll-Robertson Pupil. J. Dunn, Richmond, Va.—p. 193.
48 Excision of Tarsus in Trachoma. G. F. Suker, Chicago.—p. 210.
49 Diplobacilli in Corneal Ulcers. H. W. Scarlett, Philadelphia.—p. 219.
50 Tendo Muscle Lengthening and Description of Special Forceps. H. Lowell, Boston.—p. 224.

51 Dacryocystorhinostomy. A. Wiener, New York.—p. 227.
52 Fibrolysin in Treatment of Ocular Diseases. R. S. Lamb, Washington, D. C.—p. 233.
53 Case of Congenital Enophthalmos in Connection with Complete Absence of Abduction and Retraction of Eyeball in Adduction. A. Lutz, Habana, Cuba.—p. 243.
54 Case of Optic Hallucinations with Hemianopsia. O. Schirmer, New York.—p. 247.
55 Case of Toxic Choroiditis Secondary to Chronic Alveolar Abscess, Subsequently Treated with Vaccine Therapy. E. H. Rowe, Baltimore.—p. 251.
56 Anterior Chamber Syringe for Washing Out Cortical Matter After Cataract Extraction. J. A. Andrews, New York.—p. 256.
57 Value of Eye Manifestations Complicating Fractured Skull. M. Cohen, New York.—p. 258.

Boston Medical and Surgical Journal

May 10, CLXXVI, No. 19

58 Treatment of Osteomyelitis. C. C. Simmons, Boston.—p. 653.
59 *Personal Experience with Carcinoma of Cervix. L. Davis, Boston.—p. 660.
60 Intestinal Venous Stasis; Diffusion of Bacteria and Other Colloids. F. B. Turck, New York.—p. 663.

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61 *Recent Investigations on Bacteriology of Acute Poliomyelitis. L. Hektoen, Chicago.—p. 687.
62 Mouth Infections in Their Relation to Systemic Disease. P. A. Hudnut, Northampton.—p. 695.
63 Incidence of Intestinal Adhesions as Factor in Chronic Intestinal Stasis in Epilepsies. H. Caro, Palmer.—p. 697.
64 *Respiratory Suction an Aid in Surgical Shock. W. T. Porter, Boston.—p. 699.

59. **Carcinoma of Cervix.**—Out of the total of fifty-one cases reported on by Davis, thirty-three were subjected to some palliative operation, for the most part curettage and cauterization. The Percy technic has been carried out completely in eight cases only. In four other cases the Percy technic was employed so far as the use of the heating iron was concerned, but without ligation of the internal iliacs. In all but one case in which the Percy method was employed the disease seemed hopelessly advanced, certainly too much so to permit of radical removal. The one favorable case in which a radical hysterectomy might have been done, but in which the Percy operation was adopted, has shown extension of the disease within six months and the patient is now dying, one year from date of operation. There have been three cases in which the Percy method was used in which very distressing urinary fistulas developed. There was one case of moderate secondary hemorrhage, controlled by packing. As to end results, curettage and cauterization have given a short period of immunity from hemorrhage and foul discharge of from six weeks to six months. There has been no noticeable lessening of pain. Of the twelve cases in which the Percy technic was carried out in whole or in part, four have not been heard from since. Two died of the disease, respectively, three and five months after operation. One patient is at present dying of the disease one year after operation. Three patients have been heard from three to eight months after operation with unmistakable evidence of disease in the pelvis; one of these, however, seems to have been greatly relieved symptomatically. One patient reports by letter six weeks after operation as feeling relieved. One patient, six months after operation, although suffering from urinary fistula, presents no evidence of malignancy. From this experience Davis feels little enthusiasm for the Percy operation.

61. **Investigations on Bacteriology of Poliomyelitis.**—The work and reports of George Mathers are reviewed and analyzed by Hektoen. The coccus discovered by Mathers is discussed as to its cultural peculiarities, morphologic characteristics, filterability, effects in animals, resistance to glycerol, and reactions of immunity. Experiments with monkey passage virus and poliomyelitis in the rabbit are also considered with special reference to the changes caused in the nervous system of this animal by the coccus under consideration. The micrococcus appears to have many properties in common with the virus of the disease and with the minute organism described by Flexner and Noguchi. In various aerobic cultures, that is, blood agar, the coccus grows more or less like a streptococcus of the viridans type, and herein it differs from the minute organism of Flexner and Noguchi, which is not known to grow under aerobic conditions at all. However, Hektoen concludes that the exact significance of this coccus in epidemic poliomyelitis cannot be determined now. The number of cases studied for its presence is too small to permit the conclusion that it occurs constantly in the disease or any form of the disease; in the few instances in which injections of cultures have resulted in a condition indistinguishable from what is accepted as poliomyelitis in the monkey, the possibility that another and more important microbe may have been present cannot be excluded; the true poliomyelitic nature of the very interesting lesion caused by the coccus in rabbits has not been confirmed by proper tests on monkeys; and the results of extended immunization experiments are also lacking.

64. **Respiratory Suction Aid in Surgical Shock.**—By increasing the carbon dioxid in the inspired air, deep and rapid respiration is produced and the blood is pumped from the veins into the heart. Porter says that the necessary amount of carbon dioxid is not injurious. To an animal it can be given from a gas tank discharging through a Woulfe bottle into a T tube, the short limb of which is attached to the tracheal cannula. In man, rebreathing may be employed. The patient may breathe in and out of a rubber bathing cap, previously inflated with a Davidson syringe. When oxygen hunger approaches, the cap is removed. In a moment or two the experiment may be repeated. In the course of the past two months, March and April, Porter has with carbon dioxid produced deep and rapid respiration in many animals in whom surgical shock had been brought on by injecting oil into the external jugular vein. The diastolic arterial pressure in these animals was often dangerously low. In every case, the diastolic pressure rose 15 to 30 mm. of mercury. Such a rise, for example, from 50 to 70 mm., carries the pressure out of the danger zone. The author has made as yet no observations on men with shock.

Bulletin of Johns Hopkins Hospital, Baltimore

May, XXVII, No. 315

65 *Sacro-Iliac Strain. W. S. Baer, Baltimore.—p. 159.
66 Mechanism and Clinical Significance of Anaphylactic and Pseudo-Anaphylactic Skin Reactions. J. A. Kolmer, Philadelphia.—p. 163.
67 *Tuberculosis of Tongue. W. C. White and C. H. Marcy, Pittsburgh.—p. 174.

65. **Sacro-Iliac Strain.**—Kernig's sign is positive in the diagnosis of sacro-iliac strain, says Baer. If one flexes the fully extended leg on the abdomen, the amount of that flexion is naturally limited (Kernig's sign), and pain is referred to the sacro-iliac joint behind. This is due to the contraction and spasm of the hamstring muscles. Kernig's sign is absent in the opposite leg, but at times flexion of the fully extended leg on the abdomen of the good side causes pain referred to the sacro-iliac joint of the bad side. At times there is an undue mobility which may be made out at the sacro-iliac joint by firmly grasping the ilia in the hands and forcing them together. This, however, is rare, although Baer has seen it in sacro-iliac strain following the puerperium and in the direct traumatic variety.

67. **Tuberculosis of Tongue.**—White and Marcy report the case of a tuberculous man, aged 30, who developed a tuberculous ulcer on his tongue. The chief symptoms of the ulcer were soreness and swelling. The pain was so severe when food was taken that the patient could not eat. He lost 20 pounds in five months. His home physician treated the ulcer locally with silver nitrate and iodin for five months. Only by the use of cocain locally was he able to eat. He lost 10 pounds in weight in two months in the hospital, and the ulcer continued to increase in size. The surgeon's advice was to excise the tongue wide of the lesion. The authors suggested that a trial be given to injection of tuberculin into the base of the lingual ulcer. This was done. At the end of twenty-four hours the tongue was swollen, red and a little more painful. At the end of forty-eight hours it was still slightly swollen, but not sore, and the increased redness was fading. After this the ulcer commenced to diminish in size, until at the end of one week it was not more than half the

size and the patient was able to eat without pain. Two weeks later a second dose was given in the same way. One week later a reduction again of approximately 50 per cent. in the size of the ulcer. A third injection was given two weeks after the second. Twelve days later the ulcer had almost completely healed and he was again rapidly improving in weight and health. A fourth dose of tuberculin was given when the ulcer was quite healed, and only a small fissure left to mark its former site.

Florida Medical Association Journal, Jacksonville

April, III, No. 10

68 Focal Infection. H. M. Ginsberg, Pensacola.—p. 289.
69 Surgical Conception of Pyorrhea. C. Hutchinson, Pensacola.—p. 291.
70 Management of Confusional States with Special Reference to Pathogenesis. T. A. Williams, Washington, D. C.—p. 292.
71 Cardiopyloric Anastomosis. M. H. Smith, Jacksonville.—p. 298.
72 Obstetrics Outside Maternity Hospital and Square Deal to Mother and Her Offspring, or Obstetrics in Rural Home. P. L. Goss, Mulberry.—p. 300.
73 Oral Affections and Their Effect on General Health. W. S. Hall, Pensacola.—p. 304.
74 Review of One Hundred and Forty-Eight Cases. J. S. Turberville, Century.—p. 307.

Journal of Cutaneous Diseases, Boston

April, XXXV, No. 4

75 Annular Macular Syphilid, or So-Called Neurosyphilid. H. Fox, New York.—p. 215.
76 Research on Syphilis. J. E. R. McDonagh, London.—p. 222.
77 Practical Points in Roentgen Therapeutics. C. A. Simpson, Washington, D. C.—p. 231.
78 Erythrodermie Congenitale Ichthyosiforme. G. M. MacKee and I. Rosen, New York.—p. 235.
79 Case of Favus. R. A. McGarry, Ann Arbor, Mich.—p. 253.

Journal of Immunology, Baltimore

April, II, No. 3

80 Immunochemical Studies of Proteins of Cat Hair. R. P. Wodehouse, Boston.—p. 227.
81 Immunochemistry of Proteins of Horse Dander. R. P. Wodehouse, Boston.—p. 237.
82 Immunochemistry of Proteins of Dog Hair. R. P. Wodehouse, Boston.—p. 243.
83 *Hyperleukocytosis and Its Bearing on Specific Therapy. H. Zinsser and E. Tsen, New York.—p. 247.
84 Intracutaneous Absorption of Antigen. G. H. Smith and M. W. Cook, Glenolden, Pa.—p. 269.
85 Influence of Typhoid Vaccine on Tuberculous Guinea-Pigs. H. Baldwin and E. S. L'Esperance, New York.—p. 283.
86 *Complement Fixation in Tuberculosis with Partial Antigens of Deyke and Much. A. C. Woods, G. E. Bushnell and C. Maddux, Fort Bayard, N. M.—p. 301.
87 *Complement Fixation in Acute Anterior Poliomyelitis. J. A. Kolmer and A. E. Freese, Philadelphia.—p. 327.

83. **Hyperleukocytosis and Specific Therapy.**—The experiments reported by Zinsser and Tsen show that when homologous gram-negative bacilli are injected into immunized animals there seems to be a definitely higher leukocytosis in the immunized animals than in normal controls similarly treated. It seems reasonably clear that an animal reacts more energetically so far as its mobilization of leukocytes is concerned when reinjected than does a normal animal treated with the same variety and quantity of bacteria. When immune animals are treated with heterologous bacteria; that is, when prodigiosus bacilli or colon bacilli are injected into typhoid immune animals and vice versa, there seems to be no specific difference in response. The injection of leukocytic extract does not arouse as vigorous a leukocytic response as does the injection of bacillary protein. The authors coordinated their observations by assuming that when an animal is injected with gram-negative bacilli, in the presence of which this poison is formed with relative ease, the animal is intoxicated, which accounts for the preliminary leukopenia, and then reacts vigorously if the dose has been moderate and the toxemia easily overcome. If the dose is too large and the toxemia too profound, or the injection cumulative in so far as it has followed too soon on another injection, the reaction is less vigorous.

86. **Complement Fixation in Tuberculosis.**—Partial antigens were prepared by the authors from the tubercle bacillus, by disintegrating the bacilli in 1 per cent. lactic acid, filtering, and extracting with alcohol, at varying temperatures, and with ether. The resulting antigens appear to be composed chiefly of the various fatty acids, and neutral fat of the tubercle bacillus together with traces of protein. One hundred and seventy-six normal and tuberculous serums were titrated against these partial antigens, and against whole bacillus emulsion antigen. Seventy-two of the serums obtained from clinically normal cases, and 91 per cent. of the serums from cases classed clinically as inactive tuberculosis reacted negatively to these antigens. Ninety per cent. of the serums from cases classed clinically as incipient tuberculosis, 87 per cent. of the serums from cases classed as active tuberculosis, and 92 per cent. of the serums from advanced tuberculous cases reacted positively to the partial antigens. Sufficient syphilitic serums could not be obtained to make any determination of the proportion of syphilitic serums which would react positively to these antigens, but judging from twenty-seven positive Wassermanns obtained at the same time the serums were examined, there appears to be little relationship between the Wassermann reaction and the reaction to the partial antigens.

87. **Complement Fixation in Acute Poliomyelitis.**—Complement fixation tests conducted by Kolmer and Freese with the cerebrospinal fluids of 130 persons suffering with acute anterior poliomyelitis and salt solution extracts of various tissues yielded from 6 to 16 per cent. weakly positive reactions with extracts of spinal cord, pons and medulla, cerebellum, cerebrum and 15 to 17 per cent. positive reactions with extracts of poliomyelitic liver and spleen. Control antigens of non-poliomyelitic human and rabbit liver yielded negative reactions, while extracts of spleen yielded from 5 to 7 per cent. positive reactions. With alcoholic extracts of these tissues the tests were uniformly negative. The cerebrospinal fluids of normal persons and children suffering with whooping cough and measles yielded negative reactions with all extracts. The cerebrospinal fluids of several paretics yielded strongly positive reactions with all salt solution and alcoholic extracts. Complement fixation tests with the serums of fifty-eight persons in the various stages of acute anterior poliomyelitis yielded slightly positive reactions with 2 to 4 per cent. of serums with salt solution extracts of spinal cord, pons and medulla, cerebellum and cerebrum. Tests with extracts of poliomyelitic liver and spleen were uniformly negative, as were all tests employing alcoholic extracts of these different tissues. With polyvalent suspensions of diplococci and streptococci cultivated from persons suffering with acute anterior poliomyelitis, weakly positive reactions were observed with 6 to 9 per cent. of cerebrospinal fluids of thirty-five persons suffering with the disease; with serums all tests were negative, as likewise all tests with fluids and serums employing suspensions of the diphtheroids and gram-negative bacilli cultivated from poliomyelitis cases.

Journal of Infectious Diseases, Chicago

May, XX, No. 5

88 Oxidase of Rhus Diversiloba. J. B. McNair, Berkeley, Calif.—p. 485.
89 Anaphylatoxin and Anaphylaxis. Trypanosome Anaphylatoxin. F. G. Novy, P. H. DeKruif and R. L. Novy, Ann Arbor, Mich.—p. 499.
90 Agar Anaphylatoxin; Guinea-Pig Serum. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 536.
91 Id. Rabbit Serum. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 566.
92 Id. Rat Serum. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 589.
93 Effect of Multiple Doses of Anaphylatoxin. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 618.
94 Effect of Intravenous Injections of Agar. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 629.

Journal of Parasitology, Urbana, Ill.

March, III, No. 3

95 Sporozoon Parasites of Fishes of Woods Hole and Vicinity. C. W. Hahn.—p. 91.
96 Cercariae of Bitter Root Valley, Montana. E. C. Faust. Urbana.—p. 105.
97 Development of Gregarines and Their Relation to Host Tissues; (1) in Stenophora Lactaria Watson. M. W. Kamm.—p. 124.
98 Cercariae of Natal. F. G. Cawston.—p. 131.
99 Species of Nosema Infecting Attacus Cynthia Drury. S. Ishiwata Tokyo, Japan.—p. 136.

Medical Record, New York

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100 Osteochondritis Deformans Juvenilis—Perthes' Disease. V. P. Gibney, New York.—p. 793.
101 Blood Pressure Formulas; Their Value and Significance. F. A. Faught, Philadelphia.—p. 796.
102 Blood Pressure from Life Insurance Standpoint. R. M. Goepp, Philadelphia.—p. 801.
103 Blood Pressure from Standpoint of Surgeon. G. P. Mueller, Philadelphia.—p. 803.
104 Treatment of Chronic Catarrhal Deafness. B. Robinson, New York.—p. 804.
105 Handicap Due to Concomitant Diseases in Tuberculosis. R. L. Ochsner, San Francisco.—p. 805.
106 Blood Donors in War Surgery. F. Robbins, New York.—p. 807.

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107 Hemorrhages of Pregnancy Including Placenta Praevia. E. P. Davis, Philadelphia.—p. 839.
108 Radium Emanation Waters. C. E. Field, New York.—p. 843.
109 Medical Treatment of Chronic Intestinal Stasis. M. Einhorn, New York.—p. 847.
110 Therapeutic Use of Extract of Corpus Luteum. H. E. Happel, St. Louis.—p. 848.
111 Adenoiditis. C. M. Cobb, Lynn, Mass.—p. 850.
112 Epilepsy and Its Treatment in Dispensaries. L. Grimberg, New York.—p. 852.
113 Hematuria; Its Clinical Significance. H. W. E. Walther, New Orleans.—p. 854.
114 Folliculosis in Conjunctiva. J. A. Kearney, New York.—p. 855.

New York Medical Journal

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115 Theories Concerning Pregnancy, Labor and Placental Gland. S. W. Bandler, New York.—p. 865.
116 Uterine Fibroids. J. F. Erdmann, New York.—p. 872.
117 Intraspinous Injections of Neosalvarsanized Serum in Nervous and Mental Diseases. A. Gordon, Philadelphia.—p. 873.
118 Factors Which Affect Results in Treatment of Prostatic Obstruction. W. E. Lower, Cleveland.—p. 877.
119 Modern Diagnosis and Treatment of Syphilis. B. A. Thomas and C. H. J. Barnett, Philadelphia.—p. 879.
120 Cardiac Therapy. J. N. Upshur, Richmond, Va.—p. 884.
121 Frigolability. D. M. Kaplan, New York.—p. 886.
122 Favus of Scalp and Eyelids; Report of Case. W. B. Weidler, New York.—p. 887.
123 Lingual Tonsil. J. L. Maybaum, New York.—p. 887.

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124 Exploratory Tympanotomy. H. Hays, New York.—p. 913.
125 Amyotrophic Lateral Sclerosis. J. H. W. Rhein, Philadelphia.—p. 915.
126 Suprapubic Prostatectomy. N. P. Rathbun, New York.—p. 919.
127 Tuberculosis of Knee Joint in Adult in which Operations Were Done Eliminating Motion by Producing Fusion of Femur and Tibia. R. A. Hibbs, New York.—p. 922.
128 Surgical Aspects of Male Sterility. A. L. Wolbarst, New York.—p. 926. To be continued.
129 Pseudohermaphroditism. W. S. Gottheil and C. Goldenthal, New York.—p. 932.
130 Vital Statistics of Old Age. L. I. Dublin, New York.—p. 936.
131 Hydrocephalus, Spina Bifida and Double Talipes Calcaneus Occurring in Same Fetus. C. B. Conklin, Washington, D. C.—p. 937.
132 Lessons from Past and Possibilities for Future. D. M. Lewis, New Haven, Conn.—p. 939.
133 Sporadic Leprosy in Connecticut. M. J. Morrissey, Hartford, Conn.—p. 940.

Ophthalmic Record, Chicago

April, XXVI, No. 4

134 Contusion of Eye, with Rupture Extending Across Optic Disk. E. A. Shumway, Philadelphia.—p. 167.
135 Case of Parinaud's Conjunctivitis. H. V. Dutrow, Dayton, Ohio.—p. 171.
136 Some Causative Factors in Glaucoma in London Hospitals During Present Hostilities. S. D. Maiden, Council Bluffs, Iowa.—p. 174.
137 Occurrence of Ocular Defects and Disease at Massachusetts State Reformatory for Women at Sherborn. L. W. Jessaman, Framingham, Mass.—p. 178.
138 Injury of Sympathetic in Enucleation. T. J. Dimitry, New Orleans.—p. 183.
139 Precision Trial Case and Test Frame, C. F. Prentice, New York.—p. 187.
140 Clinical Consideration of Migraine. J. A. Litchy, Pittsburgh.—p. 192.

Public Health Journal, Toronto

April, VIII, No. 4

141 Problem of Illegitimacy; General Practitioner's Point of View. W. F. Clark, Toronto.—p. 83.
142 Illegitimacy; Attitude of Social Worker. M. J. Kniseley Toronto.—p. 86.
143 Nurse Midwife. F. J. Taussig.—p. 89.
144 Survey of Spreading Health Insurance Movement. I. M. Rubinow.—p. 92.
145 Principles of Sewage Treatment. J. R. Ellis.—P. 101.
146 Infantile Increase and Child Conservation. H. B. Weston, Winnipeg.—p. 111.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

April, XXV, No. 4

147 Radium; Statistical Study; Report of Case. D. Gann, Jr., Little Rock, Ark.—p. 89.
148 Mastoid Infections; Report of Six Cases. A. J. Lorie, Kansas City, Mo.—p. 104.
149 Trachoma; Surgical Operations in Use—Results; Removal of Tarsal Cartilage and Palpebral Conjunctiva. D. W. White and P. C. White, Tulsa.—p. 108.

Southwestern Medicine, El Paso, Texas

April, I, No. 4

150 Differential Diagnosis and Treatment of Duodenal Ulcer. M. K. Wylder, Albuquerque, N. M.—p. 9.
151 Bacterin Therapy in Bronchial Asthma. A. D. Wilson, Prescott, Ariz.—p. 18.
152 Plea for More Intelligent Interest in Tuberculosis on Part of Medical Profession. F. H. McKeon, Fort Stanton, N. M.—p. 24.
153 Roentgen Ray Diagnosis of Focal Infections About Head. W. W. Watkins, Phoenix, Ariz.—p. 34.
154 Roentgenology; Method of Differential Diagnosis of Gastric Symptoms. C. Epler, Pueblo, Colo.—p. 39.
155 Cervical Suspension for Retrodisplacements and Prolapse of Uterus. H. White, El Paso.—p. 45.
156 Ancient Gunshot Wound of Forearm with Extensive Scar Formation and Contractions. W. L. Brown and C. P. Brown, El Paso.—p. 49.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

April, XXXV, No. 132

1 Diagnosis of Tuberculosis. L. J. Short.—p. 1.
2 Plague in Bristol in 1916. D. S. Davies.—p. 16.
3 Chronic Appendicitis in Its Relation to Dyspepsia; Report of Cases. H. Goodwyn.—p. 18.

British Journal of Tuberculosis, London

April, XI, No. 2

4 *Granules of Tubercle Bacillus. J. Sorley.—p. 51.
5 Morphologic Variations in Nuclei of Polymorphonuclear Neutrophil Leukocytes in Pulmonary Tuberculosis. J. B. McDougall.—p. 66.

4. Granules of Tubercle Bacillus.—Sorley's investigations have shown that it seems at present impossible to draw any very exact correspondence between the granular forms of the tubercle bacillus and the course of the disease. The presence of the granules implies simply that the bacillus is in a state of active reproduction, the presence of interpolar granules that the bacillus has attained a stage of greater or less maturity, and that, whether the bacilli be few or many, the severity of the disease and the prognosis are not necessarily affected thereby; for it is a matter of common clinical observation that a case in which the prognosis is good may have many bacilli in the sputum, whereas a case in which the prognosis is hopeless or grave may show few or even none at all.

British Medical Journal, London

April 28, I, No. 2939

6 Medicine and Sea Affair. A. May.—p. 533.
7 Medicine and Clinical Pathology. P. W. Bassett-Smith and H. D. Rolleston.—p. 533.
8 Surgery. W. G. Axford and G. L. Cheatle.—p. 535.
9 Hygiene. R. C. Munday.—p. 537.
10 Service Afloat. R. Hill and E. A. Penfold.—p. 539.
11 Hospital Ships. E. C. Lomas.—p. 542.
12 Account of Land Medical Transport Arrangements of Navy. J. Porter and A. V. Elder.—p. 545.

Edinburgh Medical Journal

May, XVIII, No. 5

13 Scope of Preventive Work in Connection with Medical Treatment of Infants and Young Children. J. C. Johnston.—p. 329.
14 Care of Children of School Ages. L. D. Cruickshank.—p. 326.
15 Mother Welfare in Pregnancy and Infant Health. J. W. Ballantyne.—p. 348.

16 Pediatrics and Child Welfare. A. D. Fordyce.—p. 361.
17 Some Practical Points Regarding Child Welfare Organization. J. Thomson.—p. 367.
18 Care of Mentally Defective Children. R. D. Clarkson.—p. 375.
19 *Surgical Tuberculosis and Child Welfare. A. P. Mitchell.—p. 383.

19. **Surgical Tuberculosis.**—Of 2,770 new cases treated in the surgical outpatient department of the Edinburgh Children's Hospital during 1913, 316 (fully 11 per cent.) children were affected by one or other form of surgical tuberculosis; 169 with tuberculosis of the neck glands; thirty-nine with Pott's disease of the spine; twenty-two with hip disease, while the remaining eighty-six had the disease in other joints and parts. These manifestations of tuberculous disease also constitute a very considerable percentage of all patients treated in the surgical wards of the hospital. Mitchell says it is not uncommon to find at any time that no less than 50 per cent. of the patients under treatment are cases of tuberculosis. One is struck with the numerous instances of tuberculosis of the glands in the upper part of the neck met with in the large number of children coming for examination at the surgical outpatient department of the hospital. These children, as a rule, show no clinical signs of tuberculosis elsewhere, and are, except for the local condition, apparently healthy. It is not at all rare for a single member of an otherwise healthy family to exhibit the disease. The high incidence of the disease in children from 2 to 3 years of age is striking. The influence of infectious diseases, notably measles, whooping cough and scarlet fever in apparently favoring the dissemination of the disease in the glands is also worthy of note. This indicates the great need for children during the convalescence from these infectious diseases being placed under the best hygienic conditions possible.

How do tubercle bacilli reach the glands in the upper part of the neck? Invasion takes place either through the faucial tonsils or the adenoid tissue behind the nose. In 38 per cent. of the children affected with tuberculosis of the glands in the upper part of the neck the disease has first involved the tonsils. The spinal column is the commonest seat of tuberculous bone disease in children. Like tuberculosis of the neck glands, it is rarely preceded by clinical manifestations of other tuberculous process, although it may be followed by them. The onset of the disease in a child who has been reduced by one of the infectious diseases, especially measles and whooping cough, is again a noteworthy feature. There has previously been a latent focus of tuberculosis elsewhere in the body. This has been frequently demonstrated at postmortem examinations in the bronchial and mesenteric glands. Infection from these or from other tuberculous lymph nodes is the common point or origin of infection. Not more than 5 per cent. of cases of spinal caries are diagnosed before deformity has set in.

Surgical tuberculosis among children is sufficiently prevalent to constitute a real danger to the community, and to urge the immediate necessity for some comprehensive and systematic attempt at prevention and cure. Such questions as these relating to poverty, improper feeding and housing must be faced. As a practical measure, tuberculin injections would appear to be of value in increasing the powers of resistance to the disease. Open air schools are required for children who are definitely tuberculous, tuberculously disposed, or come from tuberculous houses. The establishment of convalescent homes in the country for the adequate treatment of children affected by active tuberculosis is a much felt want. The special care of children during convalescence from measles, whooping cough, and other acute specific diseases is greatly to be desired. For the welfare of any community, large or small, the provision of a pure milk supply is of the utmost importance—clean milk of good quality from healthy cows and protected from contamination. The powers at present vested in their local authorities are inadequate, and it seems to Mitchell to be their special duty to prevent this large and entirely preventable amount of tuberculosis among children. What is most wanted is a well informed public opinion which will demand new and more drastic powers for the authorities, and insist on these powers being exercised to their full extent.

Glasgow Medical Journal

April, LXXXVII, No. 4

20 Inversion of Uterus; Report of Six Cases. W. D. Macfarlane.—p. 193.
21 *Effects of Cinematograph Displays on Eyes of Children. W. B. I. Pollock.—p. 206.
22 Visual Defects; Refractive and Functional. J. A. Wilson.—p. 211.

21. **Effects of Cinematograph on Eyes of Children.**—Pollock is convinced that the increased prevalence of squint among children of from 4 to 8 years is directly attributable to the excitement and nervous strain they are under while watching the more exciting and hair breadth escapes seen in many cinematograph displays. An attendance of once a month is all that he would allow for schoolchildren; and he strenuously objects to the introduction of the cinematograph into school teaching, except at rare intervals.

Indian Journal of Medical Research, Calcutta

January, IV, No. 3

23 Opportunities for Medical Research in India. P. Lukis.—p. 381.
24 *Simplified Technic of Bass' Method of Cultivating Malarial Parasites in Vitro and Few Observations on Malarial Parasites Cultured by this Technic. R. Row.—p. 388.
25 *Flagellate Dysentery. G. C. Chatterjee.—p. 393.
26 Two Hemogregarines of Cold Blooded Vertebrates. H. E. Shortt.—p. 402.
27 Bunostomum Kashinathi and Ancylostomidae. C. Lane.—p. 414.
28 Are Echinostomum Malayanum and Artyfechinosomum Sufrartyfex Identical? C. Lane.—p. 440.
29 Dysentery in Jails of Eastern Bengal. J. Cunningham and H. H. King.—p. 442.
30 *Study of Entamebic Cysts. R. Knowles and A. F. Cole.—p. 498.

24. **Cultivation of Malarial Parasites.**—The apparatus used by Row consists of (1) an ordinary potato culture tube (¾ inch wide) with a well fitting rubber cork; (2) one small culture tube made in the laboratory; (3) one sucking pipet armed with a rubber nipple; (4) pyrogallic acid; (5) strong caustic soda solution; (6) human blood serum (indifferent), usually obtained from the blood serum available for Wassermann reaction; (7) 25 per cent. glucose solution, and (8) the infecting material, consisting of a few drops of blood taken from the patient at the bed side, shaken and defibrinated on the spot in the manner described below. The culture tube is made from glass tubing (0.8 cm. bore or thereabouts) by sealing off and gently blowing a small bulb at one end; this bulb is flattened so as to have a tube about 5 to 6 cm. long with a flat bottom one and a half to twice the bore of the tubing used. The object of this large flat bottom is to ensure a wide surface for the deposit of the corpuscles which settle down in a uniform thin layer during the time allowed for culture. The thin deposit of the corpuscles is of importance, inasmuch as it affords, during subsequent examination, no chance of missing the particular layer rich in developing plasmodia. Such culture tubes are also of great use on account of their small capacity; this is especially advantageous when only very small quantities of blood and serum are available. The essence of Row's technic is to obtain a glucose serum and infect it with the blood corpuscles containing the plasmodia and in a proportion sufficient to give a thin and uniform deposit of the corpuscles in the flat bottom culture tube.

25. **Flagellate Dysentery.**—Chatterjee has examined and identified the parasites in altogether seventy cases. The following were found: monocercomonas, three cases; prowazekia, two cases; macrostoma, eighteen cases; lamblia, fifteen cases, and pentatrichomonas, thirty-two cases.

30. **Study of Entamebic Cysts.**—On examining 365 invalided British soldiers from Mesopotomia, Knowles and Cole found 20 per cent. infected with *E. coli*, while 41 per cent. of cases of acute or convalescent dysentery showed *E. histolytica*. Throughout the examination of 528 stools for entamebas the authors constantly found difficulty in deciding between *E. coli* and *E. histolytica*. The differences between the ameboid forms of entamebic species are relative, subject to variation and not absolute. There is no differentiation between the species as regards size of cysts. The species show no distinctive difference as regards the contour, glycogen content, vacuolation and presence of chromidial rods in the cysts. The authors believe that these different species are all one

and the same organism. They suggest that the name *Entameba coli-communis* should replace the terms *E. coli, E. histolytica, E. minuta, E. tetragena,* etc. They have found that daily enemas of 1 in 80 of magnesium sulphate are of value as an adjuvant to emetin treatment.

Journal of Tropical Medicine and Hygiene, London

April 16, XX, No. 8

31 Case of Pellagra. A. Visyalingam.—p. 85.

Lancet, London

April 28, I, No. 4887

32 *War Surgery of Abdomen. C. Wallace.—p. 637.
33 *Abdominal Surgery at Advanced Operating Center. G. S. Hughes and W. A. Rees.—p. 642.
34 *Surgery of Amputation Stumps. G. M. Huggins.—p. 646.
35 Korsakow's Psychosis in Association with Malaria. H. Carlill.—p. 648.
36 Treatment of Diabetes Mellitus. R. T. Williamson.—p. 650.
37 Case with Severe Gastric Crises Treated by Aachen Methods. R. Hayes.—p. 652.

32. **War Surgery of Abdomen.**—From Wallace's article it is apparent that in surgery for the abdominally wounded, the mortality has been reduced at the front by some 10 per cent., and many fewer patients now die at the base. The total number of cases 1,288; total mortality, excluding moribund, 50 per cent.; total mortality, including moribund, 60 per cent.; considered with view to operation, 1,038; total operations, 965; total operative mortality, 54 per cent.; total hollow viscera mortality, 65 per cent.; stomach mortality, 53 per cent.; small intestine mortality, 66 per cent., and great intestine mortality, 59 per cent.

33. **Abdominal Surgery at Advanced Station.**—Out of the 640 cases of severe injuries to the abdomen, head or chest, received in six months at the advanced operating station where Hughes and Rees were detailed, 263 were wounds of the abdomen. When patients arrive within twenty-four hours of being wounded, so long as they are not moribund, they are all operated on. The following is an analysis of the time that elapsed between the receipt of the wound and the operation, and shows how important early operation is: 1. Patients operated on between one to six hours after wounding, forty-three; recovered, twenty-seven, or 62.8 per cent.; died, sixteen, or 37.2 per cent. In eight of the fatal cases the patients had such severe injuries that recovery was practically hopeless and they would not have survived to reach the operating room had they been brought in later. 2. Patients operated on between six to twelve hours after wounding, thirty-three; recovered, twelve, or 36.3 per cent.; died, twenty-one, or 63.7 per cent. 3. Patients operated on between twelve to sixteen hours after wounding, eighteen; recovered, three, or 16.6 per cent.; died, fifteen, or 83.4 per cent. 4. Patients operated on over twenty-four hours after being wounded, eleven; recovered, five, or 45.4 per cent.; died, six, or 54.6 per cent. Recoveries at forty-eight, thirty-six, thirty-three and a half, thirty-two and thirty hours, respectively. Deaths at sixty, thirty-six, thirty-two, thirty, twenty-nine and twenty-eight hours. In the series of 110 laparotomies one or other kidney was found to be wounded in fourteen. In every case this was in association with other injuries. In none of the series of 263 abdominal cases was operation necessary for the kidney condition alone, although damage to this organ was fairly frequently met with, as shown by pain and hematuria. The complication of the passage of the missile through the pleural cavity before entering the abdomen does not contraindicate the performance of laparotomy. It was present in eighteen laparotomies, in ten of which the patients recovered. The results of six months' work give the following figures: total number admitted with abdominal wounds, 263; recovered, 136, or 51 per cent.; died, 127, or 49 per cent.

34. **Surgery of Amputation Stumps.**—According to Huggins no secondary amputations should be performed in cases of guillotine amputations until all edema has disappeared and skin extension has been employed for six weeks. Guillotine amputation stumps above the middle of the leg or middle of the thigh should never be shortened until healed unless it is decided that the knee joint or hip must be sacrificed. When shortening has to be done the minimum amount of bone necessary for utilizing the joint above should always be borne in mind. A guillotine amputation may make a satisfactory stump in the leg and thigh, and almost always does in the forearm and arm without further reamputation. Bone in a stump does not necrose unless infected. Delay in shortening stumps reduces the risk of infection, because infection is not in the wound only, but in lymphatics leading from the wound. The amount of matting around the vessels leading to or from an amputation stump is very striking. Silk should never be used for ligatures in operations on stumps. Amputations should be done by skin flaps only, and no muscle should be utilized in the flap, the pad of fibrous tissue formed over the end of the bone from the organizing clot being all that is necessary. All nerves, and not merely the main nerves, must be shortened at the time of the amputation or reamputation. To prevent deformity, daily exercising the joints and the employment of splints and bandages are essential measures in preparing the stump for the artificial limb. A good Syme amputation leaves the patient with little disability, and amputations through the tarsus should never be done as a secondary operation.

Annales de Gynécologie et d'Obstétrique, Paris

March-April, LXXII, pp. 449-512

38 *Myoma and Pregnancy. A. Heimo (Geneva).—p. 449.
39 *The Functions of the Corpus Luteum. C. Mulon.—p. 458. Continuation. E. Novak (Baltimore).—p. 487.

38. **Myoma and Pregnancy.**—Heimo is convinced that the defective involution of the uterus in many cases is due to the presence of a myoma, possibly unsuspected. In one case he discovered a myomatous tumor on the right cornu of the uterus after delivery, but it had entirely disappeared by the ninth day. The hypertrophy, softening and atrophy of a small or medium sized myoma during pregnancy prevent its interfering with delivery. Operative intervention was required in only four myoma cases at the Geneva maternity in a recent eight year period. These cases are described in detail. The women were all in the thirties, and the disturbances from the myoma were so severe that the uterus was removed nothwithstanding the pregnancy of two, four or eight months' standing. In case of doubt as to the myoma, Beuttner rubs the uterus lightly, to induce it to contract. As it contracts, a myomatous tumor is thrown into greater relief, over it, but if the protuberance is caused merely by part of the fetus presenting, the protuberance disappears as the uterus contracts over it. In case of doubt as to an existing pregnancy, when operative intervention is decided, it should be by a laparotomy. If the uterus is to be removed, Heimo advocates the Kelly-Beuttner technic but enucleation may answer all the purposes in some cases. The vaginal route is liable to disagreeable surprises. Only about 20 per cent. of all the known myoma cases in his experiences were sterile. When a myoma is discovered in a woman who has been barren for ten or twenty years, we cannot ascribe the sterility always to the presence of the myoma. Hofmeier even declares that a myoma favors conception, not directly but because it postpones the menopause. Pinard says that uterine myomas develop as a consequence, not a cause of sterility. They are the punishment for a uterus that has not served its physiologic function. Heimo affirms, on the other hand, that we have unduly exaggerated the part played and the influence exerted by myomas on sterility and pregnancy.

39. **The Corpus Luteum.**—Mulon here continues her exhaustive study of the corpus luteum. The first part was summarized in these columns April 14, p. 1148. She here discusses the connection of the corpus luteum with menstruation and rut, analyzing much literature on the subject. . . . Novak's article appeared in THE JOURNAL, Oct. 28, 1916, p. 1285. It is here translated into French.

Bulletin de l'Académie de Médecine, Paris

April 17, LXXVII, No. 16, pp. 511-536

40 *Roentgenoscopic Diagnosis of Projectiles. (De l'emploi du compas Contremoulins réglé d'après une localisation radioscopique utilisant un rayon normal vertical.) Kirmisson.—p. 522. (Extraction des projectiles de guerre intrapulmonaires.) Bazy.—p. 527.

41 *Bone Grafting, without Opening the Joint, for Pseudarthrosis of the Neck of the Femur. P. Delbet.—p. 530.
42 To Increase the Birth Rate in France. G. Lepage.—p. 532.
43 Felted Hair Forming Cast of Stomach and Upper Duodenum of Girl of Thirteen. (Beau cas d'égagropile.) Dauriac.—p. 534.

40. **Extraction of Projectile in Lung.**—Bazy describes the method with which Petit de la Villéon removes a projectile in the lung, the whole procedure complete in a minute or two. He works in red light, guided by the Roentgen rays. After marking on the skin the point of the shadow of the projectile, he incises the skin two or three fingerbreadths to one side of the shadow, and then pushes into the depths a special forceps and seizes the projectile, guided by the shadows of the projectile and of the forceps as they approach each other. The lung is remarkably tolerant and the small accumulation of blood along the track of the forceps is speedily absorbed as is evidenced by roentgenoscopy, but there may be a little blood in the sputum for a month. Bazy warns that this technic is not applicable for projectiles in the hilus region, nor when an abscess has formed around the projectile or there is more than one foreign body.

41. **Bone Graft for Pseudarthrosis of Neck of Femur.**—Delbet here describes the ultimate outcome in fifteen adults in whom, without arthrotomy, he corrected crippling fracture or other injury of the neck of the femur, by ingrafting a rod of bone from 6.5 to 11 cm. long. The periosteum had been removed and the grafts retained their vitality. In one of his cases the pseudarthrosis was of six years' standing, and of six years and four months in another case. This latter patient served as a nurse through the campaign in Serbia. One patient was an extremely obese woman of 59, with multiple arthritis, and she died in about a year without having attempted to walk much. Ten other patients walk without difficulty. The others have had the grafting operation done quite recently, but the outcome is already very favorable. Delbet gives no details of his technic beyond the above. Its field is transcervical fracture, with decapitation, which entails pseudarthrosis. The results of treatment are better the more recent the injury. In one of his cases the neck seems to have been entirely restored, and in some others roentgenoscopy shows new bone production. One woman of 70 is walking with scarcely any limp a year after the grafting operation.

Le Nourrisson, Paris

V, No. 1, pp. 1-64

44 *Condensed Milk and Desiccated Milk in Infant Feeding. A. B. Marfan.—p. 1.
45 *Means to Collect Infants' Saliva. G. B. Allaria (Turin).—p. 13.
46 *Tuberculin and Radiotherapy in Treatment of Tuberculosis in Infants. A. Combe.—p. 17.
47 Organized Welfare Work for Infants in France. A. B. Marfan. —p. 39.

44. **Condensed and Desiccated Milk in Infant Feeding.**—Marfan insists that condensed milk should never be allowed as a regular diet, but that both condensed and desiccated milk are valuable in emergencies to supplement the regular diet for a short time or transiently during the heated term when good fresh milk cannot be procured. He thinks that condensed skimmed and sweetened milk keeps better than when made from whole milk, and that it is digested more readily by the infant, especially when it has digestive disturbances. When good fresh milk cannot be obtained, desiccated milk might be used for the regular food. Many physicians have reported good results with it, and Marfan's own trials have been encouraging with the milk powder made with half its fat. It is useful when the infant's condition calls for a concentrated food of small volume with little fluid, or when a food poor in fat is required, or food in which the albuminoid substances have been modified in a way to promote digestion. Desiccated milk might also be given a trial with habitual vomiting in infants that cannot get breast milk.

With the ordinary diarrhea of bottle-fed babies nothing is so good as buttermilk. Up to the age of 3 or 4 this is preferable. Above this age malted soups are better, made first with water alone and then with increasing amounts of milk. Sometimes the buttermilk and the soups do well together. But when buttermilk cannot be obtained, desiccated milk is the next choice. With choleriform diarrhea, desiccated skimmed milk has given him as good results as buttermilk. When an infant displays actual intolerance for cow's milk, condensed milk, desiccated milk or buttermilk may be indicated. By giving the milk powder at first in small amounts, rapidly increasing the amounts, an antianaphylaxis may be developed. When an infant is not growing properly it may be well to try different foods, changing from desiccated to condensed milk, buttermilk, etc., leading up to a return to fresh boiled milk. For infants with athrepsia, breast milk is the only salvation, but it usually comes too late. In conclusion Marfan adds that condensed and desiccated milk may be found useful at any age with a tendency to dropsy. They form a good concentrated food when fluids have to be restricted.

45. **To Collect an Infant's Saliva.**—In research on gastric digestion in infants Allaria has found it convenient to use a vial about 18 cm. long and 2 cm. in diameter with two glass tubes passing through the rubber stopper. One tube is connected with a faucet of running water, to secure an aspirating vacuum. The other tube is connected with a long soft rubber tube that has a perforated china knob in the end. This little knob is placed in the infant's mouth and as it sucks the knob the gentle aspiration from the water jet pump draws the saliva out into the bottle. The glass tube conveying the saliva is cut slanting below, to reduce capillary action. The tubes are cleansed by putting the stopper, with its tubes, in another test tube, and plunging the whole in a large vessel of water while the water jet pump is still kept going. This aspirates the water through the tubes and cleanses them thoroughly. The secretion of saliva can be stimulated by a drop of a 1:500 solution of saccharin. The foregoing technic is capable of application to other fluids, tears, sweat, etc.

46. **Tuberculin and Roentgen Treatment of Tuberculosis in Infants.**—This last work from the late Professor Combe brings down to the close of 1916 his experiences with systematic tuberculin treatment of tuberculosis in infants. If the dose of tuberculin injected subcutaneously is adapted to the parenteral digesting power of the babe, the production of antibodies proceeds regularly and there is a general immunizing reaction in addition to a focal cicatrization reaction. If the dosage is excessive, then anaphylaxis instead of immunization is induced. We have in the intradermal tuberculin test a reliable index as to what is going on under the influence of the tuberculin injections. Repeating this Mantoux intradermal tuberculin test at regular intervals shows whether the result is in the line of immunization or of anaphylaxis. He commences with a tenth of a milligram and increases the dose gradually, at three day intervals, up to a decigram or even 50 cg., testing the results with the intradermal injection of always a tenth of a milligram every two weeks. The progressive diminishing of the reaction to the Mantoux intradermal test, while the therapeutic dose is constantly being increased, shows that immunization is being realized and that the tuberculous process—usually a tracheobronchial glandular affection—is healing. If the Mantoux reaction, instead of diminishing, grows more pronounced, the infants are not being benefited, but the reverse, by their tuberculin treatment and it should be suspended at once.

The therapeutic injections are made intradermally. The subcutaneous route proved disastrous in his experience. He explains the reasons for this superiority of the intradermal technic. It allows the organism to be tuberculinized without risk when it would be absolutely refractory to subcutaneous injections with which the whole dose passes at once into the blood. He describes the technic for this "mantousation" as he calls it, and states that ten years of tuberculin treatment have convinced him of its reliability and efficacy with localized tuberculosis processes in infants and children. But if the tuberculosis is generalized, there is no chance for tuberculin treatment to be effectual, and he regards it as contraindicated if there are any certain signs of general tuberculosis. His experience with Roentgen treatment of tuberculosis in infants was still in a tentative stage, but the results were encouraging with tuberculous glands and tuberculous otitis, and the treatment is worthy of a trial, at least, with osteitis. One infant with tuberculous peritonitis and a

tuberculous process in the apex had the apical lesion exposed to the Roentgen rays three times at eight day intervals. Necropsy showed the apical lesion arrested and practically walled in, but the thymus was atrophied. If the Roentgen rays are responsible for this atrophy of the thymus, Roentgen treatment in this form is contraindicated for infants.

Paris Médical

April 14, VII, No. 15, pp. 293-308

48 *Sugar in the Cerebrospinal Fluid in Acute Meningitis. G. Laroche and J. Pignot.—p. 293.
49 War Fractures of the Elbow. (L'hémi-résection humérale par la voie latérale externe.) Monprofit and L. Courty.—p. 298.
50 Paralysis from Compression by Army Puttees. (Paralysie du nerf sciatique poplité externe due à la compression par la jambière.) A. Mouchet and B. J. Logre.—p. 303.
51 Treatment of Keloids. H. Gougerot.—p. 305.

48. **Sugar in the Cerebrospinal Fluid with Acute Meningitis.**—Laroche and Pignot have been making a systematic study of the sugar content of the cerebrospinal fluid in patients with various diseases, and they assert that the modifications in the sugar content may prove very instructive in certain cases. Just as the sugar content of the blood drops and disappears during acute infectious diseases, the sugar in the cerebrospinal fluid may fluctuate in the same way. The findings in the blood and fluid are generally parallel and are to be interpreted in the same way. They do not think that the fluctuation in the two is simultaneous, but they are inclined to accept a local and independent mechanism for each. Glucose seems to stand midway between the extremely diffusible substances, such as urea and sodium chlorid, and those which do not diffuse readily. The variations in the glucose content of the cerebrospinal fluid are evidently directly connected with the infection of the meninges, like the changes in the cells and the albumin. They urge that the test for sugar in the fluid should become a routine procedure along with the cell count and the test for albumin. Medical biology can never be too rich in symptoms. They tabulate the findings on repeated tests in cases of acute meningitis. In the meningococcus cases the sugar disappears more or less completely from the cerebrospinal fluid as the acute infection becomes installed; it reappears toward the fourth or fifth day in the favorable cases and disappears or becomes much reduced again as a relapse impends. On the other hand, the sugar content of the fluid does not fluctuate when disturbances are observed for which the serotherapy is solely responsible. It thus serves to differentiate these conditions when by the symptoms it is impossible to determine whether the disease is flaring up again or the trouble is a kind of serum sickness. A low sugar content in the cerebrospinal fluid, persisting low as the disease continues, is an unfavorable sign, as is shown by concrete examples.

All that is needed for the test is a test tube and Fehling's solution. Three drops of Fehling's solution are added to 2 c.c. of the centrifuged or filtered cerebrospinal fluid and brought to a boil over an alcohol flame. If the blue persists, the findings are negative, but if there is distinct and prompt precipitation, the reaction is positive. Sometimes the blue disappears without a precipitate forming; there is reduction of the copper but no precipitation. This corresponds to a notable reduction of the sugar content without its having entirely disappeared from the cerebrospinal fluid. This weakly positive reaction was never observed with a normal fluid. The findings with this test are qualitative and not quantitative, but they are exact enough for the purpose, as a rule.

Presse Médicale, Paris

April 5, XXV, No. 20, pp. 201-208

52 *Cases of Rat Bite Disease in France. (Les cas français de sodoku.) R. Roger.—p. 201.
53 Treatment of Fracture of Several Ribs. (Les enfoncements de la paroi thoracique.) J. Fiolle.—p. 202.
54 *Application of Carrel Method in Treatment of Acute Mastoiditis. G. Mahu.—p. 204.

52. **Rat Bite Disease.**—Roger remarks that in the European cases of sokodu that have been published the diagnosis was only retrospective until Fiévez last year recognized the affection in a woman of 66 in the war zone, and Roger's two cases since in soldiers. He cites instances of the disease in America, England, Germany and Italy. Rat bites are common in the trenches, he says, but evidently only a few rats are infected, as no symptoms were noted after the other bites. He has found in the *Union Médicale* of Oct. 25, 1884, a description of an intoxication following a rat bite which corresponds in every respect to the typical clinical picture of severe sokodu of the Japanese writers.

54. **Carrel Treatment of Acute Mastoiditis.**—Mahu relates that irrigating and draining according to Carrel's technic shortened the course of treatment by two-thirds in his experience. It is a kind of bridge between the old methods of treatment and closing the wound at once after the operation, thus interposing a useful and prudent period of watchful waiting before definitely suturing the wound. One or two teaspoonfuls of the Dakin fluid are used in the irrigation every two hours, under a pressure of 60 or 80. He changes the dressings every day, and each time examines a specimen of the discharge first dried and stained with phenolized thionin, 1:1,000. When the germs in the discharge are reduced to an average of one to the microscopic field, he thinks it is safe to suture.

Beiträge zur klinischen Chirurgie, Tübingen

May, 1916, C, No. 1, pp. 1-128. Last indexed May 26

55 Treatment of War Wounds. H. Fehling.—p. 1.
56 Asepsis vs. Antisepsis with Fresh Infection of Wounds. A. Hamm.—p. 12.
57 Open Treatment of War Wounds. G. Seefisch.—p. 19.
58 *Transfusion of Blood. G. Hotz.—p. 32.
59 Aneurysms from War Wounds. Gebele.—p. 35.
60 Surgery of Blood Vessels. H. F. O. Haberland.—p. 52.
61 Skull Wounds. (Schädelschüsse.) E. Erdelyi.—p. 57; F. Müller —p. 73.
62 Wounds of the Chest. (Brustschüsse.) H. Kehl.—p. 98.
63 Immediate Primary Suture of the Wounded Lung under the Over pressure Procedure. F. Landois.—p. 111.

58. **Transfusion of Blood.**—Hotz relates that he utilized the donor's brachial artery, instead of the radial, for transfusion of blood in eight cases and found it much more convenient for several reasons. He never had any mishap in his twenty transfusion cases, even when the pressure in the donor's other arm dropped as low as 90 mm. mercury. If the donor collapses, his head is lowered and the legs wound with an elastic bandage. The acute consequences from the loss of blood soon pass away but there may be a little weakness for a few days. If one has time to prepare the donor, he says it is a good plan to have him drink copiously a few hours before the transfusion. During the transfusion he had better refrain from drinking, for fear of vomiting. In three of his cases there seemed to be thrombosis as the radial pulse could not be felt for a few days, but then it returned although a little weaker than on the other side. The size of the brachial artery simplifies the whole procedure, but this artery should never be used except by an expert. Otherwise it is best to draw the blood, citrate it, and infuse it like saline.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 14, XLVII, No. 15, pp. 449-480

64 *Operative Cure of Paraplegia of the Legs from Spinal Cord Tumor. H. Brunschweiler.—p. 449.
65 Plant Extracts Alleged to Contain Vitamins. (Beitrag zur Kenntnis der pharmakologischen Wirkung der Vitamine.) F. Uhlmann.—p. 464.

64. **Spinal Cord Tumors.**—A man of 35, a house painter, was brought to the hospital with total paralysis of both legs. Lead poisoning was supposed to be responsible for the paraplegia, as the man had had attacks of pain at times during the last seven years, which had been supposed to be lead colics. The Wassermann test was negative. The paralysis developed slowly, with sensory disturbances, and the retrospective diagnosis was a transverse lesion of the spinal cord. The unilateral pains, interpreted as lead colic, had been the only symptom of the tumor for seven years. By exclusion and neurologic tests, an extradural tumor was diagnosed, compressing the spinal cord at the seventh, eighth and ninth dorsal segments, and the sixth and fifth right roots. Roentgenoscopy revealed a tumor in the lung close to the spine

and on a level with the spinal tumor. The latter was enucleated, and proved to be an intravertebral, extradural sarcoma, and the patient has been recovering rapidly since. The tumor was evidently of an hour-glass shape and the part in the lung had to be left. The general condition is good now and the intrapulmonary tumor is small and smooth, so that there is reason to hope that it may retrogress under radiotherapy. The defensive skin reflexes aided materially in locating the intraspinal tumor. It was found exactly where the neurologic data had pointed to it.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 15, XXXVIII, No. 21, pp. 321-336

66 *Technic for Amputation of the Thigh for War Wounds. R. Mosti.—p. 321.
67 Appendicitis. J. Bruchi.—p. 323.

March 22, No. 23, pp. 353-368

68 *Suprarenal Treatment in Nephritis. P. Ercolani.—p. 353.

66. **Amputation of the Thigh.**—Mosti is inclined to regard "sausage" amputation, that is, cutting through the limb as one slices sausage, as the most promising technic in many emergency cases of war wounds. It is better to save the man's life, with a defective stump, than to let him die while working out a better looking stump. He has noticed that the posterior-internal group of muscles retract more powerfully than the anterior-external. To provide for this, the line of amputation drops down 4 or 5 cm. on the posterior internal side of the thigh, thus allowing for its greater retraction. With this technic, followed by extension, he has obtained excellent stumps and saved many otherwise doomed lives.

68. **Suprarenal Treatment in Nephritis.**—Ercolani called attention in 1910 to the advantages of suprarenal treatment in nephritis, and his experience since has constantly confirmed its efficacy in certain conditions. This is a logical means of aiding Nature when for any reason Nature is unable to produce adequate amounts of the suprarenal secretion. A number of other Italian writers have published similar favorable experiences with it, especially in scarlatinal nephritis. Licciardelli has reported that in a previous epidemic of scarlet fever at Taormina there were 136 cases with nephritis in 36, and 25 per cent. of the latter group succumbed to their nephritis. In a recent epidemic, 30 per cent. had nephritis but under the epinephrin treatment none died.

Anatomic conditions readily explain why any inflammatory condition in the kidneys is liable to be reflected in the suprarenals. As the suprarenals suffer, they supply less epinephrin. The kidneys are liable to suffer in diphtheria, the eruptive fevers, typhoid or pneumococcus infection, and it is in the diseases which touch the suprarenals most frequently, that is, in diphtheria, typhoid and smallpox, that there are so often symptoms showing disturbance in the myocardium and bulbar or neurotic changes, all of which are regarded nowadays as manifestations of suprarenal insufficiency. Whenever any acute infectious disease threatens to attack the kidneys and leave its evil imprint on them, this should be the signal for epinephrin treatment. It is important, therefore, to distinguish between the physiologic or functional type of albuminuria and the malignant type. Epinephrin treatment is called for in the latter, and the improvement under it confirms the diagnosis. In case of doubt, Ercolani does not hesitate to give the epinephrin. He expatiates on its marvelous action not only on the blood pressure but on the digestive organs, the muscular system and the kidneys, quoting Murri's conclusions that epinephrin seems to be able to neutralize certain poisons. Roux goes so far as to declare that the suprarenal secretion regulates the kidneys as digitalis regulates the heart. Be this as it may, Ercolani lauds the dual action of epinephrin as a detoxicating opotherapy with a supplementary vasoconstricting influence, both of which counteract the infection and ward off injury from the kidneys. He adds in conclusion that there is still much to be studied about the chemical and clinical action of epinephrin, and that any physician may find new fields of application for it.

Policlinico, Rome

April 15, XXIV, No. 16, pp. 505-536

69 Treatment of War Fracture of the Humerus. L. G. Gazzotti.—p. 505.
70 Gas Infection of War Wounds. P. Fiori.—p. 508.
71 Suggestions for Facilitating Care of the Sick and Wounded at the Front. C. Faralli. R. Alessandri, R. Bastianelli and T. Rossi Doria.—p. 510.
72 The Civilian Hospitals during the War. A. Campani.—p. 521.

March, Medical Section No. 3, pp. 97-144

73 Case of Cerebrospinal Sclerosis. A. Murri.—p. 97. To be continued.
74 War Wounds of Brain and Spinal Column. (Neurologia di guerra. II.) G. Mingazzini.—p. 121. To be continued.
75 *Is Hebra's Prurigo a Mycosis? G. Izar.—p. 139.

75. **Is Hebra's Prurigo a Mycosis?**—Izar is inclined to answer this question in the affirmative, as he relates that he found the *Sporothrix beurmannii* in the depths of the tissues affected, and this sporothrix proved pathogenic for rats and mice. The patient was a woman of 27, who had borne four children. The husband was robust and healthy and the woman also, except for an itching skin affection which seemed to be Hebra's prurigo. The sporothrix was encountered in the depths of the unbroken papulous lesions, and biologic tests were also positive with this sporothrix.

Riforma Medica, Naples

March 31, XXXIII, No. 13, pp. 337-364

76 *Influence of Vaccination on Course of Typhoid and Paratyphoid. P. Guizzetti.—p. 338. To be continued.
77 Peripheral Paralysis Following Chloroform Anesthesia or Chilling. C. Pastine.—p. 343.
78 Professional Reeducation of Maimed Soldiers. L. Ferrannini.—p. 347.

76. **Typhoid and Paratyphoid in the Vaccinated.**—Guizzetti relates that in the 892 cases of typhoid or paratyphoid in the hospital in his charge at Parma during a recent five month period, the mortality averaged 4.25 per cent., but it was only 3.33 per cent. in the vaccinated. The death was due to peritonitis from perforation in 44 per cent. of the fatal cases in the vaccinated, and only in 12.5 per cent. of the nonvaccinated. The perforation was always in the ileum, usually the lower third. He suggests that the mildness of the symptoms in the vaccinated encouraged them to pay less attention to their sickness; in one of the cases the man had eluded the vigilance of the nurses and gone to the latrine, the symptoms of perforation developing immediately afterward. The article is to be continued.

Brazil-Medico, Rio de Janeiro

March 31, XXXI, No. 13, pp. 105-112

79 Study of Endameba of Dysentery. H. de B. Aragão.—p. 105. To be continued.
80 Propagation to the Back of the Systolic Murmur with Mitral Incompetency. P. Valladares.—p. 106.
81 Heliotherapy in Brazil. A. Moncorvo, Jr.—p. 109. Continuation.

Semana Medica, Buenos Aires

XXIV, No. 8, pp. 219-246

82 *Teratoid Tumor of the Pharynx. B. S. Gonzales.—p. 219.
83 Climatotherapy of Tuberculosis in Argentina. A. Cetrangolo.—p. 242.
84 *Lymphocytosis in Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 243. Continuation.
85 Prophylaxis of Crime. V. Delfino.—p. 245.

No. 10, pp. 247-314

86 Treatment of Diphtheria on Principle of Biologic Immunity. (Nuevo tratamiento de la difteria con la haptinogenina.) J. Mendez, L. A. Garcia and N. S. Loizaga.—p. 275.
87 Curarization of Common Frog. (La curarizacion del Leptodactylus ocellatus (L.) Gir.) B. A. Houssay.—p. 285. Continuation.
88 Pessary for Genital Prolapse. A. D'Allesandro.—p. 300.
89 Principles of Plasmogenesis. (La sintesis de la organization.) A. Milice.—p. 303.
90 Living Matter and Dead Matter. A. de G. Rocasolano.—p. 306.

82. **Teratoid Tumor in the Pharynx.**—Gonzalez' patient was a man of 41. For three years he had noticed some difficulty in swallowing, and a small tumor was found in his throat. When removed it measured 5.5 by 7 cm. and weighed 78.5 gm. Access was by an incision, 15 cm. long, following the anterior margin of the sternomastoid. The nerves and vessels

were pushed aside and the tumor easily separated except at top and bottom. The lower pedicle tore in working to loosen the tumor and the upper pedicle had to be cut. The tumor seemed to be an encapsulated neuroma of the sympathetic ganglion. The operation was complete in twenty-two minutes and there was no pain, even in swallowing, by the next day, and the voice was not altered. A hematoma in the cavity was gradually absorbed. Ptosis and miosis were noticed for a time but finally subsided, and now, after a five years' interval, conditions seem to be entirely normal. Twenty-two illustrations accompany the article showing the microscopic and clinical findings.

84. **Lymphocytosis in Syphilitics.**—In this instalment of their serial article Mayer and Gourdy have reached cases 294 to 315. See Abstract 73 in THE JOURNAL, Feb. 24, 1917, p. 668.

Siglo Medico, Madrid

April 7, LXIV, No. 3304, pp. 225-244

91 Regional Pathology of Southern Spain. (Caracteristicas regionales de la patologia andaluza:) F. F. Martinez.—p. 238. Commenced in No. 3303, p. 216.

April 14, No. 3305, pp. 245-264

92 Intraspinal Treatment of Syphilis and Parasyphilis of the Nervous System. G. R. Lafora.—p. 246. Continuation.
93 *Typhus in Serbia and Prison Camps. B. W. Caldwell.—p. 252. Commenced in No. 3304, p. 228.
94 Present Status of Plastic Surgery. Goyanes.—p. 258. To be continued.

93. **Typhus in Serbia and Prisoners' Camps.**—This article is a literal translation into Spanish of Caldwell's article published in THE JOURNAL, Jan. 29, 1916, p. 326.

Russkiy Vrach

XVI, No. 3, pp. 49-72

95 War as the Struggle for Existence of Nations. G. M. Yusifoff.—p. 49. To be continued.
96 Experiences at Moscow Hospital with the First Hundred Thousand Wounded. V. N. Savvin.—p. 52. Concluded.
97 *Vaccines against Suppuration in Wounds. G. D. Bielonovsky.—p. 58.
98 *Severe Disturbances after Vaccination against Typhoid. V. R. Stefansky.—p. 59.
99 *Fumes of Iodin in Treatment of Tuberculosis of the Bladder. G. I. Baradulin.—p. 60.
100 Present Status of Technic for Amputations. E. T. Klopfer.—p. 62.
101 Changes in the Blood with Scurvy. V. V. Pezharskaya.—p. 65.

97. **Vaccination against Infection of Wounds.**—Bielonovsky relates that a favorable influence seemed to be unmistakable in the wounded treated with injections of Wright's vaccine to protect against streptococcus infection. A large supply of this vaccine had been donated to the Russian Red Cross by the British Red Cross. When this supply failed, a Petrograd vaccine was used and the results seemed to be equally good. He emphasizes the scientific and logical basis for this method of treatment, and urges that laboratories be equipped to produce this vaccine close to the firing line.

98. **Serious Disturbances after Vaccination against Typhoid.**—Stefansky states that, on an average, among every 400 or 500 men vaccinated against typhoid one presented considerable disturbance. The temperature ran up to 102 or 104, with vomiting, diarrhea, jaundice, transient albuminuria and syncope. The symptoms disappeared in a day or two without leaving a trace. Levy and Loeper have reported similar clinical experiences, and reproduced the disturbances in guinea-pigs after injection of a triple vaccine. Loeper ascribes the disturbances to a special affinity of the vaccine for the suprarenals, and combats it by injecting epinephrin to restore the blood pressure to normal. Stefansky remarks that the pathologic findings in the guinea-pigs' suprarenals are not convincing, as the suprarenals in these animals are damaged so easily by substances which do not injure human suprarenals. Loeper's statements as to the efficacy of epinephrin are based on too few cases to be decisive. Stefansky reports an especially serious case of disturbances after injection of antistreptococcus vaccine for an old chronic streptococcus affection. The first and second injections were borne without mishap, but a few hours after the third a serious condition developed suddenly, with cyanosis, almost imperceptible pulse, about 160, temperature 105 at times, and intense pains in the left flank, compelling morphin. This serious condition kept up for nearly three days and then subsided except for the pains, which persisted for several days. These excessive reactions in his experience always occurred in apparently entirely healthy persons. The intense neuralgic pains and vascular disturbances in his last case seem to point to bacterial anaphylaxis; there were no disturbances until after the injection had been repeated. He cites Kraus and Doerr's report that guinea-pigs injected subcutaneously with a small dose of typhoid, cholera or dysentery germs developed typical anaphylaxis if three days later they were injected with a larger amount of the same. Stefansky thinks it probable that the disturbances after vaccination in man can be explained in the same way as phenomena of anaphylaxis.

99. **Iodin Fumes in Treatment of Tuberculosis of the Bladder.**—Baradulin has applied systematically in five cases of tuberculous cystitis Farnarier's method of generating iodin fumes by heating iodoform. The fumes were conveyed into the bladder through a catheter, and four of the patients were materially improved. The fifth showed no benefit. There was a powerful reaction to the iodin fumes in all the cases that displayed benefit. Normand has reported improvement in all but four of twenty-four cases thus treated, and Farnarier in all but one of his fifteen cases. In short, Baradulin commends this iodin fumes method as the best means at our command to date for treatment of tuberculous cystitis and tuberculosis of the bladder in general. This iodin treatment may finally permit cystoscopy. (Farnarier's technic was described in THE JOURNAL, Aug. 10, 1912, p. 488.)

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 10, I, No. 10, pp. 689-784

102 Medical Instruction in Danish East Indies. (Het geneeskundig onderwijs in onzen oost. III.) G. Van Rijnberk.—p. 689.
103 *Uterine Angioma. D. B. Boks.—p. 694.
104 *Action of Digitalis on the Frog Heart. S. de Boer.—p. 701.
105 *Convalescent Serum in Treatment of Whooping Cough. J. L. A. Peutz.—p. 714.
106 Chylothorax in Course of Cancer of the Pleura. J. H. Wieringa.—p. 717.

March 17, No. 11, pp. 785-880

107 *Milk Hygiene. (De zorg voor het verkrijgen en beschikbaar stellen van modelmelk.) G. H. M. van Charante.—p. 787.
108 *Removal of Small Foreign Bodies from Anterior Chamber of the Eye. W. Koster.—p. 802.
109 *Cure of Polyneuritis in Fowls with Acid from Phaseolus Radiatus. D. J. H. Pol.—p. 806.
110 Adsorption of Substances Used in Olfactometric Tests. C. van Dam.—p. 812.
111 *Intravertebral, Extradural Tumors, Two Cases. J. H. Pameijer.—p. 816.

103. **Angioma of the Uterus.**—Boks remarks that myomas with portions suggesting an angioma have been occasionally encountered, but in a case here described, with illustrations, the tumor seemed to be a primary angioma. It was crowded with vessels of all sizes, embedded in connective tissue. He knows of only one analogous case on record (Boldt, 1893).

104. **Action of Digitalis on the Frog Heart.**—De Boer is assistant at the physiologic laboratory at the University of Amsterdam. He describes extensive research on the living frog heart, sixteen charts showing the spontaneous and experimentally induced modifications of the heart rhythm during the three phases of digitalis action.

105. **Serotherapy of Whooping Cough.**—Peutz relates that in a family of several children a child of 2 was convalescing from whooping cough when three other children seemed to be just developing the disease. He drew some blood from the convalescing child and injected the serum intramuscularly into the three other children. A mitigating or aborting influence seemed unmistakable, but, he adds, the number of cases is too small to exclude casual coincidence.

107. **Milk Hygiene.**—This is an address delivered by a Rotterdam physician before the Netherlands Infant Welfare Association. He says of the Netherlands that it is a land flowing with milk, there being over three million cows for a population of scarcely six million (*het land dat bij een*

bevolking van ruim 6 millioen menschen meer dan 3 millioen koeien telt). Rotterdam has a model dairy which gets 1,500 florins a year from a charity fund to pay the difference between its model milk and ordinary milk, when the family physician gives a certificate to that effect to a poor family. Even with this subsidy, the milk is sold at a loss, but the model dairy is regarded as an important educational institution as it attracts visitors from far and near. Even in peace times the bottle containing ¾ liter of this model milk sells for 17½ cents. (*Terwijl in vredestijd ¾ Literflesch voor 17½ cent wordt verkocht, kan de mingcgoede deze verkrijgen voor 12 cent.*)

108. **Extraction of Small Foreign Body from Anterior Chamber.**—Koster discusses the preferable technic, emphasizing particularly what must not be done, both with metal and nonmagnetizable foreign bodies. For a very small splinter of metal, the entering wound already closed, he introduces a Graefe knife in a radial direction, at the extreme periphery, cutting thus around the edges. He then presses down the scleral lip of the incision with the hand magnet, and the scrap of metal soon comes into view and is drawn out. With other technic the scrap is liable to be held back by iris tissue. Even a strong magnet is not able to extricate it then. The mistake is often made that the incision is made too much in the cornea, or some other instrument is used instead of the proper Graefe knife. The smaller the metal particle, the harder it is to remove, as a rule.

If there is a piece of the same glass at hand, in case of a glass splinter in the eye, the glass can be tested to see if it casts a shadow under the Roentgen rays. He warns that no attempt must be made to extract nonmagnetizable foreign bodies through a straight incision, and that surgical pincers must not be used to seize them, for reasons which he enumerates. The opening by which the foreign body entered must be enlarged or, better yet, a new angular opening made to form a flap that can be lifted up with a sharp hook. The Graefe knife is the instrument to use, and it may be advisable to make a third incision to get a square flap, aiming to have the base of the flap on the side of the limbus. When the foreign body is thus exposed, he seizes it with fine anatomic pincers. A triangular or square flap injures the eye less than groping around through a straight incision. Even if extraction fails the first time, it is better to try again than to advise enucleation. In conclusion he describes a case of a piece of glass in the anterior chamber. An ophthalmologist made an incision with a lancet and tried to seize the glass with iris pincers, but there was some bleeding and the foreign body escaped out of sight, the blood and pigment concealing it. Koster advised waiting and Roentgen examination. Four days later he made an incision 8 mm. long through the cornea, on the side toward the nose, using a fine Graefe knife held perpendicularly, cutting from within outward. Then with curved tenotomy scissors, the cornea was cut perpendicularly to this for 6 mm. The flap was drawn back with a hook and the lens mass and the scrap of glass pressed up into the opening, and the glass was readily grasped with fine but strong anatomic pincers. There was no loss of vitreous humor. The nasal conjunctiva was loosened up and drawn over the wound in the cornea and sutured. A light compressing bandage was applied and the young man kept in bed. The eye healed favorably with 1 per cent. atropin. For six weeks a bandage was applied at night. Vision was then 9/10. A year later there was still some traumatic mydriasis but the visual field was good and there were no disturbances.

109. **Cure of Polyneuritis in Fowls.**—Pol thinks that he has isolated the active principle in the East Indian bean plant which supplies the substance the lack of which induces beriberi in man and polyneuritis in fowls. The physicians of Netherlands India have published several communications extolling the efficacy of the beans of this plant, katjanghidjoe or *Phaseolus radiatus,* in treatment of this deficiency disease in man and fowls. Pol at Utrecht has isolated from a decoction of these beans crystals of an acid which he calls r acid. It promptly cured four beriberi patients, and several fowls with experimental polyneuritis, but the quantities had to be surprisingly large. It is evident, he says, that the more this kind of substance is chemically purified the less efficient it becomes.

111. **Intravertebral Tumors.**—The successful removal of the large tumors in the two cases reported should encourage treatment in apparently desperate cases. The excised tumor was 7 cm. long in one case, but in neither of the cases were there symptoms on the part of the spinal roots. The pains between the shoulders in one case were evidently due to irritation of the vertebral periosteum. The Nonne reaction in the cerebrospinal fluid was positive, but there was no lymphocytosis and the Wassermann test was negative in both blood and fluid. The Pirquet test elicited a positive reaction, but no signs of tuberculosis otherwise were found. One tumor seemed to be a sarcoma, the other a mass of granulations but inoculation of guinea-pigs gave negative results.

Hospitalstidende, Copenhagen

April 11, LX, No. 15, pp. 345-368

112 *Extensive Peripheral Gangrene in Syphilitic Man of Thirty-Seven. H. I. Schou.—p. 345.
113 Present Status of Means to Estimate Degree of Acidosis in Diabetes. (Et Par af de Maader hvorpaa Graden af Syreforgiftningen ved Sukkersyge kan søges afgjort.) K. A. Heiberg.—p. 357.

112. **Raynaud's Disease in a Syphilitic.**—Schou's patient is a clerk on a steamship. After scarlet fever at the age of 7, he had a transient gangrenous affection of the fingers of both hands, and the tip of one finger sloughed off. Except for acute gonorrhea at 25 he has been well although somewhat neurasthenic and inclined to chilliness and numbness. Two weeks before entering the hospital his nails looked blue and there was considerable pain in the extremities. Gangrene speedily developed and extended to the root of the thumb in one hand and to the knuckles in the other, while the toes on both feet were likewise but less severely affected. The rapid development and extent of the gangrene, the hematuria observed with polycythemia, slight hyperglykemia and the positive Wassermann reaction were the special features of the case. There was no hemoglobinuria but the hematuria persisted for nearly three weeks after the beginning of the attack. Schou has found records in accessible literature of thirty-eight cases of Raynaud's disease in syphilitics; there was manifest syphilitic arteritis in sixteen of them; the syphilis was dubious in eight others and certain in fourteen. In conclusion Schou urges investigation of the glands with an internal secretion in every case of Raynaud's disease, as this may throw light on the puzzling affection. Also he urges postmortem examination of every person known to have had Raynaud's disease.

Ugeskrift for Læger, Copenhagen

March 29, LXXIX, No. 13, pp. 475-514

114 *Physiologic Standardization of Digitalis. M. Krogh.—p. 475.
115 Present Status of Knowledge in regard to Foods and Dietaries. M. Hindhede.—p. 491. To be continued.

114. **Standardization of Digitalis.**—This work issues from the laboratory for experimental physiology of the University of Copenhagen. Krogh reviews the history of the application of digitalis in therapeutics and the attempts to standardize it effectually. A method of standardization is described which seems to be more dependable than any other. The tabulated details of the experiments and parallel tests apparently confirm the advantages of the method proposed. The test is made on the isolated heart of the frog, determining the lowest concentration which arrests the spontaneous rhythm. The research reported has shown that the hearts of the brown and the green frog, *Rana temporanea* and *Rana esculenta,* behave differently in response to this drug. The heart of the former absorbs a certain amount of the active principle. Consequently the *Rana esculenta,* the common frog, is the one to use, although the other frog heart may prove useful as a control. With the esculenta the preparation of digitalis or strophanthus can be estimated within 10 per cent. of strict accuracy.

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ROCHESTER, MINN.

AMERICANISM

The medical profession should feel proud of the position it has attained in the affairs of the world. It has been second to none in its progress, and medicine has now become nearly an exact science. The exalted position of medical men throughout the world's war has become accepted and has given them an opportunity to apply wholesale, as it were, the newer methods of prevention and treatment of disease by adopting at once fixed medical standards. The enormous value of this practical application relieves the necessity of a slower advance by discussions with the ignorant and by overcoming obstructionists. Hundreds of our medical men, appreciating the needs of the people as well as the requirements of soldiers, have long since accepted medical service to aid humanity in all of the countries of Europe.

The medical profession was first to mobilize, and has been signally honored by the government in having given to it the first flag to be carried abroad, thus signifying our country's active entrance into the war. No worthier representative of the profession could have been chosen as standard bearer than Dr. George W. Crile, who had done so much to develop the base hospital idea. These accomplishments give us a right to discuss Americanism. As a people we cannot accept the Prussian point of view that war is of divine origin, and that those killed in waging it pass immediately to Walhalla. We are more than ever firmly convinced that war is what Sherman called it, and made of it, Hell. In beginning and conducting war, autocracies, government officers and soldiers each have responsibilities. In all the world's history war has occurred at fairly regular intervals, and the great steps of man's progress have been closely associated with it through advances made by autocratic order and accepted through discipline. The very fact that a people can respond to so great a catastrophe as war shows that they are capable of the progress which will result regardless of the human sacrifice. Russia has started on her freedom along these same lines, to be ultimately united only through either the present war or an internal revolution. Autocracy and imperialism are hanging in the balance, and the scale will turn with education and opportunity for the people. Our own nation has never been in any war of conquest, having fought only for the "rights of life, liberty and the pursuit of happiness for all," and paying for all territory taken. War gave us freedom, our institutions, and the consolidation of our states, it gave to the world the freedom of the seas, and it gave to Cuba the same liberty that is in time to come to the Philippines and other of our possessions. Our war of freedom was instrumental in effecting such changes in the governing methods of our mother country — England — that she has since so endeared herself to her other colonies that they have freely bled themselves white in their loyal support of her. Our original displacement of the Indians must be regarded as being somewhat similar, though much more humane, than Germany's attempt ruthlessly to stamp out what it considers weaker, nonaggressive or decadent people who, from its point of view, are wasting the world's supplies. Germany plans that her defeated opponents are to be restored to usefulness by "Kultur," a proposition the value of which is open to discussion.

In our own country our constitutional form of government is founded on personal liberty. It is stronger for its just recognition of property rights, and ultimately the will of the people prevails. Since the framing of the constitution, thirty-two millions of emigrants have come to our country. Those who came early aided in developing it from the wilderness, and at once became loyal citizens. Those who came late, to obtain opportunity and material benefit and to avoid the restrictions, oppressions and conscriptions of their own countries, are not truly our citizens, becoming so only in the second generation. The state, acting as our monarch, controls the rates and the taxes. It provides for the care of the helpless, deficient and insane. It protects the health and lives of its people, is constantly working to benefit all by such acts as the compensation law, and is now discussing a modification of the compulsory health insurance of Germany and England.

The great industries have in the past unnecessarily destroyed thousands of human lives and turned on the public many more thousands of cripples dependent on public charity. It has been cheaper for these industries to let Europe pay the cost of bringing individuals to maturity and to replace the injured and lost with new human material than to go to the trouble and expense of providing suitable means for protecting the lives and limbs of employees. Today we are face to face with the truth that we must arise and upbuild our own people. The economic law of supply and demand has gradually been brought into force, and the waste of human life must cease. We hear on every hand of projects and efforts for the conservation of human life, a movement which is not the outcome of any philanthropy or sentiment but of neces-

* President's address before the American Medical Association, at the Sixty-Eighth Annual Session, New York, June, 1917.

sity. Men can no longer be replaced with the old time ease, and their individual value to the community has increased accordingly.

Economic necessity, not sentiment, has given almost sovereign power to health departments, both state and municipal. The physical condition of schoolchildren is being looked after under the supervision of physicians and trained nurses, and even food is being furnished that the young may develop well and grow strong to do the world's work. To prevent sickness among those who are well and bring the young to maturity with health and education is the most important business of the state.

The evolution of many large institutions has come about through the development of the by-product. The by-products of human deficiencies, mental, moral and physical, are a clog and a burden to the state. In our great hospitals for the insane we find that much effort is being made by highly organized and expensive methods to reclaim the mentally affected. These institutions have become not the madhouses of the past, but hospitals for the mentally sick. The expense is great, the percentage of cures small, but well worth the effort. University and state hospitals are needed for the care of the poor, for curing blindness, and for restoring cripples and defectives from birth and injury to health and usefulness. Now that the war is producing injuries by the thousands, a new impetus is given this work, that by training in special employment and artificial aids such persons may be as happy as possible and self-supporting, and not mentally affected and a drag on the community. It is through organized effort in the medical profession that so many of these great things of the world's work have been accomplished. Within half a century, many years have actually been added to the average life of man. This has been largely accomplished by preventive medicine as well as by advances in the cure of disease.

The American Medical Association has an advisory committee under Dr. Alexander Lambert investigating the question of compulsory health insurance for the information of the profession. Such laws being meant for the general good of the people, physicians should not obstruct, but should discuss and help in devising methods whereby the needy will receive aid, the middle classes will not be pauperized, and this without detriment to the medical profession. Anything which reduces the income of the physician will limit his training, equipment and efficiency, and in the end will react on the people.

One of the greatest functions of a state is the development and control of its educational system. Compulsory school attendance and child labor laws have been necessities. It will soon be generally recognized that the citizen is best made when a child. Compulsory school attendance through the seventh grade and a general knowledge of the English language are necessary to this citizenship. Other languages than English are special studies. Private schools should be encouraged, but all should be subject to state inspection and control. Private schools conducted by hyphenated Americans should be subject to government inspection to remove them from the protective influence of local and state politics. The lack of unity of our nation is largely due to lax educational laws which allow emigrants to develop community and educational interests in the language of their fatherland and not to live up to our constitution. As a people our prestige in the world has been injured most unfortunately by the petty jealousies and the local interests which have been made general through intrigue and political effort. Especially have we decried to the world the acts of government officials whom we ourselves have placed in power. More good would come to our country through tongue control than birth control. Our best people must come to the fore, and if necessary, by self sacrifice, do their part in the political management of the local, state and general affairs of our country if democracy is to survive. A wise monarch in Europe has remarked that it is surprising how often Americans seem pleased at being mistaken as coming from some other country. Our emigrants from all countries desire opportunity for expansion, thought and individualism. With opportunities, their brain cells create great inventions and ideas. It is most natural that such people should develop in this country of opportunity, and it is just as natural that much of the new thought in the world's progress after the next two generations may come from the Siberian people.

In a review of the world's progress in the last hundred years, the wonderful part our country has played in it is at once manifest. Man's power to control the elements was developed in America. Franklin was the first to draw electricity from the clouds. Morse developed the telegraph, Field laid the first cable, and Tesla, through his American education and opportunity, developed electric control. We still thrill at the story of Fulton's first steamboat, the *Claremont*, on the Hudson river. The Howe sewing machine took sorrow from "the song of the shirt." Alexander Bell developed the telephone, and Edison the phonograph; Holland developed the submarine, while Langley, followed by the Wrights, gave us the airship. The typewriter, the adding machine, and nearly all mechanisms, systems and inventions for conserving time and increasing productiveness have been American in origin. Within scarcely fifty years, modern farm machinery — planters, seeders, mowers, reapers, binders and threshers — has here increased man's ability a dozenfold, while in Europe the sickle, the cradle and the flail are still being used.

I bring up these things here because the great medical profession of this country has not stood as a united body for that which is American in medicine. Many, while abroad, have apologized for medical conditions at home, and for personal advancement have often written of and discussed as remarkable European discoveries that are trivial. Many important discoveries in medicine in America have not been accepted here until they have been appropriated by Teutons and returned to us with the stamp, "Made in Germany." Our country has done much for the advancement of the medical profession through the enactment of just laws requiring standards of education. Through the efforts of the Council on Medical Education, of which Dr. Arthur D. Bevan is chairman, our profession has largely aided in the standardization of medical colleges. Through the work of this board, many of the inefficient medical colleges have been forced to close, to the great ultimate good of medical science and of the people served by their graduates. The added requirements of preliminary education and increased years of medical study were so great, however, that with the elimination of 40 per cent. of the colleges, and the years of study more than doubled, we have little more than one-third as many students of medicine now as in 1900. Fewer doctors, better

trained nurses to take some of their work, better educated people, and preventive medicine to reduce sickness maintain an even balance, however. Now will come a hysterical demand to lower the bars of educational medical requirements under pretext of the necessity of war. It must not be permitted. If ever we need educated men it is now; and they will continue to be needed.

To our credit it may be said that today our graduates in medicine by education and training are equal to those of any country, and better than those of most countries of the world. The cost of conducting medical schools is so great, as compared with the fees received, that they may be conducted only by richly endowed colleges or state universities. It costs the state of Minnesota $4,200 to educate a physician, but its people are well paid for the expense incurred as they receive the best medical care. Minnesota now stands fourth among the states in health service for the people, and was the first to inaugurate state board examinations to regulate the practice of medicine. However, the standard for the practice of medicine is now high in most states, and here I would pay tribute to the excellent work of the National Board of Medical Examiners developed through the efforts of the late Dr. William Rodman while president of this Association. In some states, through local or state influence, many forms of the practice of medicine have been given separate boards of examiners, based wholly on lines of treatment. There should be no examination as to the method of treatment. Ultimately, when, as the result of existing laws, general standards of education are higher, public demand will require that all who practice the healing art shall be tested on educational lines, both general and special, the latter wholly on the knowledge of the facts of anatomy, histology, chemistry, sanitation, preventive medicine and the diagnosis of disease but not on treatment, before permission is given to care for the lives and health of the people.

During past centuries medicine has advanced slowly, but quite as rapidly as other lines of endeavor. The wonderful advance of the world's affairs during the last century, and especially in the latter half of it, has given us a new world in thought and productive activity. In medicine this has been especially true in the development of our knowledge of the bacterial cause of disease and its prevention and treatment. How proud the French are of the wonderful part Pasteur played in the discoveries and investigations that disclosed a new microscopic world of life! We now know that to bacteria is due the essential chemistry of existence, as they maintain life by changing inorganic material into solutions for plant food. All multicellular organisms, both plant and animal, are subject to disease and destruction through the action of the single cell organism. Our progress in the world's work will be to recognize and classify bacteria, to propagate and train them to become man's true slaves, and to control, render harmless or destroy those destructive to life. The French, through Madame Curie, gave to us the knowledge of radium. England is proud of Lister, who elaborated the work of Pasteur into a benefit to surgery, showed that infections are caused by bacteria, and thus developed antiseptic surgery. There also was developed the Crookes tube, the penetrating rays of which were accidentally discovered by Roentgen of Germany, from the fact that photographic plates in the room were affected by them.

We have all benefited by Germany's elaboration of scientific problems; especially by her proof to the world of the benefit of teamwork and organized national discipline over the efforts of the individual. It can be said of many scientific discoveries that they were thought of years ago by men who lived before their time, as it were; yet credit must go to those who overcome resistance, educate the people and compel acceptance. From a medical standpoint we must be proud of our country and our great dead. The work of McDowell of Kentucky, who performed the first ovariotomy in 1817, and the impetus to medicine given by Gross, Rush, Simms, Emmett, Senn, Davis and J. B. Murphy, our former president, and a host of other distinguished dead who added so much to our knowledge of medicine, are known to the world. What a debt we owe to Long for his discovery of ether, which made surgery possible and childbirth easier!

We are proud of our agricultural department and its investigations as to the causes, control and cure by serums of the diseases of animals and the destruction of parasitic hosts. The work of Erwin F. Smith on plant diseases is monumental, especially his discoveries as to the cause of certain plant tumors which show again that our bacteria and insect chemists are the prime offenders through the development of their varying acids, which may be stimulating or destructive to other cell life, causing tumors or decay. We should appreciate and aid the work of these departments.

EDUCATION

Whereas a hundred years ago the educated man could acquire the bulk of all that was known, it is now commonly recognized that the world's knowledge is so extensive that the more general an education a man receives the more hampered he may be, unless he is also highly educated along some particular line. There are specialists in every line of human endeavor, the educator, the professional man, the business man, the farmer and the laborer. Flexner is right in his effort to bring about a change in the prevailing system of education, founded as it was in the monk's period of the world's progress. It is proper to adjust education to man's requirements and necessities of today. Already some of the preparatory schools have started a propaganda against even the trying out of experimental changes in educational forms. The graduating age of 29 in medicine is four years too late, as the most productive and ideal period of thought is thereby limited to too short a time. The graduate's best work must be accomplished in the next fifteen years, when his brain cells are most energetic and receptive. It is well to remember that death overtakes the average physician at the age of 58. The intellectual man and woman marry late or not at all, and the resulting birth rate does not exceed one third of their original number. In order that the physician may be graduated at the age of 25, his vocation should be chosen in the seventh year of school life in order that special lines of study may be begun, and the eighth grade, the work of which is a review, should be eliminated. A revision of the time devoted to a study of the classics is necessary. The work of the last year of high school and preparatory school should not be reviewed in the first year of college, thus saving two years. By proper specializing in a six or seven year combined course of college and medicine, the student should be entitled to two degrees, such as are now given in the University of Minnesota.

Medicine has been divided into many branches and, of necessity, diagnostic team work has developed, with the result that both the rich, who can pay, and the very poor, who cannot pay, secure the best possible service. To secure equally good service for the great bulk of the people, however, some change in diagnostic methods by the establishment of centralized plants, hospitals for diagnosis, or combinations of those engaged in specialties to care for the extraordinary cases is necessary.

WORK OF ARMY MEDICAL OFFICERS

War has always had a great influence on medicine, first developing the priest physician, then the barber surgeon, and later the army medical officer. In war time Paré devised the ligature for arteries, although he was not the first to employ it. Napoleon, who was often at a loss to supply his army with food, made awards, which from an empiric and practical standpoint developed canning and the preservation of food before bacteria were known. The American medical profession will ever be under obligation to our army medical officers for their services to the world in the discoveries of numerous diseases, their causes and prevention. Our army medical officers stand preeminent in science. To Beaumont we are indebted for the first report on digestion, digestive fluids and gastric movement from direct observation of a patient with gastric fistula. To Surgeon-General William Hammond we are indebted for the development of the army medical museum, the second in the world. Surgeon J. S. Billings fostered the second largest and the best medical library in the world. Surgeon-General Sternberg discovered the pneumococcus and founded the army medical school and the government laboratories of bacteriology and hygiene. Under Sternberg's administration Major Walter Reed, with James Carroll, Jesse W. Lazear, and Aristide Agramonte, proved the mosquito to be the agent transmitting yellow fever. Lazear lost his life from the disease during the investigation. To these men belongs the credit for the control of yellow fever throughout the world, although the theory had been advocated by J. D. Nott in 1848 and Carlos Finlay in 1881. Through the knowledge obtained by this board and the sanitary and hygienic investigations of the Army Medical Service, General Gorgas, a former president of this association and now surgeon-general of the army, was able to free Havana of contagious disease. Yellow fever disappeared from Havana for the first time in 150 years. Under the supervision of General Gorgas the Panama Canal zone also was freed from both yellow fever and malaria. The latter was proved to be a mosquito-borne disease by Major Ross of the British army. This sanitary work made possible the building of the canal, and the health conditions in Panama are now better than in our own country. To Robert Maitland O'Reilly, one time surgeon-general of the army, we are indebted for the reserve medical corps developed for the expansion of the medical service during the time of war, and under which service several thousands of us are now preparing to do our bit. Under Surgeon-General George H. Torney was instituted the first compulsory vaccination for the prevention of typhoid. This was made possible by the discoveries of Chantemesse and Widal in France and Sir Almroth Wright of England, though to Major Frederick F. Russell of America is largely due the credit of its development. On the Mexican border Major Russell has vaccinated more than 20,000 United States soldiers at one time and put a stop to typhoid. To understand fully what this means, we must realize that the medical army service is as much a specialty in the care of soldiers as any specialty can become. In almost impossible conditions and surroundings to prevent and care for disease and infections, employ all of the serum and vaccines known, and be fully conversant with all sanitary and hygienic laws requires, indeed, special training. During the Spanish War, 20,000 cases of typhoid occurred among our troops in training camps between May and September, 1898. Of the volunteer soldiers, 90 per cent. developed typhoid within eight weeks of camp life. Investigations by Majors Walter Reed, Victor Vaughan, a former president of this association, and Edward Shakespeare did much to demonstrate the methods by which diseases are transmitted by flies and human carriers, and also by utensils and camp pollution. In our volunteer army in Cuba, 450 soldiers were killed, and 9,853 died of disease. The benefit to our country after the present war in having some thousands of medical officers trained in sanitation, hygiene and the prevention of disease will be incalculable. Through lax examinations of recruits and the natural effects of prolonged life and overcrowding in trenches and underground structures, tuberculosis will become a menace to our soldiers, as it is today in France.

In the American occupation of Porto Rico in 1898, smallpox, which was always present, became epidemic, 3,000 cases occurring in two months. By order of Governor-General Davis and under the direction of Major John Van R. Hoff, the island was absolutely rid of the disease by the vaccination of all the inhabitants, more than 800,000 people. In Porto Rico, Captain Ashford and his board have treated over 300,000 people for hookworm disease, reducing its mortality 90 per cent. A similar work with like results has been carried on in the Southern States through the generosity of Mr. Rockefeller through the work of his foundation, largely aided by the army medical and public health services. Mention should be made also of the work done by army medical men in the study of pellagra. Beriberi has been eliminated from the Philippines by the investigations of the preparation of rice made by Captain Edward Vedder. Surgeon-General Torney advocated the Army Dental Corps and the Army Corps of Nurses. The present war is one of remarkable proportions, and the medical service has assumed an importance such as it never had before. The old army hospital gangrene is a thing of the past. A knowledge of the care of infections, prevention of tetanus, vaccination for smallpox and typhoid, the cause and prevention of typhus, the old camp fever, also cholera, the plague and fevers of all sorts, including the new trench form, is a training requirement of the army medical officer, and results in the restoration to duty of a high percentage of the injured.

The requirements of our profession have been raised from within, and not forced from without. The American College of Surgeons deserves great credit for establishing its high standards for the science of surgery and the honesty of the surgeon. Through immediate necessity, hospitals are rapidly being classified and standardized that they may become more efficient for the people and for the training of nurses and future physicians. As a body, no profession has more power if wisely used. We have at once jumped past the period of discussion with fanatics and cults as to the cause and prevention of disease, a long period in

medical history, for today disease can be checked by order. Our country should secure a medical cabinet officer in the near future.

We must aid in all that will elevate the general standard of, and conserve, the American citizen. Prohibition is a war measure the value of which is beyond discussion. That disease was frequently water-borne is a practical observation that has existed for many centuries. To a large extent among the Orientals the danger of such transmission was overcome by the drinking of tea and coffee purified by boiling. In Europe the same results were obtained in the manufacture of weak wines, brews and liquors, the fermentation and yeast germs of which destroyed the virulent bacteria. Now that we know how and why water was dangerous, the necessity especially of alcoholic drinks has been removed in every community in this great country by an abundance of pure water. No one except the policeman sees more of the results of overindulgence in alcohol, demonstrated by poverty, sickness, immorality and crime, than the physician. Medicine has reached a period when alcohol is rarely employed as a drug, being displaced by better remedies. Alcohol's only place now is in the arts and sciences. National prohibition would be welcomed by the medical profession.

American dentistry has made a place for itself in the world, and America stands at the head of all countries in the care of the teeth. We are all proud of the work of American dentists. We may pay our tribute also to the American nurse, who has distinctly elevated the nursing of the world and care of the sick. Her experience and training make her the best wife and mother and a leader in support of the best in education and discipline in her community.

It is most fortunate that our army medical service is in the hands of three of our ablest men, Surgeons-General Gorgas, Braisted and Blue, and we must laud the work of the general medical council under the able directorship of Dr. Franklin Martin. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, under the direction of Dr. George H. Simmons, has been an important factor in the education of the American physician.

Medical men, your country needs you now and always. You must remember that the state is permanent and does not exist for the good of the individual, but that the individual exists for the good of the state.

Industrial Accident Mortality in 1916.—On the basis of 9 million white persons insured in the industrial accident department of the Metropolitan Life Insurance Company during 1916, it is found that the accident rate for the working people of the United States increased 5 points per hundred thousand over 1915. The tendency has been toward a decrease in the past few years; the 1916 increase is attributed to activity in industry and speeding up processes incident to war conditions. The death rates per hundred thousand persons exposed during 1916 and 1915, respectively, in the classes of accidents named were: accidents and unspecified violence, 73.5 and 68.9; burns, 8.4 and 8.1; absorption of deleterious gases, 3.0 and 2.5; accidental drowning, 9.5 and 11.9 (the figures for drowning in 1915 include those of the *Eastland* disaster); traumatism by firearms, 1.6 and 1.4; cutting or piercing, 0.2 and 0.1; by fall, 13.7 and 12.4; in mines and quarries, 1.0 and 1.0; by machines, 1.6 and 1.4; by steam railroads, 7.6 and 7.3; by street cars, 2.6 and 2.3; by automobiles, 8.8 and 5.7; by other crushing and other vehicles, 3.4 and 3.5; electricity, 1.0 and 0.7; other accidental and unspecified external causes, 11.2 and 10.7.

TRANSFUSION OF BLOOD BY THE CITRATE METHOD*

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Anticoagulants have been of great value and interest to laboratory workers for many years, but their introduction into clinical medicine is of recent date. Engelmann,[1] in 1911, stated that he had injected 0.3 gm. of herudin intravenously in each of fourteen eclamptic patients without toxic symptoms. Satterlee and Hooker[2] used small amounts of herudin in transfusion with their cannula-pipet method, and observed no ill results. Abel, Rowntree and Turner,[3] working on methods of vividiffusion and plasmaphaeresis, concluded that herudin prepared by their method was nontoxic in quantities sufficient to prevent coagulation of the blood of dogs. Turner, Marshall and Lamson[4] studied a commercial preparation of herudin and found it sufficiently toxic to cause death in dogs when given intravenously in doses of from 25 to 30 mg. per kilogram of body weight. Marshall[5] studied this preparation and concluded that the toxic substance was probably some product of putrefaction. Herudin was used as an anticoagulant in a plasmaphaeresis performed on a uremic patient in this hospital. It was followed by marked collapse from which the patient recovered after prolonged stimulation. It has not been used subsequently as an anticoagulant in human beings, and should not be used before careful biologic standardization of the preparation has proved it innocuous.

Yurewitch and Rosenberg[6] used sodium citrate successfully as an anticoagulant in washing and returning erythrocytes to the circulation of rabbits. Hustin[7] reported the result of a transfusion in a human being in which the blood was kept fluid by means of 0.2 per cent. citrate and mixed with an equal amount of physiologic sodium chlorid solution containing glucose before injection. This method has the disadvantage of a large fluid transfer. Weil,[8] in 1914, stated that he had successfully transfused human beings with as much as 250 c.c. of blood kept fluid by means of sodium citrate (amount not stated). He also observed the remarkable fact that the recipient's blood showed no lengthening of coagulation time after transfusion. Lewisohn[9] described "a new and simplified method of blood transfusion" in which he prevented coagulation by means of 0.2 per cent. of sodium citrate. Weil[10] recommended the use of one part of 10 per cent. sodium citrate solution for nine parts of blood. Garbat,[11] working with W. Meyer, in the treatment of thrombo-angiitis obliterans, reported that the intrave-

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* From the Medical Clinic of the Johns Hopkins Hospital.

1. Engelmann: Ztschr. f. Geburtsh. u. Gynäk., 1911, **68**, 640.
2. Satterlee, H. S., and Hooker, R. S.: The Use of Herudin in the Transfusion of Blood, THE JOURNAL A. M. A., June, 1914, p. 1781.
3. Abel, Rowntree and Turner: Jour. Pharmacol. and Exper. Therap., 1914, **5**, 275, 625.
4. Turner, Marshall, and Lamson: Jour. Pharmacol. and Exper. Therap., 1915, **7**, 145.
5. Marshall: Jour. Pharmacol. and Exper. Therap., 1915, **7**, 157.
6. Yurewitch and Rosenberg: Russk. Vrach, 1914, **14**, 637, cited by Abel, Rowntree and Turner (Footnote 3).
7. Hustin: Ann. et bull. Soc. méd et nat., Brussels, 1914, **4**, 104.
8. Weil: Med. Rec., New York, 1915, **87**, 164 (discussion).
9. Lewisohn: Med. Rec., New York, 1915, **87**, 141.
10. Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425.
11. Garbat, A. L.: Intravenous Injections of Sodium Citrate, THE JOURNAL A. M. A., May 13, 1916, p. 1543.

nous injection of 2 gm. of sodium citrate was occasionally followed by fever and chilly sensations. He recommended the use of blood containing 0.25 per cent. citrate in transfusions.

Sodium citrate is only relatively nontoxic,[12] and it is therefore of importance to use the minimum amount that will certainly prevent coagulation of drawn blood. For this purpose, 0.2 gm. per hundred c.c. of blood is not always enough; it is better to follow Garbat's advice and use 0.25 per cent.

In 1915 Ottenberg and Libman[13] reported 212 transfusions done by the older methods, and fully discussed the results and indications. McClure and Dunn[14] collected reports of 150 transfusions performed in this hospital prior to the introduction of the citrate method, and gave a complete account of the historical development of transfusion. In this paper, we shall report all of the citrate transfusions done in the Johns Hopkins Hospital and call attention to what seem to be the most satisfactory methods.

SELECTION OF DONORS

Robust, young adults, free from disease are, in general, the best donors. They should always be carefully questioned concerning previous illnesses, and a Wassermann test should invariably be made on their serum before transfusion. Even this will not exclude the possibility of syphilitic infection, so it is better to look for the clinical evidences of syphilis.[15] Cardiac patients requiring bleeding for decompensation have been used as donors repeatedly without any ill result. An active bacterial endocarditis should always be excluded by blood culture if necessary. All transmissible diseases,[16] and, if possible, all other diseases, having been excluded, agglutination tests should be done.

Landsteiner[17] and Shattuck[18] independently reported the presence of iso-agglutinins in normal human serums. Landsteiner[19] divided human beings into three groups according to the agglutination reactions of their bloods. DeCastello and Sturlii[20] were able to confirm Landsteiner's results by tests on 174 human bloods, with four exceptions. In these the serum contained no iso-agglutinins, while the corpuscles were agglutinated by all the other serums. These four are now known to belong to Group I (Moss), although they were not placed in a separate group by DeCastello and Sturlii. Jansky[21] first proved that human beings fall into four groups according to their agglutination reactions, and Moss[22] was able to confirm his work.[23] So far, no exceptions have been found to these groups, and after establishment they are permanent. Moss was able to demonstrate isohemolysins in about 25 per cent. of normal bloods, but never saw hemolysis occur without previous agglutination.

It has now become a routine procedure to test the serums and corpuscles of donor and recipient for agglutination and hemolysis before each transfusion. Ottenberg and Kaliski,[24] in a study of reactions following transfusion, concluded that agglutination tests when properly done are reliable, and also emphasized the fact that certain reactions will occur which are not dependent on agglutination and hemolysis, although their nature is not fully known.

Repeated transfusions from the same donor to the same recipient have been frequent in the series of cases to be reported, and the reactions in some of these cases will be fully discussed. This procedure has never been shown to lead to the formation of demonstrable iso-agglutinins or isohemolysins, in vitro, when properly controlled tests were certainly negative before transfusion. Ottenberg, Kaliski and Friedman[25] showed that dogs transfused repeatedly with agglutinable cells will apparently develop isohemolysins, de novo, but that this will not occur when the injected cells are not agglutinable. We have not been able to produce isohemolysins or iso-agglutinins in rabbits by repeated transfusions with compatible blood. The subject, in view of discordant results by various observers, needs careful study.

Brem[26] has reported some interesting results following transfusions with incompatible bloods. Four Group II recipients were given blood from Group IV donors; one Group I recipient from Group II donors, and one Group III recipient from a Group II donor. In these no severe reactions occurred. Two Group IV recipients were transfused with Group II blood; one Group II recipient with Group I, and one Group III recipient with Group I. Three of these had violent reactions—one with hemoglobinuria. Unfortunately, later agglutination tests were not reported. These results emphasize the experience of others and explain the paucity of serious or fatal reactions following transfusion done prior to the introduction of agglutination tests. Study of the groups of Moss shows that cells from Group IV can be given to any group without expecting serious reaction.

Severe and occasionally fatal reactions have followed transfusions in which careful tests to demonstrate iso-agglutinins and isohemolysins have not been done. In view of this, it is dangerous and unjustifiable to do transfusion of blood without careful tests.

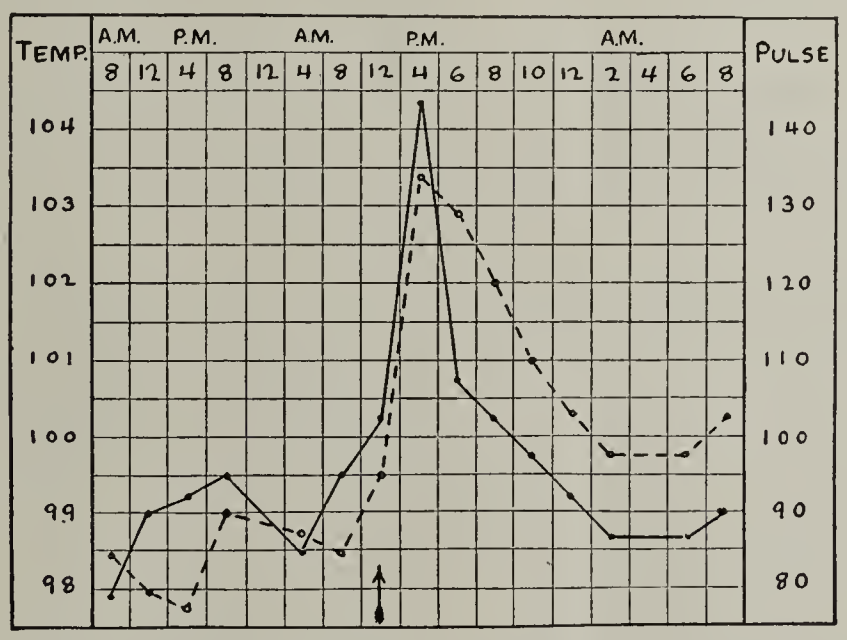
Halban,[27] DeCastello and Sturlii,[20] Moss and Happ[28] showed that groups, as a rule, are not established before the end of the second year of life, although they are occasionally present at birth. Clinical experience has shown that it is safe to transfuse infants under 2 years of age with their mother's blood. But even in these cases, tests should precede transfusions when possible.

12. Lewisohn: Surg., Gynec. and Obst., 1915, **21**, 37.
13. Ottenberg and Libman: Am. Jour. Med. Sc., 1915, **150**, 36.
14. McClure and Dunn: Bull. Johns Hopkins Hosp., 1917, **28**, 99.
15. In this connection the following brief case history may be of interest: A patient with a severe anemia had received several transfusions from his son during a period of two and a half months. Three weeks after the last one the patient returned to the hospital for other transfusions. The son was used as the donor. (A Wassermann test was not made again on the donor's serum, although he was warned of the danger of the transference of syphilis.) Four weeks later the patient had a skin eruption and malaise, and a week later the son also had a skin eruption. The patient was readmitted after several weeks. His Wassermann test was positive, and an ulcer on the palate contained many spirochetes. The son's Wassermann reaction was negative, although he admitted that a chancre was present at the time of the last transfusion. The patient developed a gumma of the larynx from which he died ten weeks after the transfusion, in spite of treatment.
16. Thayer recently informed us of an instance in which the patient developed tertian paroxysms with the malarial parasites in the blood following transfusion from a supposedly healthy sailor.
17. Landsteiner: Centralbl. f. Bakteriol., 1900, **27**, 361.
18. Shattuck: Jour. Path. and Bacteriol., 1900, **6**, 303.
19. Landsteiner: Wien. klin. Wchnschr., 1901, **14**, 1132.
20. DeCastello and Sturlii: München. med. Wchnschr., 1902, **49**, 1090.
21. Jansky: Abst., Jahresb. ü. d. Leistung u. Fortschr. a. d. Geb. d. Neurol. u. Psychiat., 1907, **11**, 1092.
22. Moss: Bull. Johns Hopkins Hosp., 1910, **21**, 63.
23. Throughout this paper the groups established by Moss will be used: Group II and Group III cross agglutinate. Group IV cells are agglutinated by no other serums. Group I cells are agglutinated by all other serums.
24. Ottenberg, Reuben, and Kaliski, D. J.: Accidents in Transfusions, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2138.
25. Ottenberg, Kaliski and Friedman: Jour. Med. Research, 1913, **23**, 141.
26. Brem, W. V.: Blood Transfusion, THE JOURNAL A. M. A., July 15, 1916, p. 190.
27. Halban: Wien. klin. Wchnschr., 1900, **13**, 545.
28. Moss and Happ: Unpublished data.

TECHNIC OF AGGLUTINATION TESTS

Blood is drawn into a Wright tube or small test tube and centrifuged to obtain clear serum. Two drops of blood are allowed to drip from the finger or ear into 5 c.c. of 1.25 per cent. sodium citrate in 0.85 per cent. salt solution to obtain a suspension of corpuscles. A citrate solution is used to prevent clumping of the cells in the cases in which several drops of blood are required to make a satisfactory corpuscular suspension. A cover slip is cleaned from 95 per cent. alcohol, and by means of capillary pipets (one for each serum and each corpuscle suspension) 1 drop of donor's serum and 1 drop of recipient's corpuscles are placed on it and stirred with a small glass rod. This is inverted over a hollow ground slide and sealed with oil. The hanging drop should now be examined under the microscope. It is of the utmost importance to have the drop spread out to an even thickness, with the corpuscles just touching one another. The process should be repeated, donor's corpuscles and recipient's serum being used. Controls may be made with salt solution instead of serum, but are not necessary except in doubtful cases. It is unnecessary to wash the corpuscles used in performing agglutination tests, as the amount of serum present in the emulsion is too small to cause confusion.

The hanging drops should be allowed to incubate at 37 C. for one hour before hemolysis or agglutination can be excluded. Many reactions would be avoided if this rule were strictly followed. Several instances in which agglutination and hemolysis were absent at the end of thirty minutes have shown agglutination at the end of forty-five minutes. Previous to the observance of this rule, reactions following several transfusions were explained when the bloods were subsequently tested, showing no agglutination in thirty minutes but definite incompatibility at the end of forty-five minutes. Agglutination is often present at the end of five to ten minutes, however, occasionally with complete hemolysis at the end of thirty minutes.



Temperature and pulse chart in the case of Mrs. S., who received 450 c.c. of citrated blood at point indicated by arrow. Headache, malaise, urticaria and hemoglobinuria followed. The bloods were compatible by routine tests. The solid line indicates temperature; the broken line, pulse.

TECHNIC OF TRANSFUSION

Blood may be drawn through a needle directly into a graduated flask containing a known amount of citrate solution, but good results are obtained more constantly by adding a citrate solution gradually to the blood as it is drawn. To accomplish this, a graduated bottle of from 500 to 1,000 c.c. capacity has been used. The mouth of the bottle should accommodate a No. 10 or 12 rubber stopper containing three perforations. In the middle hole the stem of a small (50 c.c.) graduated separating funnel is fitted. The two side holes accommodate right angle glass tubes, to one of which is attached a rubber tube in which is interposed a glass "trap" filled with cotton. Through this, suction can be applied if necessary. To the other right angle tube the needle is attached by means of a 6 inch length of pure gum rubber tubing. The needle should be of 10 to 14 (B. & S.) gage and preferably platinum iridium or "nickeloid" to avoid roughening and consequent clot formation.

The bottle with its stopper and tubes should be sterilized by autoclaving or boiling. Before use it should be well rinsed with 0.8 per cent. sodium chlorid solution. The 2.5 per cent. sodium citrate solution is made up with distilled water and sterilized.

Five c.c. of citrate solution are allowed to run into the bottle, after the graduated funnel has been filled. A tourniquet is placed around the donor's upper arm (not tight enough to compress the brachial artery), the cubital fossa is cleaned surgically, and the needle of the apparatus is inserted into a large vein. As a rule the blood runs freely into the bottle, although light suction may be necessary. As the blood flows in, the cock of the funnel is opened wide enough to allow citrate solution to drip in at the rate of 10 c.c. for each 90 c.c. of blood. The bottle should meanwhile be gently agitated.

The blood is transferred directly to a sterile salvarsan apparatus or infusion bottle, previously rinsed with sterile physiologic sodium chlorid solution, and allowed to run into the recipient's median basilic vein,[29] exactly as one gives salvarsan. After 25 c.c. have been introduced, it is better to wait ten minutes to see that no immediate reaction occurs. The remainder is allowed to run in at the rate of 500 c.c. in from twenty to thirty minutes.

In a number of instances in which the recipient belonged to Group III (Moss), washed corpuscles from a Group IV donor have been used. The technic is relatively simple, and the results have been good. The donor's blood is drawn and citrated as in an ordinary transfusion. The blood is then transferred to 100 c.c. centrifuge tubes which have been sterilized and rinsed with sterile physiologic sodium chlorid solution. After these tubes have been covered with sterile caps, they are centrifuged at 2,500 revolutions for fifteen minutes. The plasma is then pipetted off, and 0.8 per cent. sodium chlorid added to bring up to the original volume. The salt solution suspension of corpuscles is given in the same manner as whole citrated blood. The small amount of plasma transferred seems to have no deleterious effect.

Blood may be carried some distance before being used, and when necessary may be kept on ice for many hours. In general it is better to inject the blood within a few hours after withdrawal.

Since the introduction of the citrate method into this hospital thirty-four patients have received a total of 100 transfusions. The procedure has been carried out in a variety of conditions, as is shown in the accompanying table. No attempt will be made to discuss the general indications for transfusion, since this has received full consideration in the excellent article by Ottenberg and Libman.[13]

CONDITIONS IN WHICH TRANSFUSION HAS BEEN PERFORMED

Disease	Number of Patients	Number of Transfusions
Anemias:		
Pernicious	11	49
Secondary	8	17
Burns	2	3
Leukemia:		
Myeloid with hemorrhages	1	7
Lymphatic (chronic)	1	2
Sepsis (Streptococcus viridans)	2	2
Typhoid fever	7	14
Uremia	2	6
Total	34	100

REACTIONS

In order of frequency, the symptoms following transfusion of blood are malaise, slight elevation of

29. In Infants it may be necessary to use the superior longitudinal sinus.

temperature, chilly sensations, actual rigor, urticaria, pruritus, nausea, vomiting, lumbar pain, dyspnea, cyanosis and hemoglobinuria. Any single one or combination of these symptoms occurring within three hours after transfusion has been considered a reaction. Such symptoms have been present in 17 per cent. of the cases here reported. Most of the reactions were trivial, none fatal. In every case the bloods were compatible by the routine tests.

The cause of these reactions is not definitely known. Typical anaphylactic-like reactions of mild grade are not uncommon, and are quickly relieved by a hypodermic injection of epinephrin. Three followed the transfusion of washed cells. One occurred in a patient with typhoid fever, following transfusion from a convalescent typhoid patient. Garbat has observed slight chills and some elevation of temperature following the intravenous injections of 2 gm. of sodium citrate. In none of these cases has more than 1.75 gm. of citrate been used. This quantity would hardly account for the symptoms. The reactions seem to bear no relation to the volume of the transfusion, many having followed small ones.

In this connection, two cases of pernicious anemia are of some interest:

CASE 1.—Mrs. J. B. received 9,000 c.c. of blood by the Lindeman method between Dec. 10, 1915, and Feb. 14, 1916, without any severe reactions. During this admission her spleen was removed. She was readmitted in August, 1916, with extreme anemia. Citrate transfusions from her husband and her brother (both had been donor several times previously) were followed by severe, almost fatal reactions with hemoglobinuria. A Lindeman transfusion, performed with a new donor, was followed by chill, high fever, coma and death. There was marked hemoglobinemia and hemoglobinuria.

CASE 2.—The case of H. A. P. is similar in many respects. Splenectomy and repeated transfusion had been performed during previous admissions. Following a citrate transfusion from a previous donor he had a severe reaction, chill, stupor and hemoglobinuria. A new donor was secured but a similar reaction followed. No more transfusions were attempted.

These two cases have suggested the possibility of the formation after repeated transfusion of antibodies to homologous blood which are not demonstrable in vitro. In both, after the occurrence of severe reactions, tests were done with particular care. Gross and microscopic preparations were made with varying dilutions of donor's and recipient's serums. These were incubated one hour at 37 C., then put on ice for twenty-four hours, and again incubated. There was no agglutination or hemolysis. Similar tests were done in the choosing of subsequent donors with negative results, yet transfusion from these donors gave most severe reactions. Without attempting to explain these, it would seem that transfusion is a self-limited method of treatment in pernicious anemia since, after a certain number of transfusions, homologous blood may cause reactions of increasing severity. We have been unable to produce any similar result experimentally in normal animals.

CONCLUSIONS

1. The citrate method is an almost ideal means of transfusion.
2. Careful preliminary tests for compatibility are essential to success.
3. Washed cells from a donor of Group IV may be given with impunity to a recipient of any other group; and this procedure is preferable to giving whole Group IV blood.
4. Repeated transfusions in pernicious anemia are not without danger.

BILATERAL PNEUMOCOCCAL PAROTITIS

WITH REPORT OF A CASE

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Pneumococcal parotitis, either as a complication of pneumonia or as a focal pneumococcal involvement, is rare. Whether associated with pneumonia or occurring as a primary condition, it is always a serious expression of a grave condition.

In "Modern Medicine," [1] Osler and McCrae report twenty cases found in the literature, but the date of the compilation could not be obtained. In 1889, Testi[2] obtained the *Diplococcus pneumoniae* of Fränkel in pure culture from the pus in a case of parotitis complicating "acute croupous pneumonia."

Sir John Moore[3] emphasizes its rarity in reporting it to have occurred only six times in nearly 6,000 cases of pneumonia in the Vienna hospitals. He adds further weight by assuring us that von Jürgensen never saw this complication in all his experience.

In 1910, Zesas[4] collected from the literature reports of twenty-seven cases of parotitis as a complication of pneumonia. His own case made the twenty-eighth. Here he probably included the three cases reported by Bargellini[5] in 1908.

In 1915, J. Porter Parkinson,[6] from the Queen's Hospital for Children, reported a case in which the complication supervened suddenly on a resolving lobar pneumonia in a child. The temperature rose suddenly from 99.5 to 104 F. without any fresh chest signs. On the following day the right parotid gland was hard, red and swollen. It was incised two days later, and the pus showed the presence of both pneumococci and staphylococci. Blair[7] of St. Louis, in reporting his work on septic parotitis recently, included one case due to pneumococcus.

REPORT OF CASE

I now report an additional case with its slight variation from those reported:

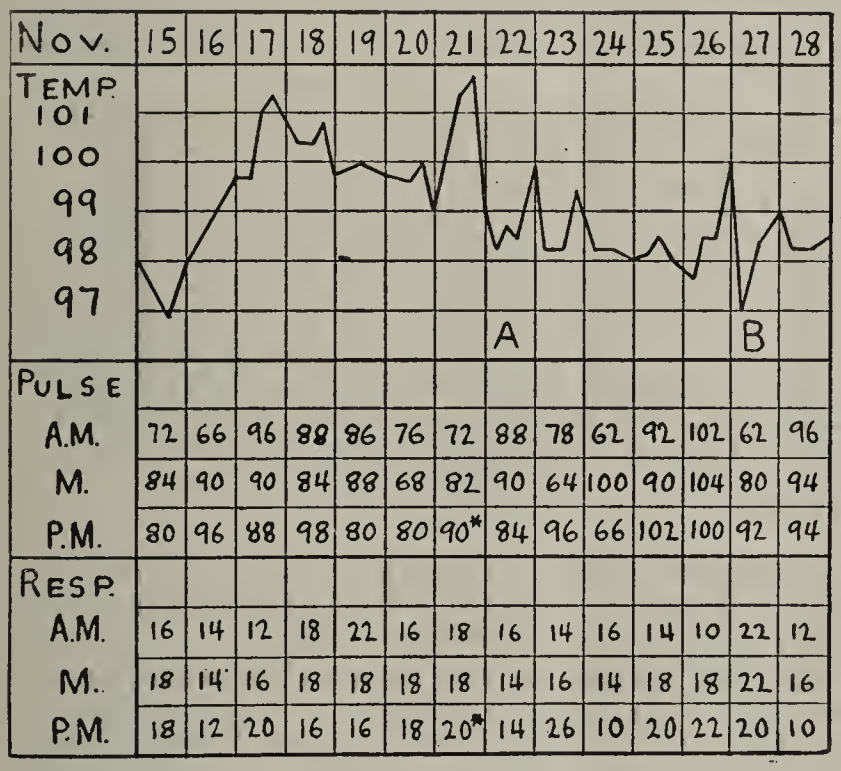
Early in November, 1916, Mrs. L. F., aged 67, in a fairly debilitated condition, developed what appeared to be a deep seated bronchitis. There was slight hypostatic crepitation in the dependent lung tissue, and bronchial breathing was manifested posteriorly at the lower angle of the left scapula. There was no elevation of temperature above normal. A slight cough with tenacious but not bloody sputum was present. Considerable flatulence with loss of appetite was complained of. The patient felt there would be a lighting up of a chronic quiescent cystitis.

The blood pressure was 105-70, which has only 5 or 10 mm. below her usual pressure. The heart tones were distant, but the rhythm was good. The second pulmonic tone was not pathologically accentuated. After about ten days of the

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1. Osler and McCrae: Modern Medicine, **1**, 263.
2. Testi: Encyclopedia Medica, **9**, Edinburgh, William Green.
3. Moore, John: Dublin Jour. Med. Sc., 1909, **128**, 100.
4. Zesas, D. G.: Parotitis with Pneumonia, Fortschr. d. Med., 1910, **27**, No. 34; abstr., THE JOURNAL A. M. A., Jan. 22, 1910, p. 329.
5. Bargellini, E.: Parotitis from Pneumococcus Infection, Policlinico, Rome, 1908, Practical Section No. 22; abstr., THE JOURNAL A. M. A., July 11, 1908, p. 178.
6. Parkinson, J. P.: Brit. Jour. Child. Dis., 1915, **12**, No. 137.
7. Blair: Septic Parotitis, Med. and Surg., 1917, **1**, No. 1.

usual management, the lung condition began to improve, and at the same time the patient was disturbed by slight chills followed by hot flushes, and sharp shooting pains in and around the heart. Abruptly on the afternoon of November 15 there was a chill followed by extreme collapse, a subnormal temperature, and a loss of the wrist pulse. The heart was irregular, missed every third or fourth beat, and became so weak in action that five hours of strenuous stimulation were required before anything like security prevailed. For several days the heart labored under the influence of a marked toxemia. There was every sign of sympathetic paresis as expressed by nausea, flatulence, dizziness, cold perspiration and varying degrees of fever. The patient had been complaining of pain in the left parotid region. November 17, this gland was markedly swollen, tender and painful. The opening of the duct was pouting and reddened. By careful manipulation a quantity of greenish-yellow mucopus was expressed. Three days later the right gland became involved in the same manner as the left. From 3 to 10 c.c. of a greenish-yellow pus was expressed from these glands two or three times daily for a period of about two weeks. November 21, the pus was examined by Dr. C. A. Johnson, pathologist, who found pneumococci in pure culture. Blood examination revealed: hemoglobin, 73 per cent. (Dare); red blood cells, 4,000,000; white blood cells, 12,800. The differential count gave polymorphonuclear neutrophils, 77; small mononuclears, 17; large mononuclears, 4; eosinophils, 1; indentate nucleus, 1. The urine and stool analyses were comparatively negative. For several days the patient lay in a markedly toxic condition with rather free drainage of pus from both glands. Several circumstances forbade operative interference. During the night of November 21, five or six days after the acute onset of the glandular involvement, the temperature dropped to normal and below. Perspiration was profuse, and stimulation was needed to prevent collapse. Thereafter the toxic symptoms subsided and reappeared only at intervals as the plugs of mucopus temporarily obstructed the ducts on either side.



PULSE														
A.M.	72	66	96	88	86	76	72	88	78	62	92	102	62	96
M.	84	90	90	84	88	68	82	90	64	100	90	104	80	94
P.M.	80	96	88	98	80	80	90*	84	96	66	102	100	92	94
RESP.														
A.M.	16	14	12	18	22	16	18	16	14	16	14	10	22	12
M.	18	14	16	18	18	18	18	14	16	14	18	18	22	16
P.M.	18	12	20	16	16	18	20*	14	26	10	20	22	20	10

Temperature, pulse and respiration chart: *A*, crisis began; *B*, ducts plugged; * 11 p. m.: pulse, 88, respiration, 18.

Convalescence has been slow. After nearly two months the pus has given place to a copious outpouring of a clear, rather thin and salty secretion. There has never been any evidence of glandular concretions, though repeated search has been made for them. This patient has had mumps along with the usual diseases of childhood.

COMMENT

The cases reported to date emphasize the following points: The majority occur in the aged and debilitated. The earlier the complication arises in the course of a pneumonia, the more serious is its import. The lung involvement is not aggravated by the appearance of the parotitis, but the symptoms from the pneumococcemia are markedly increased. In a few cases in which the complication has occurred late, lung resolution has seemingly been hastened.

The disease is usually unilateral. Of the thirty reported cases to date, only eight were bilateral. Resolution of the glands has been slow. As a rule, the pathologic process goes on to suppuration. Drainage has been accomplished through the ducts naturally, or has been produced through incision. Spontaneous resolution has occurred in some cases. The present case is unique in its termination by crisis. It may well be classed with other reported focal pneumococcal infections in which crisis has terminated a pneumococcemia in which there has been no lung involvement.

515 Investment Building.

A WATER-BORNE EPIDEMIC OF TYPHOID FEVER

ISOLATION OF THE TYPHOID BACILLUS FROM THE CONTAMINATED SUPPLY

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A water-borne epidemic of typhoid fever numbering fifty-two cases with no fatalities recently occurred in a camp at the San Pablo Dam, Contra Costa County, Calif. The interesting factors noted were:

1. A perfectly equipped laboring camp with one decidedly glaring error from an engineering and hygienic standpoint, namely, a dual water supply, neither of the sources of which had been examined bacteriologically.
2. A short incubation period in four cases.
3. The history of water not being drunk, coupled with the interesting information obtained of brushing the teeth, cleansing the mouth and washing the hands.
4. The large number of ambulatory cases, nineteen, in view of the number of known cases, fifty-two.
5. The isolation of the typhoid bacillus from the feces of two patients, the serum of one having continuously yielded a suggestive Widal and the other a negative.
6. The isolation, from the diluted sewage drunk, of an organism completely identified as the typhoid bacillus.

EPIDEMIOLOGY

Ground was broken for the dam, Sept. 11, 1916, and a temporary camp established. The permanent camp, situated half a mile below the dam, in which the typhoid occurred, was opened Oct. 19, 1916. Sanitary conveniences, such as water-flushed toilets, shower baths and washstands were provided, each bunk-house having its own unit.

There is a definite history of the occurrence in the upper temporary camp of a few cases of dysentery, the exact number not being known, all of a mild type

and of an extremely short duration. There was a continuance of these cases when the permanent camp was opened. None of the patients were ill enough to quit work, and their condition did not seem to be of enough consequence to be brought to the attention of the camp physician; therefore no records of these cases are available.

When the investigation was begun there were fifteen patients ill in the Providence Hospital, Oakland, from the permanent camp, the initial and most noticeable symptom being diarrhea, but evidently a dysentery of a more extreme type than those mentioned above. Three more patients were sent from the camp to the hospital the first day of our visit, December 7. By December 11, through blood cultures, feces and Widal examinations, as well as by clinical observations, these cases were diagnosed as typhoid fever.

Several matters of interest relative to the epidemiology were ascertained at the time of our first visit, especially with reference to the culinary force. The chief cook informed us that none of his force, which had been continuously employed for about a month previous to our investigation, had been ill in any way whatever, even after an epidemic was evident. He also informed us, and later investigation proved this to be a fact, that the kitchen and dining room were entirely supplied with water from the upper canyon spring. The kitchen force drank this water and used it even for ordinary cleansing purposes, hot water being always available.

Basing the data on the complete number of the cases in the epidemic, fifty-two, we find that of these patients, four drank water from San Pablo creek direct. Eleven patients used the water from wash-room faucets only for brushing their teeth, cleansing their hands, etc. The remaining, thirty-seven, in all, of seven of whom we have no positive records, drank the water at the wash rooms. Eight of the men ill did not eat or live at the camp. This practically eliminated the cookhouse from suspicion. Nineteen could be considered ambulatory cases, the average time each patient was working while ill being eighteen days.

The number of men employed averaged 340 per day. As there were no toilet facilities provided for these men while at work, the reprehensible habit of defecating around the Creek banks and all over the watershed was general. This was particularly true of the ambulatory patients, therefore making them an essential factor by materially and continuously adding to the already polluted water what could be considered specific typhoid excreta.

The scope of our investigation was again extended to the camp, and the connection between the creek water and the wash rooms and offices definitely proved. The pipes which carried the creek water extended entirely over the camp but were cut off completely from the kitchen. The cut-off here was made, November 9, the day the creek water was pumped in. This water, dirty in color and polluted as it evidently was and so proved, with an odor decidedly offensive and supposedly for stock only, was drunk or used in some manner by all the men ill with typhoid fever.

December 12, the superintendent was instructed to begin chlorinating the creek supply. This was only a temporary expedient, pending the development of additional springs about 1 mile distant. These springs would furnish a complete supply of safe water for all purposes. The means adopted for chlorination consisted of stirring daily a 1-pound can of chlorinated lime in the lower 10,000 gallon tank used for the storing of the creek water. This dose completely disinfected the water, even imparting a taste which would make it impossible for the men to take it into their mouths. That this disinfectant was efficient is shown in the results of the bacteriologic examination and by the onset chart (Fig. 1), only two persons coming down afterward, both at a time not inconsistent with the incubation period of typhoid fever, if one would consider the distinct positive history of their drinking

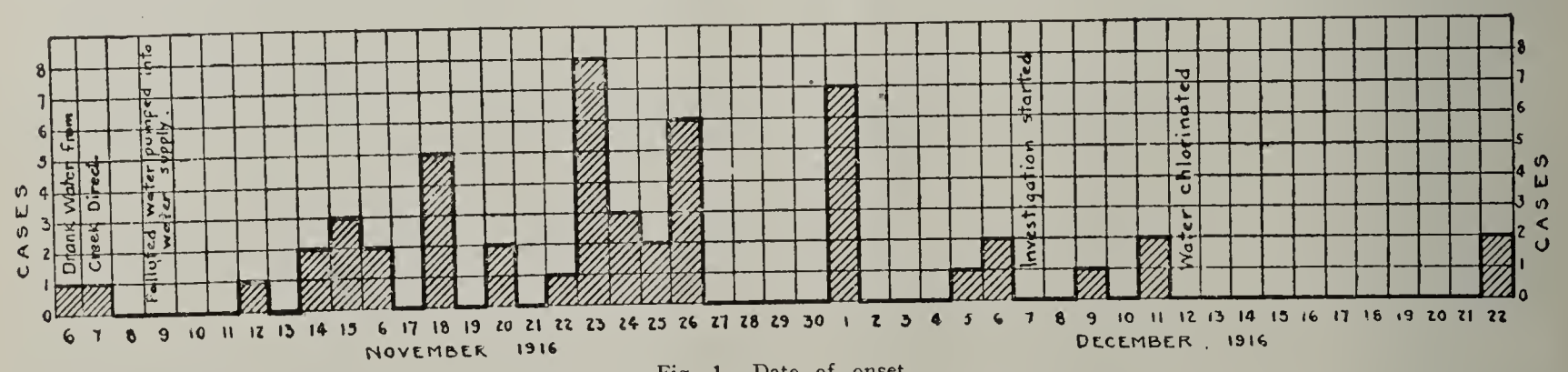


Fig. 1.—Date of onset.

the polluted water before chlorination. This completed the many links in the chain of positive evidence of the water being the causative factor.

It is of interest to note the rainfall, November 25 and 26, amounting to 0.66 inch. The relation of this rainfall to the sudden rise in the onset of cases, December 1, as shown by the onset chart, is worthy of the consideration of being extremely suggestive.

WATER SUPPLY

This was from several sources. Up to November 9, the water that was used in the camp was piped directly from a spring, situated about 1½ miles up an isolated canyon to the east of the camp, and hauled from two others, one above a ranch near the dam, and one about a mile further up stream. Both latter supplies were brought in water wagons to the men working on the dam and whenever necessary to the camp proper. All water wagons were provided with a spigot and common drinking cup. Field investigations and bacteriologic examination proved that these springs were safe from human pollution. The other supply was the San Pablo Creek. Water in the creek was not noticed in any appreciable quantities until October 15. Following considerable rains, November 4, and owing to shortage of the spring supply, connection was made by pump, November 9, with water in the creek, and this water pumped directly into some of the mains and into a wooden cistern situated on elevated ground for storage purposes. This water from San Pablo Creek was supposedly used only by stock.

Referring to Figure 3, which shows the arrangement of water pipes, it is noted that the dining rooms were supplied exclusively by spring water from the east spring. The fire hydrants were supplied directly from the "lower tank," filled from overflow from the "upper tank" or spring water and water pumped from San Pablo Creek. All the bunkhouse sheds were supplied from the same source. When the creek supply was turned into the system, the valve marked "A" was closed, thereby eliminating this supply from the dining room and kitchen.

BACTERIOLOGIC ANALYSIS OF WATER

Source	Gel. Count	Agar Count	B. Coli Index	Tur- bidity	Alka- linity	Chlo- rin	Hard- ness
Spring Supplies:							
1. Spring east of camp; 12/6/16	6,000	700	5	25	225	65	...
2. Spring up canyon; 12/6/16.	3,000	125	0 in 10 c.c.	5	215	42	...
3. Tap in dining room; 12/7/16	2,000	150	0 in 10 c.c.	10	245	63	...
4. Spring; 12/7/16	800	20	0 in 10 c.c.	0	245	40	...
5. Water wagon at camp; 12/7/16.	1,200	80	0 in 10 c.c.	0	225	36	...
San Pablo Creek Samples:							
6. Opposite camp; 12/12/16	25,000	4,000	10	0	...	..	...
7. Opposite camp; 12/16/16....	9,000	2,000	1	20	250	70	310
8. Opposite camp (chlorinated); 12/16/16	75	70	0 in 10 c.c.	40	250	76	310
9. Above tunnel; 12/16/16	15,000	2,500	100	250	250	76	310
10. Below dam; 12/16/16	5,000	150	1	3	245	70	310

RESULTS OF ANALYSES

Springs.—Samples 1 and 3 are from the east spring supply. This is the spring that supplies the dining room and kitchen. This spring is a box situated in the bottom of a small stream, a tributary of San Pablo Creek, and undoubtedly subject to a variable amount of pollution by cattle whenever the creek has a flood. Numerous cattle graze on the hills near and around the spring, but there appears to be no possible chance of human contamination of this water. Sample 4 is from the spring which was the original supply of the temporary camp. This water was transported in wagons to the workmen on the dam.

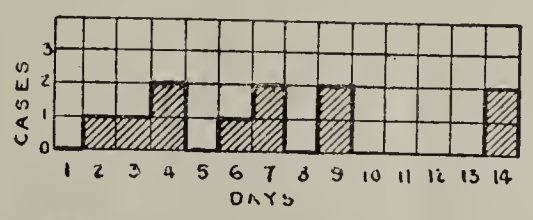


Fig. 2.—Known incubation period of eleven cases.

San Pablo Creek.—Samples 6, 7 and 8 are interesting to contrast. Samples 6 and 7 taken from the identical neighborhood and but four days apart show a marked variability of pollution, not easily explained. It must be remembered that Sample 6 was not tested in smaller dilutions than $\frac{1}{10}$ of a c.c., and from the gas production in the fermentation tubes undoubtedly pollution could have been demonstrated in much smaller amounts. This was the sample from which typhoid bacilli were isolated, the method of identification of the organism being described in full later.

The result of the analysis of Sample 9 is indicative of the effect of the brush gangs on the creek. A comparison of this with Sample 10 again affords one an interesting contrast. Between the two points of the watershed from which these samples were taken there are several pools in succession. In addition, the creek water passes through deposits of rock thrown across the stream. Naturally, there must be some sedimentation and clarification with a corresponding decrease in pollution. Whether or not this explanation applies to the differences demonstrated between Samples 6 and 7 can only be surmised. It is not unreasonable to assume that the improvement in the latter was due to the cessation of the careless committing of nuisances on the watershed through the community publicity of our investigation and the resulting educational propaganda. On the other hand, this variability offers an explanation to the onset of the cases, as a large number may receive their infection on the days of greatest contamination.

Isolation of Typhoid Bacilli from Sample 6.—Following the completion of the epidemiologic data with their important history of the great pollution of the creek water drunk and the active presence of a large number of ambulatory cases with their excreta reaching the creek direct, an attempt was made to isolate typhoid bacilli from the creek water. Though for esthetic reasons called water, it would better have been designated a dilute sewage, with a high turbidity and a decidedly offensive odor.

Direct plating in 1 c.c. amounts was made on litmus lactose agar. Following an incubation of the plates at 37 C. for forty-eight hours, many suspicious colonies were transplanted on Russell's double sugar mediums, three of which gave typical reactions of typhoid. These morphologically, culturally and serologically proved to be the typhoid bacillus. The first generation of the isolated organism agglutinated known typhoid polyvalent serum as high as 1 : 160. Its agglutinating power on the fourth generation was increased to 1 : 1,280, macroscopically.

CLINICAL AND LABORATORY DATA

The average percentage of the men employed who obtained the contaminated water supply and developed typhoid was probably 20.

In two of the patients, the date of onset is given before the polluted water was pumped in. Both of these gave a history of obtaining water from the creek direct, one in particular having preferred this water to any other. The date of onset of the first case was November 6 and the last, December 22.

The largest number reported in any one day occurred November 23, two weeks after the infected water reached the faucets in the wash rooms. The first symptoms noted were diarrhea and extreme headache. In 98 per cent. of the cases in this epidemic, diarrhea was the most pronounced symptom. As a primary symptom this is far in excess to what is usually reported. If one should consider its active presence as an indication of extensive intestinal lesions with all their accumulated dangers, then the absence of any fatalities is the more remarkable. It has not been infrequently noted that the drinking of polluted water would cause diarrhea, but usually such cases, as demonstrated in this epidemic, are only forerunner tidings of a major disease.

An effort was made to obtain, whenever possible, accurate information as to when the infection was received. In only eleven cases were we able to ascertain to any degree of certainty the probable incubation periods. These are given by chart. It is particularly interesting to note the short incubation periods in four of the cases in this epidemic. One patient, an alcoholic, began work on the dam just after a debauch of some days' duration. This man, in camp only two days, had an overwhelming thirst, and definite symptoms of typhoid were noticed on the third day of his stay. From this one case alone, one could easily argue that the incubation period of typhoid fever is variable

to an unknown degree, possibly depending on the dose of the infection received and the resistance of the patient.

There occurred twelve relapses in the cases under observation, thus giving a percentage of 20.7 when based on the total number of cases. This percentage is rather high, and is probably due to the large number of ambulatory cases and dependent on them. There has been only one patient reported as having more than one relapse. Two patients gave a history of previous typhoid, but none gave a history of previous vaccination against typhoid. The age distribution was over a rather large adult area, the youngest being 19 and the oldest 56. All the patients were male.

In one case pericarditis as a cardiac complication was noted. This is a rare complication of typhoid, followed by marked and extended weakness and extreme nervousness.

There are histories of only two possible contact cases, but as both received the infected water it is more likely to consider this as the direct cause. If one considers the large number of ambulatory patients the immediate cause of many of the cases, then the majority of persons ill with typhoid fever in this epidemic are contact cases, practically in the true sense of the word.

Widal tests were made in forty-five of the cases, both microscopically and macroscopically; thirty-three of these were positive. Of the remaining, twelve in all, six were suggestive and six were negative. It is of extraordinary interest to note that from one of the patients from whom we obtained a suggestive Widal,

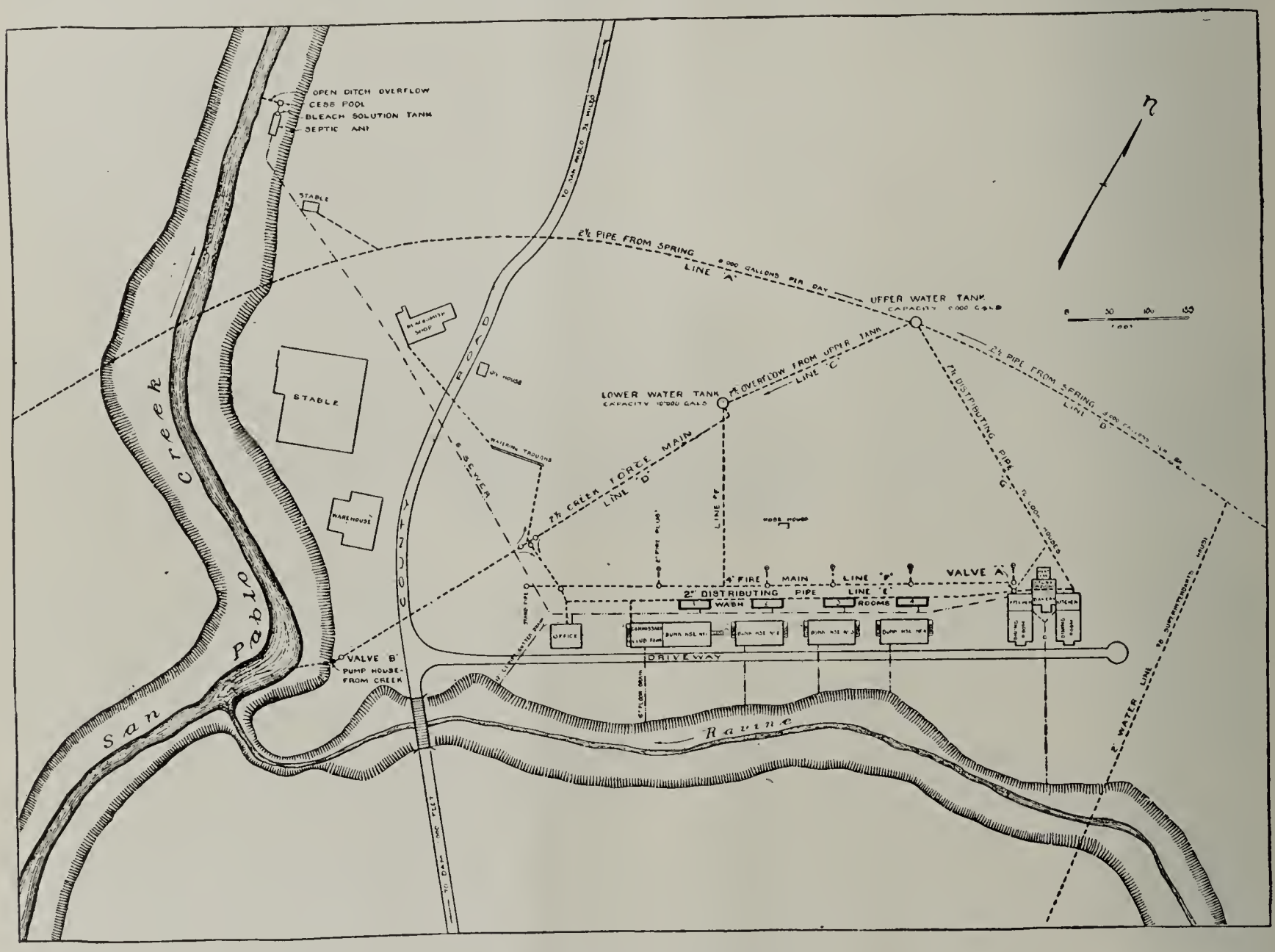


Fig. 3.—Arrangement of water pipes.

particularly in the aged, and was most serious in this instance because of its association with an active bronchopneumonia. Hemorrhage from the bowels occurred in three of the cases in this series. In three, bronchopneumonia complicated the disease. In one case abdominal pain and tenderness was severe. A rather unusual complication was incontinence of urine and feces, which was noted in four cases. Neuritis was general, the usual site being the face and legs. Pain was particularly noticed in many of the cases over and in the neighborhood of the spleen. Of curious interest was one case of "tender toes" as first described by Hanford. This patient complained bitterly of the extreme pain. Convalescence in most of the cases was

we were able to isolate typhoid bacilli from the feces. Again, from the feces of a patient from whom we obtained a negative Widal we were able to isolate typhoid bacilli.

Out of four specimens of urine which were examined, typhoid bacilli were isolated from two. This would suggest that the typhoid bacillus is given off more frequently in the urine than is popularly supposed. Out of twenty-nine specimens of feces examined, eight gave positive results. This would seem to add emphasis to the importance of examining specimens of urine along with those of feces. Blood cultures were obtained from twenty-six patients, ten of which were positive.

From a comparative study of the number of positive blood cultures obtained and the number of positive Widal tests, one cannot help but appreciate the diagnostic value of the Widal test, even though, as shown in this epidemic, we may obtain reactions not consistent with the clinical findings.

[ADDENDUM.—Two claims of persons who contracted typhoid fever in this epidemic were brought before the Industrial Accident Commission of California. Following is a copy of the decision and a later memorandum on these cases.]

BEFORE THE INDUSTRIAL ACCIDENT COMMISSION OF THE STATE OF CALIFORNIA, CLAIM NO. 2482

Clara B. Collins, Applicant, vs. Oakdale Irrigation District and State Compensation Insurance Fund, Defendants.

Contentions made in applicant's petition for rehearing appear to indicate that applicant's counsel could not have understood the reason for the Commission's decision to deny a death benefit. The facts in this case are briefly that A. F. Collins, the husband of the applicant, was employed by the Oakdale Irrigation District to operate a stationary engine which lifted sand from the Stanislaus River to the banks of the river. From October 18 to November 1 the construction camp where he was employed was located at "Two Mile Bar." On November 18 he sustained a slight accident which would probably not, by itself, have disabled him from working for more than the two weeks' waiting period described by the Compensation Act. On November 20 he left his work suffering from typhoid fever and died from typhoid on Dec. 5, 1915.

The question upon which the case turned was whether or not the death from typhoid could be attributed to the employment. Applicant's counsel attempted to show that the typhoid was caused by drinking impure water, there being no pure water available at the construction camp. It is our opinion that the applicant has not sufficiently established the fact that the typhoid was contracted from this cause. The fact that no other workman, in construction camp, had contracted typhoid within the last five years, taken in connection with the further fact that no analysis was made of the water and no evidence was produced to show that the water contained any typhoid germs, is sufficient, in our opinion, to destroy any connecting link between the conditions attending the place of employment and the typhoid. While the applicant's contention is possibly true, this Commission cannot require employers to pay death benefits upon mere conjecture or surmise, however reasonable, where such conjecture does not amount to satisfactory proof.

Typhoid can be contracted in other ways than by drinking impure water. Contaminated food, such as milk, oysters or green vegetables, may be responsible. Flies carry the disease to human beings. The average period of incubation is from eight to fourteen days. This strengthens our contention that there was no connection between the slight accident sustained by Mr. Collins and the development of typhoid.

The decision in this case should not be taken as holding that typhoid fever contracted by drinking polluted water furnished at the place of employment may not be an injury or occupational disease and compensable under the Workmen's Compensation, Insurance and Safety Act. The decision upon this point is reserved until some case arises in which the connection between the employment and the typhoid is more clearly established.

INDUSTRIAL ACCIDENT COMMISSION OF THE STATE OF CALIFORNIA,
A. J. PILLSBURY,
WILL J. FRENCH,
MEYER LISSNER.

H. L. WHITE.

MEMORANDUM

These cases of typhoid fever. In the case of *Collins vs. Oakdale Irrigation District No. 2482,* the question whether typhoid fever can be an industrial injury was left open, the evidence not being sufficient to connect the disease with the employment. In the cases now before us the evidence is sufficient and there could be very few cases where the origin of the disease could be proved more strongly than it is here. In a camp of some 300 men a large number (44 according to Mr. Ayer, 53, according to Dr. Geiger) were taken with the disease. This of itself would be almost enough to prove that the disease (in at least most of the cases) arose from the water or the food in the camp. But, in addition, typhoid germs were found in a test made a few days after the disease broke out in the water of San Pablo Creek at the point where the water was taken out of the creek and pumped into a tank, from which it was supplied to the bunk houses for use in the wash rooms of the men. There was also water conducted from a spring to another tank, and from there piped to the kitchen. The evidence shows that this water was not polluted, and the origin of the disease is sufficiently located in the water from the creek.

It was not intended that this creek water should be drunk, the spring water being intended for drinking, but no caution seems to have been given not to drink the creek water; besides, without doubt, the disease can be caused from washing in polluted water, cleaning the teeth with it, etc.

Accepting the fact as established that the typhoid fever arose from the water supplied to the men, the question is whether that disease is compensable. I believe that it is; having arisen from the water that the men had to use, I see no difference between it and a disease that arose from poisonous gases, smokes, etc., that men breathe during their work, or poisonous liquids or other substances that they handle. In this particular instance it was an occupational disease.

The only case that I have found in the books involving typhoid fever is *Vennes vs. New Delle Lumber Company* (a Wisconsin case), referred to on page 229 of Glass on "Workmen's Compensation Law," and given in full on page 273, where the supreme court held that disease to be within the compensation act. And this was a decision against the position taken by the representative of the deceased employee, who was attempting to sue in the courts for damages for negligence, the supreme court holding that it was a compensation case and that the court had no jurisdiction.

Following that case, applicants are entitled to awards, and they are prepared accordingly.

REFEREE.

DIABETES MELLITUS

BROADER ASPECTS OF TREATMENT AND RESULTS *

H. P. GREELEY, M.D.
WAUKESHA, WIS.

The dietetic or fasting treatment of diabetes has been so universally successful in quickly ridding patients of their sugar and acidosis that I have come to regard as more important ultimately the subsequent education of the patient in the ways and means of keeping sugar free. Success here largely depends on the educability and the personal equation of the patient and on the ability and enthusiasm of the physician. It should be judged largely by its successes and not by its unavoidable failures.

METHODS OF TREATMENT

Among the different methods of treatment, by far the most important, in view of the number of patients it reaches, is the treatment in office and home by the general practitioner. This method furnishes a closer and more individualized means of treatment than any of the others, and when it is combined with the services of an expert nurse-dietitian, is perhaps the best in that class of patients on whose general health and strength little inroad has been made, and when it is not considered advisable or possible to interrupt the activities of the patient. We see the failures. Patients have often been subjected to long periods of fasting. (I use the term "fasting" advisedly, for I heartily agree with Hodgson that "the starvation treatment," as it has come to be known, is not only an odious but also an incorrect phrasing of a therapeutic fast.) The fasting generally clears the patient of sugar, but because of the poor control exercised in the careful graduation of the diet, sugar returns almost at once, and both patient and physician become disgusted, and the weakened but little benefited unfortunate is nursed along until he is moribund, or sent at once to a specialist. The mushroom growth of the fasting method and its ready adoption by physicians and surgeons has done untold harm. For instance, a prominent surgeon has recently sent us a patient, treated by fasting plus whisky and large quantities of olive oil. Needless to say, this patient was on the verge of coma.

The class method of treatment is admirably adapted to the outdoor departments of general hospitals, in which difficult cases can be first treated indoors, and by cooperation of social service workers successfully transferred to the outdoor departments. Of course this is not applicable to private patients in general hospitals, and the same disadvantage of too little laboratory experience in the preparation and serving of food holds as in the former method. The general hospitals of today furnish the best means of treating and study-

* Read before San Francisco County Medical Society, April 19, 1917.

ing the disease, but furnish the least amount of education to the patient. If a stay in the hospital does not precede the treatment in the outdoor department, the difficulties are greatly increased, as it then provides no means of adequately studying cases, and makes the preliminary treatment of getting the patient sugar free doubly hard. The grouping together in classes introduces a valuable element of friendly competition, economizes the physician's time, and can be developed to a high degree of efficiency.

The private hospital devoted exclusively to diabetes allows of the most perfect control of the patient and his diet. It gives every opportunity for didactic instruction and the person practically lives in a laboratory, so that the knowledge he gains is "set in the sharp mordant of experience." The disadvantages of the private institution to the patient are the upsetting of his normal activities and the removal from home environment and consequent focusing of attention on himself. This is often a benefit rather than a disadvantage, however, and one which we always try to make a benefit by allowing members of the family to come and be with the patient throughout his treatment. His future compliance with instructions is then strengthened by the certain cooperation of another person at all times. A complete change of environment is the best way of throwing overboard a lot of bad habits and starting out anew. The grouping together of patients with the same sickness gives great courage and strength to the weak and hesitating, and often has been the deciding factor in furnishing them the necessary strength and faith to persevere.

Aside from the strictly scientific guidance of these patients in laboratory and diet kitchen, the ideal treatment begins with a thorough examination into the home environment, the temperament, the habits of work and of relaxation, and the ambitions of each patient. This should be followed by an explanation of the methods employed to make him better, and the necessity of his complete cooperation and enthusiasm. It should then be pointed out that the treatment of this disease offers more hope and better chances of complete relief of all symptoms than any other chronic disease of equal severity. In treating the person, we must take into consideration the want of balance in his work and environment, as we do the lack of balance in his diet when treating his disease.

THE VALUE OF EXERCISE

Modern life, especially modern business, is full of disharmonies. The lack of compensatory bodily activity and the excess of emotional and mental strain, especially when combined with overeating, are potent factors in the causation of diabetes and other degenerative diseases, and must be balanced with as much care and thought as the diet.

Exercise, therefore, now ranks in importance in the treatment of diabetes with regulation of the diet. Exercise directly after meals is often more beneficial than before meals. It stimulates digestion and burns up the accumulated reserve of energy before it reaches the "overflow" stage. All have seen the occurrence of sugar on rising in the morning when it was the only appearance of sugar during the twenty-four hours. Unquestionably this may be due to a too hearty supper and to a too great accumulation of blood sugar during the sleeping hours, when little combustion is taking place. The substitution of a light supper or a vigorous walk after supper will often correct this disturbance.

Not only must the amount and time of exercise be prescribed, but the exact extent and kind of intellectual work as well is a matter of great concern. In young persons, especially those of nervous temperament, it is useless to advise a career. Generally speaking, they are best fitted for subordinate positions of little responsibility or positions in which they can keep their own hours. Much has been proved about the increased efficiency of workmen under an eight hour day. Their labor is generally mechanical. How much more necessary is it, then, that the brain worker should conform to the same standards and avoid the almost certain premature loss of strength and vigor which is an ever increasing sight in our offices.

There is nothing which appeals to me as being quite so foolish as the oft made remark that "I would rather die in the harness than rust out," as if this expressed the only possible alternatives. If rusting out means anything, it means trying to work on with a handicap of one of the degenerative diseases, arteriosclerosis, cardiorenal disease, diabetes or a nervous breakdown. If dying in the harness means anything, it means working at optimum efficiency till one's work is done, and being able to enjoy life while one lives. Nothing is more pitiful than to see one of these professional or business men, whose ambition was to die in the harness, suddenly stripped of his harness and facing enforced inactivity. He is like a high powered automobile without wheels, a boat without a rudder. He has made a success of his business and a failure of his life. It is necessary to consider work tolerance as well as food tolerance. Sundays and holidays are difficult days for the diabetic. The firmly rooted habit of big dinners and less exercise is one which requires emphasis. The habit of Sunday fasts or partial fasts may be substituted.

OTHER FACTORS

Most persons with diabetes are better in summer than in winter. Among the obvious reasons for this is the lack of exercise in winter, which would be partially compensated for by the increased demand for heat production if people were not chronically overclothed and did not live in overheated houses. Added to these are the heartier foods generally eaten in winter and the lack of fresh fruits and vegetables. The greater prevalence of infections in the winter months is also a cause of disaster to the diabetic. Among our cases, infections were the more frequent cause of the return of sugar that could not be eliminated by the patient, and of death among the children. Practically all of our children who died were well up to within a few days of their death (from three to seven days), showing that the diabetic condition was suddenly influenced by an outside agent. All our patients are instructed with great care as to the necessity and means of avoiding infections — the use of cold water on the face and neck of children, the avoidance of too much clothing, especially around the neck, the necessity of not catching "hot" instead of "cold," going to bed if a slight "cold" develops, and taking a partial fast *before* sugar appears. We have had two children go through the measles with only transitory return of sugar.

Some seem to have the idea that whisky and coffee cure diabetes. Several of our old patients (three in the last three weeks) have written that friends of theirs were advised by their physicians to take whisky

and coffee as a cure for diabetes. The craving for food, which is one of the prominent symptoms of the uncontrolled case of diabetes, is a real thing with many persons in whom the habit of gratifying their desires is stronger than the habit of temperance. It is no great step to transfer that craving to whisky or brandy, and so we have come to discard their use almost entirely except in selected cases, especially in view of the fact of the increased liability to infections even in temperate users. Few if any patients require their use. With the increased hope of life of diabetics under modern methods of education and control, our attitude towards the use of saccharin may also have to be modified. Three grains a day for from five to ten years may not be so harmless a procedure as is now believed. The cultivation of the liking for unsweetened food is important, and ought to be begun in the cradle, where habits are easily formed which are difficult to break in later life. A sweet tooth is a habit, not an inheritance, and may become "sweet poison for the tooth of age."

The bread situation still remains the most difficult one to solve. All the most palatable substitutes are too rich in protein. The use of bran in combination furnishes the best substitute today. The almost universal desire some day again to eat wheat bread is what stands between many a diabetic and permanent relief. A hard and fast rule should be laid down on discharge. The patient should give up the idea of bread altogether for a definite period, from six months to a year, and not think of it meanwhile. When the time comes we can take account of stock and make an experiment if advisable. We must also strictly observe the rule that no person's diet should contain more than 80 per cent. of his maximum tolerance of carbohydrates. This gives a safe margin in case of accidents. If a person's tolerance is under 50 gm., he is better off without wheat bread in any amount or form.

Too great value cannot be placed on the actual experience gained by patients who spend from three to four weeks in an institution. Three times a day they go to the table and see the kind of food, the quantity and the method of preparation. They observe the changes that take place in relation to the changes in their urinary examination, of which they are kept informed. They generally learn how to eliminate sugar on its reappearance, and how gradually to increase the diet afterward. They are given food tables containing information in regard to food values, a booklet of cooking instructions, and instruction in testing the urine, in which they also have practical experience. The thorough explanation and demonstration of how to control their own sickness gives a confidence that surpasses any method in which a patient is dependent on a physician.

PITFALLS FOR THE GENERAL PRACTITIONER

What are some of the common pitfalls into which the general practitioner runs? One is the still enormous use of gluten flours, for which the profession certainly bears an equal responsibility with advertising agencies. A large proportion of our patients have used or are using gluten flour. It is almost incredible that any body of professional men, who are rated as above the average in intelligence and to whom knowledge in these matters has been so thoroughly presented for twenty years in the medical press, can still be prescribing such a fraud as the commonly marketed gluten flours containing about 40 per cent. starch. Almost equally incredible is the fact that physicians place no limit on the quantities of food allowed a patient. The patients are almost universally permitted to partake as freely as they wish of all but forbidden foods. The evolution of the treatment of diabetes has shown three distinct stages. These physicians are still in the first stage — simple carbohydrate restriction. The second stage is the restriction of protein, first insisted on by Naunyn. The present stage is the balanced diet with total calories calculated on the basic needs of the patient according to his age, his size and his work, in which no food element, not even fat, is allowed ad libitum.

Physicians have been slow in arriving at this stage in the evolution of treatment. I am convinced that one reason for this is that old fetish, the patient's weight. Many persons have a false idea that what the patients eat makes them fat or thin, though of course it is not what or how much they eat, but what they assimilate. So physicians urge patients to eat to keep up their strength and weight. Loss of weight is looked on as the *bête noire* of treatment. The whole subject of weight needs careful study. When we consider that the majority of people with diabetes are or have been greatly overweight, and that this is an important factor in the causation of diabetes, loss of weight takes on a different aspect. To these persons, loss of weight is nature's crude method of attempting relief. A weakened pancreatic function can metabolize for 150 pounds, when it is entirely inadequate to the task if the person weighs 250 pounds. If 150 pounds represents the average weight, a further loss of weight to 140 or 135 pounds should cause no great concern, since statistics show that those people who are from 10 to 15 per cent. under the average are the healthiest and longest lived; and why not have a diabetic attain this optimum? Because of loss of strength, you say? Does an athlete lose strength when he trains down ten or fifteen pounds? No. It is not loss of weight that produces loss of strength, it is disease and the failure to control it. The permanent loss of strength seen in the controlled case of diabetes is due, not to loss of weight, but to lack of training. Instead of hugging a radiator, patients should exercise to get warm. Strength comes only in using it, not in sitting and waiting for it. No greater harm can be done many patients than that which results from the false idea that they must eat and eat to maintain their weight and strength. Not only is it harmful, but of course fundamentally wrong. Weight is generally weakness. Unless a patient's weight is more than 15 per cent. under the average, no steps need be taken to increase it. Never should rapid gain in weight be sought any more than rapid reduction in obese states.

Another matter that needs classifying in our advice to patients is the question of pregnancy. With improved technic in the management of diabetes and of pregnancy has come greater and greater success in childbirth in diabetic women. Joslin is optimistic, and considers recent success such that "diabetic women will be less likely to avoid pregnancy in future." It seems to me there is another horn to this dilemma, namely, the rôle that heredity plays in diabetes. In our last 550 cases, eighty-eight showed the influence of heredity, one sixth, in contrast to Joslin's statistics of one twentieth. When we consider this, we must conclude that diabetic women should not bear children, nor should diabetic fathers beget them. Marriage

should also be advised against unless there is no probability of offspring. Childbearing and marriage are compatible with "health" and safety in diabetes, but cannot be condoned by eugenists.

In our series of 501 cases, it took an average of 2.84 days to free the patient of sugar. To those who treated the disease before fasting methods were generally employed, this is certainly an improvement. Each patient is treated individually and not subjected to an inviolable routine. Practically every patient receives a preliminary diet consisting largely of protein and carbohydrate, both in small quantities, and largely made up of vegetables with small portions of bread and skim milk. Fasting is then instituted if necessary. Most mild cases clear up quickly without it.

More favorable results are obtained when the disease is of less than a year's standing. Here it took 2.57 days to eliminate sugar. In those who had had the disease over a year, the time was 3.11 days. Children under 12 years of age cleared up in an average of 2.1 days, as compared with 2.7 days in older persons. Previous treatment is generally a handicap to speedy elimination. Many are brought to the verge of coma by their exclusive fat-protein diets given in unlimited quantities. It took 3.5 days to clear these patients, compared with 1.9 days in those who had had no previous treatment. Acidosis was practically limited to the treated patients.

The duration of hospital care has a direct bearing on the success of treatment. The average length of stay was three and a half weeks. The average period of time that patients remained free of sugar after a stay of less than two weeks was four and a half months among the 30 per cent. who reported. When the stay was between three and five weeks, 63 per cent. of the 75 per cent. who reported were still free at the time of their last report, which makes a period of between six and twenty-four months. Patients received in the last six months are not included. Only 12 per cent. of those reporting who were conscientious and cooperative in this group had any but a transitory return of sugar.

The necessity for a more or less prolonged period of care and observation, as seen in these statistics, is in sharp contrast to the dictum of a well known professor of medicine who, after six months of experience with the Allen treatment, allows two days to get the patient sugar free, two days to establish the power of carbohydrate utilization, and two days for education, remarking that "after six days of hospital care such patients are ready to go out." What success would a recent graduate have, who left the school or hospital with this idea of the treatment of diabetes? The present lack of the human touch in medicine is appalling! Teachers with broad human sympathies do more for the practice of medicine by their radiating personalities than a thousand near-scientists and medical dilettantes, whose idea of medicine is a sporting proposition, a hunt for signs and symptoms; if successful they bag their quarry (the diagnosis) and return pleased and satisfied. If their quarry is a *rara avis* they become metaphorical taxidermists and rush it into print.

CLASSIFICATION OF DIABETICS ACCORDING TO INTELLIGENCE

It takes at least three to five weeks and not six days to reform an adult and change his habits of a life time, and educate him in the proper care and readjustment of his life. Even this length of time furnishes inadequate experience for those who belong to Classes 3 and 4 as I have divided them. Class 1 comprises persons of some intellectuality; Class 2, the intelligent, faithful and methodical; Class 3 those of poor grade school education without further ambitions in education, and Class 4 the utterly uneducated and inapt.

In Class 1 there are 145 patients; thirty-eight never reported after leaving; 78 per cent. of those reporting were well at last report in periods varying from two years to six months. The average length of time that these patients have been free from sugar is ten months. There have been eleven deaths in this group. The low percentage which reported does not seem consistent with the intelligence of this group, but this is due in great part to their feeling of independence. At least that is the reason given by those who have written or returned for treatment in the past.

In Class 2 there are eighty-seven patients. All but six reported with a considerable degree of regularity. Of the 93 per cent. of those who have reported, the average period of remaining sugar free figures out to be eight months. A large percentage were still well at their last report. This survey can, of course, give only intermediary results. End-results after two years' observation are impossible. There were six deaths.

In Class 3 there are a total of sixty-four patients. Seventy per cent. of the total reported with some regularity. The average time of remaining free from sugar was three and a half months. There are three known deaths in this group.

In Class 4 there are forty-two patients. Seventy per cent. reported, but only for short periods. The average period of remaining free from sugar is one and a half months. Three deaths have been reported.

These figures speak for themselves. It is not from want of consultation and labor that Class 3 and Class 4 patients do not remain free. They are labored with often more than the intelligent ones, for obvious reasons.

DIABETES IN CHILDREN

The subject of diabetes in children is of ever increasing interest, for it is here that physicians are watching with greatest interest the test of the newer methods. The question of ultimate recovery is still an open one. The chief concern is not whether we can keep children free from sugar but whether we can keep them free from infections. The permanent value of being able to bring up children in isolated cases by having them live unnatural lives in institutions is questionable. Such a child is merely a curiosity, without real virility. He is unnatural and unfit for existence, and will be till we have children's hospitals for diabetics only, with schools and every kind of accessory combined. Then we can perhaps bring up a child instead of a "case of diabetes."

I believe[1] that most children with diabetes are born with a permanently weakened pancreatic function, and that though this function is capable of a certain amount of regeneration, the time will almost certainly come in that child's life when the pancreatic capacity is insufficient. This seldom actually occurs, as infections take the life of the child prematurely. Children always respond so well that we become enthusiastic and are constantly expecting to discover a cured case, only to have our hopes dashed to the

1. Greeley, H. P.: Speculations Regarding the Pancreas and Metabolism in Diabetes, Boston Med. and Surg. Jour., 1916, **175**, 753.

ground by an acute infection. We have one boy, aged 3½ years, still under observation, who has never had a return of sugar since he left, eleven and a half months ago.

In our series, nine deaths occurred at the hospital and thirty-one after the patients had left, a total of forty. Of the nine hospital deaths (2 per cent. of the admissions), death was unavoidable in all but two. The causes were:

Deep phlegmon of the neck and mediastinum.
Miliary tuberculosis in a child, aged 9 years.
Gangrene of both extremities with infection.
Advanced pulmonary tuberculosis.
Pregnancy, coma, a dead fetus.
Acute melancholia following wife's suicide; patient died sugar free on liberal diet; no necropsy was held.
Coma in elderly woman with 45 per cent. loss of weight.
Melancholia, nervous prostration, loss of 70 pounds, coma.
Total loss of pancreatic function, in man, aged 35; he was repeatedly sugar free on fasting, but did not remain so on the slightest feeding; he died with acidosis but no coma; no necropsy was held.

Of the thirty-one deaths outside:

Six patients were children who died in coma but who were free from sugar till within from three to six days of death.
Four had cancer.
Six had chronic tuberculosis.
Three had pneumonia.
Three had gangrene.
One had acute intestinal obstruction.
One had myocarditis (free from sugar).
One had sunstroke (free from sugar).
One had appendicitis.
One had carbuncle.
The cause of death in four is not known.

In 60 per cent. of these deaths the complications were more deadly than the diabetes.

CONCLUSION

We may say that the revolutionary advance in the treatment of diabetes has consisted mainly in the establishment of a new era in which hope replaces despair, healthy activity replaces enforced idleness, well being replaces invalidism and self-reliance and knowledge replace dependence and ignorance.

It is now possible by systematic education to give a diabetic person sufficient knowledge to enable him to live in a state of comparative health and activity closely bordering on the normal. His greatest asset and his greatest handicap is his own mental accouterment. As we are accustomed to say that a man is as old as his arteries, so we might say that a diabetic is as well as he is well informed.

Educational Methods and Dependency.—The community that would neglect completely its water supply, but would equip modern hospitals for the care of its typhoid patients, would show little judgment; but the community that would devote most of its philanthropic interest to the management of the endproducts of dependency—the jails, reformatories, almshouses, foundling asylums—while neglecting the efficiency of its school systems, would be no more intelligent.—C. Macfie Campbell, M.D., *Mental Hygiene*, April, 1917.

WOUNDS OF THE BUTTOCKS IN WAR

GEORGE G. DAVIS, M.D.
Fellow of the American College of Surgeons; Honorary Lieutenant-Colonel, Royal Army Medical Corps, with the British Expeditionary Force in France
CHICAGO

The question of buttock wounds in modern warfare is a subject that is deserving of special attention on account of their frequency, the high mortality, the variety of injuries and complications, and the demand for special and urgent surgical procedures to meet conditions rarely encountered in civil surgery.

These wounds may be inflicted by rifle fire, machine gun bullets, hand grenades, trench mortars, shrapnel, etc., but by far the most frequent etiologic factor is the high explosive shell particles from bombs. Why, one may ask, are buttock wounds frequent? The answer is definite. It is a custom now in the war zone for soldiers to throw themselves prone on the ground when a shell is coming, or when an aeroplane approaches and surprises them in the open. The reason for this is that as the shells strike they burst by contact into a number of pieces, varying from thirty to 300. These pieces scatter in every direction and take an upward and outward course, so that a man in a standing position necessarily runs a greater chance of injury than a man lying on his face. Furthermore, shells breaking in the trenches with the men in a standing position necessarily inflict frequent injuries to the buttocks.



Fig. 1.—Deep, punctured shrapnel wound of the left buttock involving the sacrum. Tetanus developed as a complication and caused death.

The mortality of buttock wounds in a base hospital is high, not alone from the wound itself but also from the complications which follow these injuries. When the same force is applied to the head, neck, abdomen or other vulnerable structures, the damage is such that the wounded soldier is not even brought to the dressing station, but is left dead on the field. In severe buttock wounds, however, no vital structure is involved, and the patient is not immediately killed but is brought to the base hospital as a severely wounded patient.

It has been my experience during a year's service, in which time we handled between 15,000 and 20,000 wounded, that in the severely lacerated wounds of the buttock involving the rectum, the mortality is quite as high as in patients with gunshot wound of the brain reaching a base hospital.

The various injuries and complications of wounds of the buttocks that frequently prove fatal may well be considered under three headings: tetanus infection, gas bacillus infection, and extensive lacerated wounds involving the rectum, or near the rectum, and deeply situated.

TETANUS INFECTION

There are few tetanus cases among the British wounded. This is due to the fact that as soon as a soldier is injured he receives a prophylactic dose of 500 units of antitetanic serum. Out of 15,000 sick

and wounded, we had but ten cases of tetanus. Of these ten patients, eight had not had the prophylactic dose and two had. The two who developed tetanus in spite of the prophylactic dose were both wounded in the buttock. In a third buttock case, in Dr. Speed's service, tetanus developed later, and I am unable to



Fig. 2.—Roentgenogram in the case illustrated in Figure 1, showing shell fragment, which was located on the anterior surface of the sacrum. The entrance wound was through the buttock.

say whether or not this patient had had a prophylactic dose.

The first two patients with buttock injuries who developed tetanus although they had received antitetanic serum died. These patients had punctured wounds in the sacral region, with the missile deeply buried in the region of the anterior surface of the sacrum. The third case of tetanus complicating buttock injuries was in an extensive wound of the buttock, offering a large exposed surface for infection. We find tetanus, therefore, as a complication of buttock wounds in both varieties of wounds, the punctured and the open. The great probability of these patients infecting themselves from their own feces must be considered.

In 1890, Somani found tetanus bacilli in the fresh stools of different animals. Noble found tetanus organisms in eleven out of sixty-one horses examined. Pizzini found that about 5 per cent. of human beings showed tetanus bacilli in the stools. Breton and Petit, from their work, concluded that the toxin of tetanus organisms in the intestinal tract was either destroyed or was incapable of traversing the intestinal mucosa. Matas, in 1909, noted that a large majority of the reported postoperative tetanus cases in the preaseptic and early aseptic eras were connected with operations on the female pelvis, and he calls attention to the tetanus in operations in sterile tissue in which postoperative asepsis cannot be assured on account of fecal discharge contamination, which may cause tetanus. This contamination may result in operations on the genito-urinary organs, or operations in the anorectal and coccygeal regions, and on the inner surfaces of the thighs of both legs. Wilms collected reports of ten cases after hemorrhoidectomy. Horses have developed tetanus after castration. Atkinson, in 1915, reported a case of postoperative tetanus following removal of hemorrhoids, and found six other cases reported by Matas, Shaw, Wood, Souchon, Gerrish and de Nancrede. Jacobson and Wadsworth also reported cases. Speed[1] reviewed the literature of postoperative tetanus, and reported six cases at the County Hospital, Chicago. His cases resulted from operations for abdominal hysterectomy for fibroids, inguinal hernia, cholecystectomy, cholecystenterostomy, bilateral inguinal hernia and left inguinal hernia. From this review of the literature, we see the importance of the consideration of the possibility of tetanus as a result of the contamination of buttock wounds by fecal discharge. This subject will be taken up again when the surgical treatment of these buttock wounds is considered.

GAS BACILLUS INFECTION

The gas bacillus infection of wounds of the buttock is a complication as serious as it is common in war. This infection is introduced at the time the injury is inflicted, and the organisms are carried in with particles of clothing, especially when the injury is by shell fragments, which are irregular in outline and tend to carry ragged portions of clothing with them. The rifle and machine gun missiles are less apt to carry in the clothing, and hence gas bacillus gangrene is less frequently experienced as a complication.

One night our pathologist, Dr. J. S. Archibald of St. Louis, made cultures from the uniforms of thirty soldiers as they were brought from the trenches during the Battle of Loos. Of thirty cultures made, twenty-three showed gas bacillus organisms.

The mortality of gas bacillus wounds of the buttocks is higher than that of the extremities, as in the latter case amputation may be resorted to, but in the buttock wounds less radical procedures must be employed.

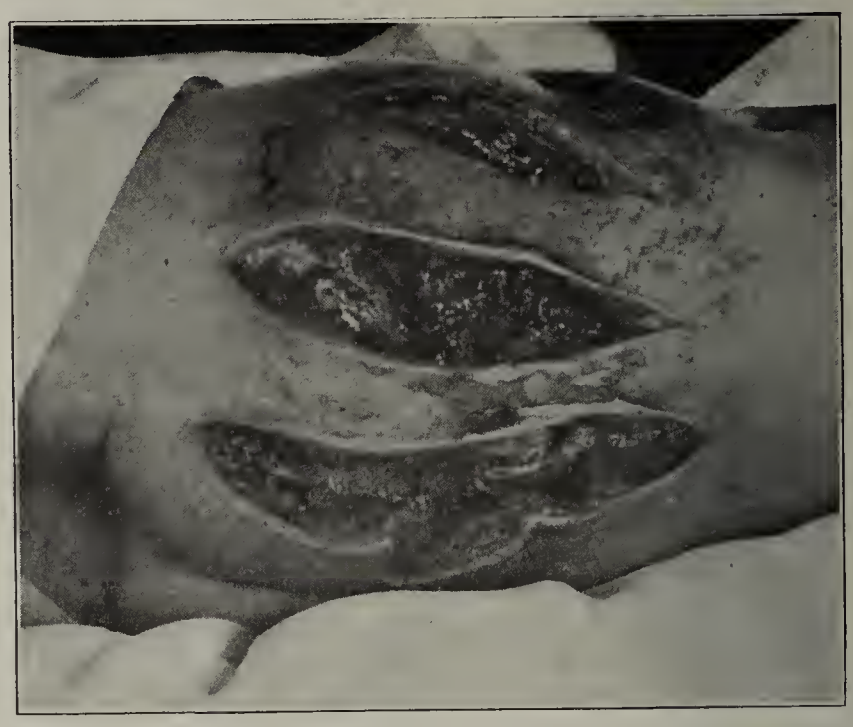


Fig. 3.—Wound of left buttock with gas bacillus infection as a complication. Note multiple longitudinal incisions. The patient recovered.

The gas bacillus infection of the buttocks may be primary or direct, that is, in the wounds of the buttock itself, as described above, or secondary or indirect. In the latter case the infection extends upward between the muscle planes from a gas bacillus infec-

1. Speed, Kellogg: Postoperative Tetanus, Surg., Gynec. and Obst., 1916, **22**, 443.

tion of the thigh. Again, inversely, the gas bacillus infection of the buttocks may extend along the muscle planes and cause an infection of the upper thigh.

EXTENSIVE LACERATED WOUNDS

The extensive lacerated wounds of the buttocks involving the rectum, or near the rectum, and deeply situated, are numerically by far the most important group of buttock wounds and deserve special notice. During an offensive movement, when a base hospital is handling 600 wounded a night and a casualty clearing hospital a multiple of that number, and all hospitals must be evacuated daily to keep the line of communication free, many instances of this type of injury are noted, and prove perplexing to the surgeon to handle.

From the time of injury until the patient has passed through the casualty clearing hospital and landed at a base, or sent to a general hospital, twelve, twenty-four, forty-eight, or even seventy-two hours or more have elapsed. During a greater part of this time the wound is bathed in feces, and certainly has been contaminated by the colon bacillus. On account



Fig. 4.—Type of buttock wound near anus which is easily infected by fecal discharges.

of the character of the injury, the patient is a difficult one to transport and care for properly. In dressing the wound, lifting the patient and turning him from side to side, the medical officer requires fully as much assistance as in handling a fractured femur. Moreover, during a rush period, after the medical officer has made his examination, it is only too often impossible for him to know every time the patient has a bowel movement, much less dress him, and hence the patient is turned over to the nurse or relegated to the tender mercies of an orderly. It really is not a suitable case for a woman nurse to care for, and a poorly trained orderly, though willing, is quite incapable of caring for the patient properly. The result is that this large wound becomes an infected area of great dimension, and the patient early succumbs to the absorption of the toxins of the colon bacillus and other pus-forming organisms.

Having lost a number of cases as described above and appreciating the high mortality in this type of wounds, I resorted to an early colostomy as a routine procedure, and there is no doubt that a number of patients were saved by so doing.

TREATMENT

The treatment of wounds of the buttocks may be considered under prophylaxis, diet and surgical procedure. There is no question of the excellent results of the prophylactic dose of 500 units of antitetanic serum employed in all cases of these wounds. That



Fig. 5.—Wound of right buttock inflicted by a trench mortar. The base of the bladder and the prostatic urethra were shot away. The rectum was not injured, but the fecal discharges infected the exposed raw surfaces. An inguinal colostomy was made and the patient recovered.

it is not a sufficient dose in all cases, as we have noted in our buttock wounds, is certain. Therefore, considering the possibility of a secondary tetanus infection from the patient's feces, it seems advisable to give a second prophylactic dose of 500 or 1,000 units of antitetanic serum when the patient with a buttock wound is admitted to the base hospital.

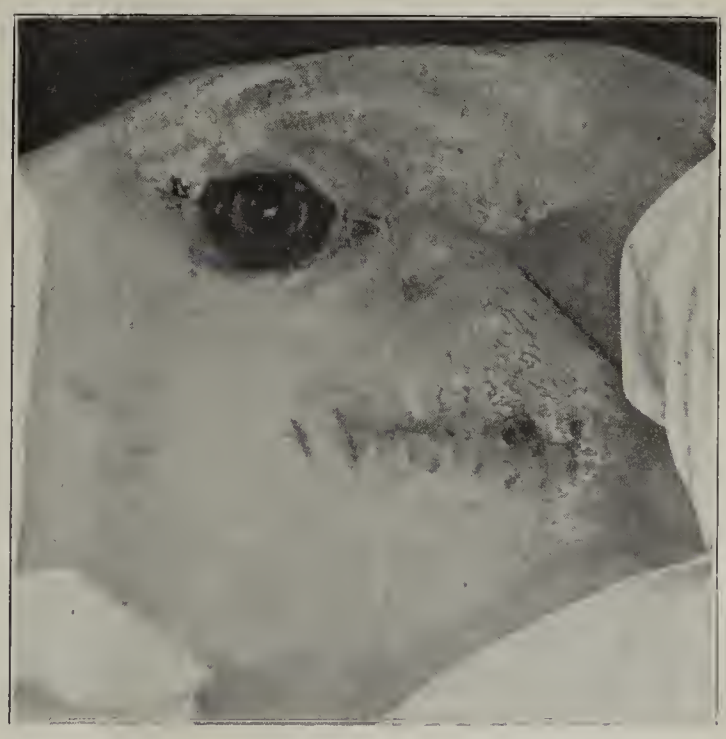


Fig. 6.—Same patient as in Figure 5; left inguinal colostomy.

The diet of these patients should be free of food that might be a tetanus organism carrier. The products which might harbor these organisms, as Matas pointed out, are raw vegetables, lettuce, celery, cabbage, watercress, radishes, tomatoes, etc., and raw fruits: strawberries, blackberries, etc. An early catharsis also should be established to eliminate any

products which may have been present before the routine diet is established.

Early surgical procedures in punctured wounds of the buttocks (Fig. 1), with the missile deeply situated, may often be the means of preventing a possible complication of tetanus and saving life. The important

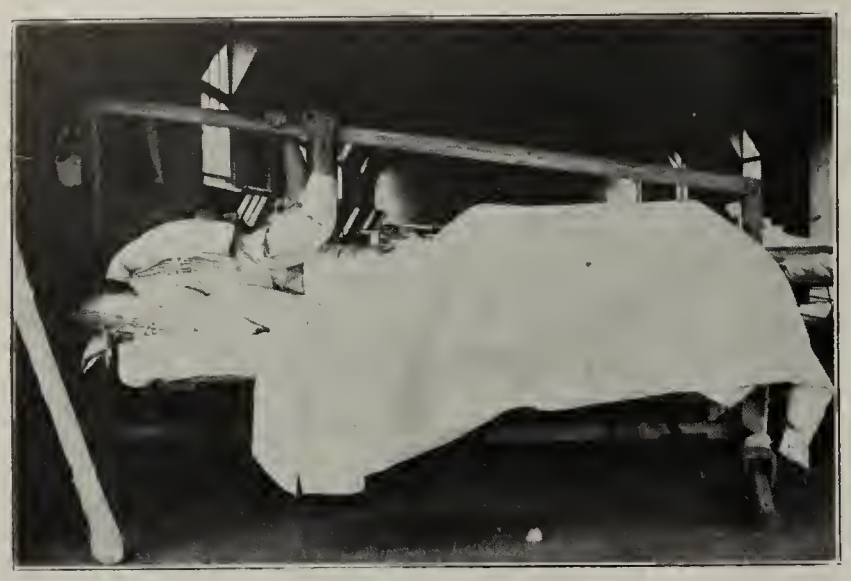


Fig. 7.—Balkan sling, consisting of two uprights, a base bar and a slanting bar. By using this the patient is able to lift himself above the bed, and dressings may be applied or the bedding changed. This device is also of great use in fractures of the femur.

factors here are to remove the missile and infected particles carried in with it, to free the area of pyogenic organisms which use up the oxygen, thereby making it unfavorable for the growth of the anaerobic tetanus bacillus, and lastly to convert the punctured wound to an open one by liberal incisions and gauze-pack drainage. As practically all these wounds are infected and should be treated as such, one should not wait for symptoms, but establish surgical measures as a routine procedure. As a successful lateral Roentgen-ray view of the missile in this region is next to impossible, and as the anteroposterior view locates the missile only in an upward and downward and lateral direction and does not show the depth of it, Roentgen localization of the bullet by one of the various methods is imperative for a skilful removal of the foreign body (Fig. 2).

As a preventive measure against the gas bacillus infection of the buttocks, the foregoing surgical procedure should be adopted. When, however, the gas bacillus infection is really present, more radical steps are necessary. Multiple, long, deep, parallel incisions are made (Fig. 3). These may be united subcutaneously, and gauze drainage connecting the various incisions lifts the skin and fatty tissue from the underlying structures and keeps the edges of the incision apart and renders the field an aerobic rather than an anaerobic medium. Oxygen introduced into the tissues by means of a hollow needle connected to an oxygen tank by a rubber tubing is employed with great success. The Roentgen ray is of considerable assistance in diagnosing the presence of the gas infection and its extent, and will assist the surgeon in determining his surgical procedure.[2]

In the extensively lacerated and deeply situated buttock wounds, involving the rectum and near the rectum (Figs. 4 and 5), an early colostomy should be made. This operation I believe should be done early, preferably at the casualty clearing hospital, which would correspond to the field hospital in the United States Army, as these patients frequently enter the base hospital in a moribund condition. If the wound is near the rectum, but the rectum itself is not involved, a left inguinal colostomy may be made (Fig. 6). If, on the other hand, the rectum is severely injured, it is preferable to make the colostomy higher up—in the transverse colon in the left hypochondrium.

A convenient appliance for assisting in the care of these buttock patients is the so-called Balkan sling (Fig. 7). This was used extensively during the Balkan war, and is particularly valuable in a hospital in which there is a large amount of work and a scarcity of hands to do it. By using this sling, the patient is able to raise himself above the bed and the nurse or surgeon may apply the dressings with little or no assistance.

122 South Michigan Avenue.

2. Davis, G. G.: Roentgen-Ray Diagnosis of Gas and Pus Infections as Complications of Wounds with Deeply Buried Bullets or Shell Fragments, Surg., Gynec. and Obst., 1916, 22, 635.

Clinical Notes, Suggestions, and New Instruments

REPORT OF A CASE OF DIAPHRAGMATIC HERNIA*

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A girl, aged 12 years, had an attack of empyema on the left side two years before I saw her, at which time a large quantity of pus was evacuated. She recovered and was doing well until the early part of February, 1916, when she began to vomit, had epigastric pain with much nausea, and loss of weight. The vomitus was of a coffee ground character, and the stools showed a large amount of occult blood.



Fig. 1.—Condition before operation. *A*, Heart; *B*, esophageal orifice—cardia; *C*, opening in diaphragm.

* Reported to the Portland City and County Medical Society, Jan. 15, 1917.

I saw her first at this time in consultation with Dr. H. Leonard. The diagnosis of peptic ulcer was made, and the patient put to bed. She improved for a time, but after several weeks all the former symptoms returned, when operation was advised. Dr. Leonard made a posterior gastro-enterostomy after demonstrating peptic ulcer by an incision



Fig. 2.—Condition after operation. *A*, Diaphragm; *B*, point of constriction; *C*, gastro-enterostomy.

throught the stomach wall. She made an uneventful recovery, and seemed to be doing nicely until about three months later, when she suddenly began to vomit and have attacks of sharp pain, referred to the epigastric region, radiating into the left chest. She was brought to my office for Roentgen examination, and we were able to make the diagnosis of diaphragmatic hernia.

The accompanying illustrations show the condition before and after operation. The patient was operated on at the Good Samaritan Hospital by Drs. Leonard and Swensson. The stomach (Fig. 1) was almost entirely within the thorax, and was twisted on itself, the pylorus being uppermost and behind. The omentum was pushed in advance of the stomach and adherent to the pericardium. In order to expose the stomach sufficiently, it was necessary to cut through several of the costal cartilages. The stomach and greater part of the omentum were pulled down and replaced within the abdominal cavity. The diaphragm was sutured, and the patient made an excellent recovery, and six weeks after operation had gained 21 pounds in weight.

Stevens Building.

Ration of the United States Soldier.—The daily ration of the soldier in the United States Army consists of bread, 18 ounces; butter, ½ ounce, or jam, 1.28 ounces; potatoes, 20 ounces; bacon, 12 ounces; beans, 24 ounces; lard, 0.64 ounce; salt, 0.64, pepper, 0.04, and vinegar, 0.16 gill; coffee, 1.12 ounces; sugar, 3.2 ounces; evaporated milk, 5 ounces. This ration contains 4,199 calories, and is greatest of any of the armies of the world except Russia, in which the ration is said to contain 4,929 calories. The calories in the French ration are given as 3,340, the British 3,292 and the German 3,147.

A NEW AND DELICATE METHOD FOR THE DETECTION OF MERCURY

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A recent paper on the mode of absorption of mercury in the inunction treatment of syphilis by Dr. Wile and myself[1] was the stimulus in working out a new method for the detection of small amounts of mercury in the various body fluids and secretions.

In beginning this work, I found after considerable experimentation that the ordinary methods that are employed today were either not sensitive enough to detect small quantities of mercury, or that the more sensitive ones were quite complicated and open to various errors in technic. The work was first begun by the adoption of the original Reinsch method, namely, the deposition of mercury on copper wire in an acidulated solution, drying the wire and driving the mercury by heat on gold leaf, as advocated by Vogel and Lee.[2] This method proved satisfactory when a fairly large quantity of mercury was present. It is sensitive, however, to only one-fortieth mg. of mercury in each 50 c.c. of the solution to be tested.

In order to concentrate a known quantity of mercury in solution, methods of heat concentration were tried, as advocated by most methods now in use. In this process, however, it was found that a large proportion of the mercury was lost by volatilization. It was then decided to convert the mercurial salt, presumably a chlorid, in body fluids and secretions, into a less volatile one by the addition of potassium hydroxid, thus converting it into an oxid. By this method we found that the solution could be concentrated by heat with less loss than in an acidulated solution, the loss, however, being sufficient to render the method impracticable.

In practically all of the concentration methods described, the authors used some oxidizing agent, usually potassium chlorate, along with hydrochloric acid to break up the protein material. It has been taken for granted in such cases that the heat plus the acid is not sufficient to dissociate the mercury from the protein material that is normally present. In dealing with urine, we found that the addition of a chlorate was not only unnecessary, but also detrimental, since all of the free chlorin must be driven off, as its presence prevents the mercury from being deposited on the copper. The use, then, of an oxidizing agent was found to be impracticable because a large proportion of mercury was volatilized by the heat necessary to drive off the free chlorin.

After the foregoing experiments, we were convinced that the low point at which mercury is volatilized rendered any form of heat concentration inapplicable, so we again resorted to the so-called cold method. At this time Prof. Hobart H. Willard of the department of chemistry, in whose laboratory most of the work was done, suggested that copper dust be substituted in place of the copper wire, as giving a much greater surface area. Such copper dust is easily obtainable from any chemical house or paint manufacturer, as it is used in making bronze paint. This led to the following method, which I have found more delicate than any one heretofore described:

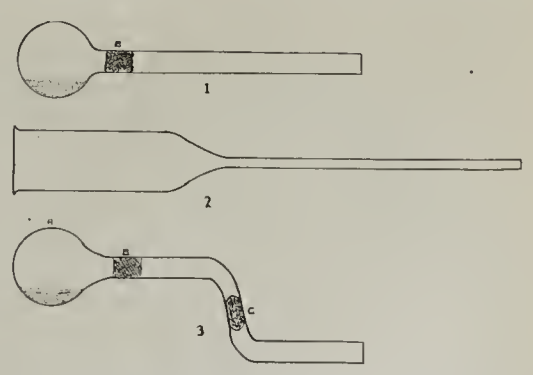


Fig. 1.—Individual pieces of apparatus: 1: *A*, copper dust and magnesite; *B*, washed asbestos; 2: funnel; 3: *A*, copper dust and magnesite; *B*, washed asbestos; *C*, gold leaf.

Five hundred c.c. of the fluid to be examined is acidulated with from 10 to 20 c.c. of concentrated hydrochloric acid. This

1. Wile, U. J., and Elliott, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis, THE JOURNAL A. M. A., April 7, 1917, p. 1024.
2. Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532.

is placed in a large bottle and about 1 or 2 gm. of copper dust is added. The bottle is tightly corked and thoroughly shaken for several minutes and allowed to stand until the copper has settled. This is best done by allowing the mixture to stand over night. The larger portion of the overlying fluid is then decanted off, the remainder being thoroughly shaken and filtered, care being taken that all of the copper is washed out of the bottle. The residue is washed first with alcohol, and then with ether, following which the filter is spread out and air dried. After the copper has thoroughly dried, it is placed in a small bulb which is made from a 4 to 6 mm. glass

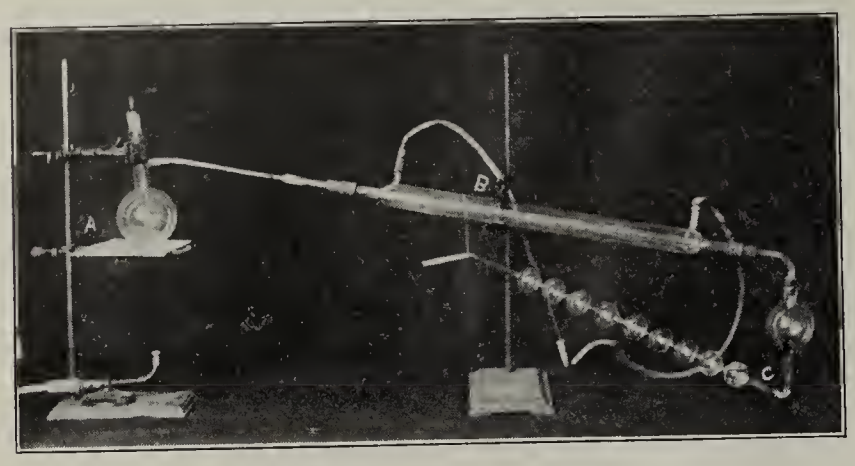


Fig. 2.—Apparatus: *A*, flask; *B*, water condenser; *C*, "ten bulb" tube.

tube (Fig. 1). A small funnel (Fig. 1, 2) made by drawing out a test tube to the desired size should be used in placing the copper in the bulb, thus keeping the walls of the tube free from copper. To the copper dust is now added one or two small pieces of magnesite, which on being heated gives off carbon dioxid gas, thus forcing the mercury along the tube. A small bit of washed asbestos is inserted into the tube just above the bulb so as to prevent the copper dust from coming in contact with the gold while the bulb is being heated. The tube is now constricted just above the asbestos, usually about an inch from the bulb (Fig. 1, 3), and a small piece of dental gold leaf is loosely inserted into the constricted portion of the tube. If the gold leaf is allowed to become hot, the amalgam readily disappears; considerable care, therefore, should be taken when minute quantities of mercury are being tested for, to keep the gold perfectly cool. For this purpose it is well to wind a wet piece of filter paper around the tube at the point of constriction.

The bulb is then gently and uniformly heated so as to avoid a blow-out. It is gradually brought to a red heat, at which time all traces of mercury have been volatilized and deposited on the bit of gold leaf as an amalgam. This amalgam is very evident to the naked eye when the quantity of mercury is more than one-twelve-thousandth mg. Beyond this point it is advisable to use a hand lens to detect the small pin-point amalgamations which are not visible to the unaided eye.

In dealing with fluids which contain large amounts of protein material, such as blood, it is necessary to dissociate the mercury and protein before the test can be made. For this purpose the blood is placed in a distilling flask to which is added an equal amount of concentrated sulphuric acid. The flask is attached to a water condenser and this is connected with a "ten-bulb tube" containing a small amount of distilled water, in which the distillate is collected (Fig. 4). The flask is gradually heated until sulphuric fumes are given off, at which time all of the mercury has been volatilized and is collected in the bulb tube. The condenser is carefully washed with distilled water in order to remove any particles of mercury which may have been deposited in the tube. Powdered copper is then added to the distillate, and the procedure from here on is as described above.

With this method I have been able to detect one-fifteen-thousandth mg., or in other words, approximately one millionth grain of mercury dissolved in 500 c.c. of distilled water. Mercuric chlorid was used in determining the delicacy of the test, and in each instance the test was carefully controlled. By the courtesy of Dean Victor C. Vaughan of the medical school and Prof. Hobart H. Willard of the department of chemistry of the University of Michigan, the accuracy of the test has been checked up in their respective laboratories.

The value of any test lies in its delicacy and simplicity. In the first place, we have been unable to find a test thus far described by which mercury can be detected in a smaller quantity than one ten-thousandth mg., and for the most part the tests ordinarily employed are sensitive only to one-fortieth to one-five-thousandth mg. Thus it is evident that our test is far superior to any other in delicacy. In addition, the test herein described has an added advantage over other delicate tests in being macroscopic.

In the second place, most of the delicate tests which have been heretofore employed require extensive laboratory facilities or expert chemical knowledge and experience. Among such tests may be mentioned the electrolytic method of Smithson,[3] which is not as sensitive as ours and has the added disadvantage of requiring elaborate apparatus; also the method of Raaschou,[4] in which the mercury is precipitated by hydrogen sulphid together with copper. The two sulphids are then volatilized with lime and lead chromate, and the mercury is collected in capillary tubes as metallic globules. It is evident that this test requires expert knowledge of chemistry.

Perhaps the most commonly used method is the one advocated by Wormley.[5] This test depends on the deposition of the mercury on copper foil in an acidulated solution. The mercury is then volatilized by heat and collected in a capillary tube, in which it is seen microscopically as small globules. In the first place, the globules are not easily recognized by the untrained chemist, and small particles of dirt may be easily mistaken for mercury. In the second place, the copper foil does not offer the large surface area which is presented by the copper dust, and therefore does not extract all of the mercury from the solution. We have been able to prove this by obtaining a positive test for mercury by our method in a solution from which no more mercury could be removed by the copper foil method as described by Wormley.

Our test is delicate and relatively simple. The method employed, when the solutions to be tested are relatively free from protein material, can be carried out by any one who is familiar with ordinary laboratory technic, and the materials necessary may be easily obtained.

A DEVICE FOR THE CONTROL OF HEMORRHAGE FOLLOWING SUPRAPUBIC PROSTATECTOMY

H. G. HAMER, M.D., INDIANAPOLIS

Of the many methods suggested to control hemorrhage following suprapubic prostatectomy, such as gauze packing and fat implantation, the use of the inflated rubber bag of Francis R. Hagner of Washington, D. C., has been found most satisfactory. After the enucleation of the prostate is completed, a curved staff is inserted through the urethra into the bladder and its tip made to protrude through the suprapubic opening. Over the protruding end of the sound or staff the rubber tube which is attached to the bag is pushed. The sound is then withdrawn, and with it the tube which brings the rubber bag into the bladder. The bag is distended with air or water and then drawn down into and against the vesical orifice, thus compressing the cavity from

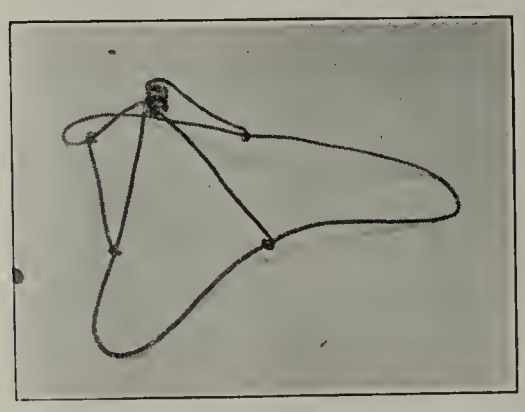


Fig. 1.—Wire anchor for inflated bag; length, 7½ inches; width, 7 inches; height, 3½ inches.

3. Smithson, quoted by Lannoy and Leroux: Compt. rend. Soc. de biol., 1902, p. 1483.
4. Raaschou: Ztschr. f. analyt. Chem., 1910, **49**, 172.
5. Wormley: Toxicology, Ed. 2, Philadelphia, J. B. Lippincott Company, 1885.

which the prostatic tissue was removed. Hemorrhage can be controlled only if this inflated bag is held securely in position.

One of the difficulties encountered has been fixation of the bag in position. Usually this has been done by clamping the tube where it emerged from the penis, or the outer end of the tube was drawn down on the thigh and fastened by means of adhesive straps. Both of these methods are insecure, and if much tension is made on the tube following the former method, a great deal of soreness of the urethra follows, because of constant pressure on the meatus. I am indebted to Dr. Carl Lewis Wheeler of Lexington, Ky., for the suggestion of the need of some mechanical device which would maintain direct pressure over the area of operation after prostatectomy, and for his description of the device of Dr. Townsend of Rutland, Vt. He and I agreed to try to develop some method of exerting pressure for control of hemorrhage. The device presented is the result of the efforts which I have made in that direction, and its practical application has demonstrated its value.

In October, 1916, I devised the wire anchor here presented for the purpose of accurately fixing the pressure bag after the latter has been properly placed and dilated with air. Immediately after the operation, the Hagner bag is drawn through the bladder in the usual manner. The tube from the bag is brought through the hole in the summit of the wire anchor. The bag is then distended by injecting air from a large syringe. Tension is made on the tube, bringing the bag down into the neck of the bladder, with as much pressure as desired, and held in this position by the little screw clamp just outside the hole in the summit of the wire anchor. The anchor is made of soft copper wire of sufficient size to have some rigidity and sufficient strength to hold any tension that might be made on it for this purpose. The flexibility of the wire anchor allows it to be molded to fit the individual patient. It is not in the way of the dressings which may need to be changed before the removal of the Hagner bag, which is usually allowed to remain from twenty-four to forty-eight hours in order that any recurrent hemorrhage may be immediately controlled. The apparatus was described by Dr. W. N. Wishard at the Evansville meeting of the Ohio Valley Medical Association last November.



Fig. 2.—Wire anchor in position before application of outer dressings.

A CASE OF BROMODERMA, OR BROMO-IODODERMA

JOHN E. LANE, M.D., NEW HAVEN, CONN.

Bromid and iodid eruptions are among the most frequently seen drug eruptions. The case reported herewith belongs to the rarer though perfectly well recognized type of bromid eruption. It is unusual on account of its severity, and the fact that part of the development of the lesions was probably due to the simultaneous use of iodids for a short time previous to its appearance. As bromid and iodid eruptions of this type resemble each other, it is impossible to define the part played by each drug in this case, and so it would seem best to classify the eruption as a bromo-iododerma tuberosum fungoides.

S. L., a girl, aged 5 months, of Polish parents, was referred to me, March 18, 1917, by Drs. D. M. Lewis and C. S. de Forest. The child had had convulsions since birth, frequently as many as twenty in a day. When about a month old, mercurial treatment had been given for a few weeks. No definite information in regard to the treatment given from this time up to three weeks before my visit could be obtained.

For three weeks previous to the time at which I saw the child, she had been given 8 grains of potassium bromid daily, and for a week or ten days also 4 grains of potassium iodid. Both of these drugs had been stopped once or twice when



Fig. 1.—Appearance of eruption when patient was first seen.

there were not more than eight convulsions in twenty-four hours. The present eruption had developed very rapidly, had been present about a week, and at its beginning had been diagnosed as chickenpox.

The child was well developed and well nourished. The appearance of the eruption is shown in Figure 1. On the face there were about twenty vegetating, somewhat condylomatous growths, circular or polycylic in outline. The larger ones were evidently formed by smaller ones having grown together as they extended. They varied from 0.5 to more than 6 cm. in diameter. The largest ones were elevated about 2 cm. above the surface of the skin. Their color varied from nearly that of arterial to that of venous blood. During convulsions the larger growths frequently bled. On the buttocks was a discrete, apparently vesicular eruption of the more usual type of bromid eruption. There was little fluid in the vesicles at this time, as vegetating growths had begun to appear under the unbroken epidermis.

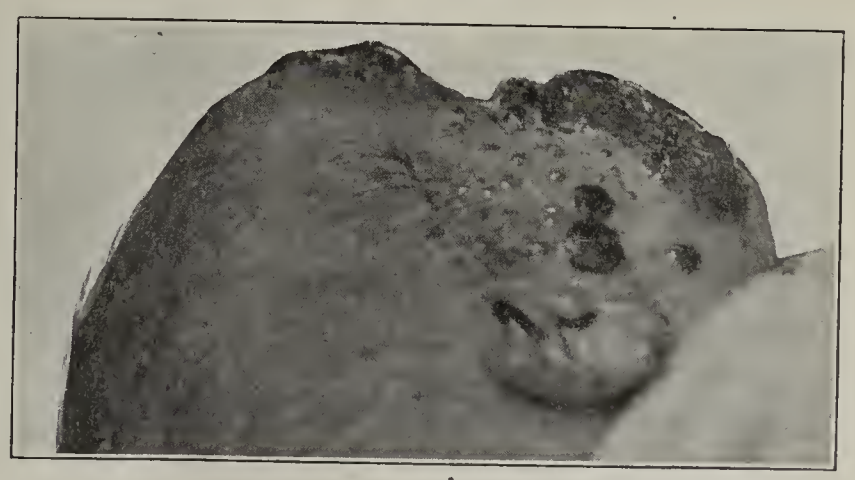


Fig. 2.—Appearance of eruption about one week later.

The child was immediately referred to Dr. J. I. Linde, who admitted her to his service in the New Haven Hospital. For about ten days the growths increased somewhat in size, after which they gradually began to grow smaller. The second illustration, taken about a week after the child was admitted to the hospital, shows the elevation of the growths and also a vesicular eruption of two days' standing which, if seen by itself, might easily have been mistaken for chickenpox.

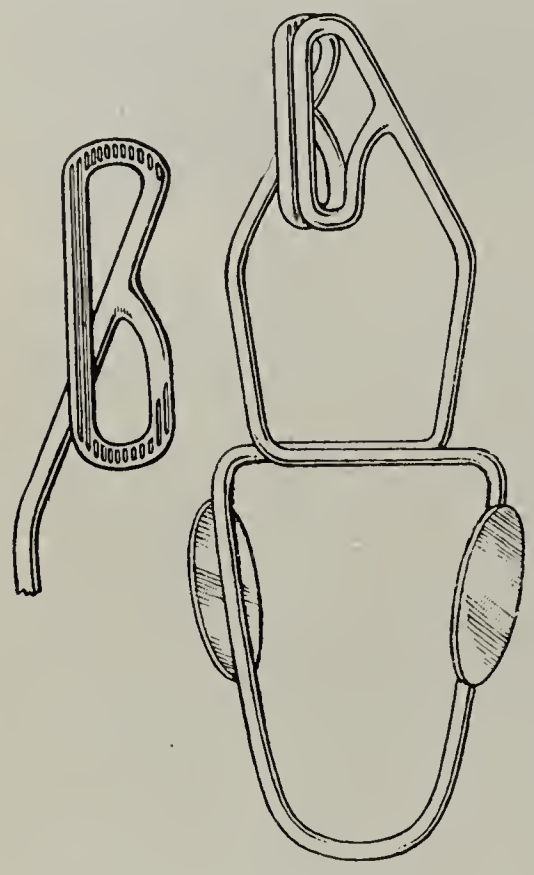
59 College Street.

A NEW URETHRAL CLAMP

H. W. E. WALTHER, M.D., NEW ORLEANS

It is frequently found desirable to retain medicated fluids or jellies in the anterior urethra of the male over a prolonged interval. As it is rather tiresome for either the patient or the medical attendant to employ digital compression to the meatus urinarius for the required length of time, I have devised a simple urethral clamp which answers admirably the purpose for which it is designed. As it is believed to possess some advantages over similar instruments previously recommended, a description is given herewith.

The idea of using a clamp for this purpose is not a new one. Any number have been on the market for years and have been extensively used by urologists. The main objection to those heretofore recommended, with probably one exception, is that they are so constructed as to require clamping the penis behind the corona glandis in order to prevent the instrument's slipping. This sort of instrument fails to permit medicaments to be retained in the first inch of the anterior urethra, including the fossa navicularis—a portion of the canal too important to ignore.



Urethral clamp.

The exception mentioned is the Cunningham clamp. I am indebted to Dr. Nelken for having first demonstrated this clamp to me. The objections found to this instrument are that the spring of the instrument is not sufficiently strong to compress the meatus properly so as to retain the urethral medicament; it is awkward of application, there being no arrangement whereby the blades can be pried apart, and even after being properly applied it frequently slips off.

It is believed that these faults have been corrected in the new clamp, the illustration of which leaves little to describe. Constructed of a single piece of finest quality steel wire 2 mm. thick, of figure-of-eight shape and with a strong grasp, it measures 8 cm. long by 3.5 cm. wide. Finger grips are conveniently placed, one on each side of the lower part of the clamp frame. The blades proper for compressing the meatus are each 2 cm. by 1 cm.; on their inner surfaces they have serrations which prevent slipping, once the clamp is properly applied. The inner surface of one of these blades with serrations is shown, greatly enlarged, in the inset on the left of the illustration, so as to bring out its exact construction. The latter feature adds no little value to the merit of the instrument. The clamp can be easily sterilized, lasts indefinitely, and will stay where it is placed. Although the clamp has a very firm spring, the blades are so constructed that no pain is experienced in its application.

For the purpose of obtaining a prolonged action from solutions or jellies of the silver salts in the anterior urethra, as well as for producing local anesthesia by means of solutions of novocain, etc., I have found this clamp a distinct aid.

Apart from the uses to which the physician may put the clamp, it has been found practical to have patients with anterior urethritis use the clamp themselves, for a patient can be persuaded to introduce medicaments into the urethra, apply the clamp, and retain the injection for fifteen minutes without effort. Few will hold the urethra closed for this length of time if the fingers are required. From an esthetic standpoint the clamp should be considered superior to the collodion "sealing-in" method of treating urethritis, because the clamp is safe, while a cotton-collodion dressing, even when applied by those most skilled, has a tendency to loosen at most inopportune times with results too obvious to require delineation.

The clamp was made by I. L. Lyons & Co., New Orleans. Macheca Building.

APPARATUS FOR WRITING WITH THE KNEE

ARTHUR T. BLACHLY, M.D., PORTLAND, ORE.

This apparatus is designed to permit persons of either sex who have lost their hands or the use of them to write legibly



Fig. 1.—Apparatus for writing with the knee.

with their knees after a little practice. A piece of sole leather 15 inches long and 6 inches wide at one end and 4 at the other has a semicircular piece cut out on each side, 5 inches from the narrow end. This piece of leather is bent where the scallops come to fit over the bent knee, and the whole piece is bent from side to side. By two clips, such as are used in holding a pencil to the pocket, a pencil is fastened to the leather so as to project forward 4 inches in front of the knee. This apparatus is held firmly to the knee by three strong brass springs attached by rivets. These are ¾ inch wide and are made of strips 12, 13 and 14 inches long, respectively. To hold the paper in the proper position a small rack like a music rack is made of wood with a hook to adjust and hold it to a small, firm stand 2 feet high.



Fig. 2.—Method of using knee-writing apparatus.

In writing, the heel is raised, and the foot, resting on the ball, gives the knee quite a wide range of motion. A stylographic fountain pen can be used as well as a pencil.

The device can be made cheaply. The model cost $1.50, and the springs could be replaced with straps costing 10 cents apiece, thus reducing the cost to $1.10. This device should be much more convenient than holding a pencil between the teeth or toes, as was formerly done by some. The stand can be made of an apple box, and a shelf put in it to hold the apparatus.

4411 Woodstock Avenue.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1624*)

PYELITIS

Pyelitis develops from any obstruction of a ureter, whether of external or internal cause; from calculi, blood or bacteria in the pelvis of the kidney; from infection of the kidney substance; from tuberculosis of a kidney; from adjacent suppuration, and from an ascending infection of the bladder or pelvic organs.

If the ureter is not obstructed, germs reaching the kidney and being rapidly excreted, or even the reproduction of certain germs in the pelvis of the kidney, such as colon bacilli or typhoid bacilli, may not cause pyelitis. If, however, the ureter is obstructed, if the canal is imperfect, or if there is a chronic irritation or inflammation of the pelvis of the kidney, pyelitis sooner or later occurs. Infection or pyelitis of one kidney is a menace to the other.

Intestinal upsets, especially when aggravated by frequent constipation, allows the colon bacillus and other germs to reach the kidney through the lymphatics, and not infrequently in these conditions colon bacilli are found in the urine. These may disappear on the correction of the intestinal stasis. At times the colon bacilli may reach the kidney by way of the blood.

Direct ascending infection from the bladder through the ureter to the kidney is not frequent, except when there is urethra or bladder obstruction, such as an enlarged prostate. Infection of the bladder and pelvic organs may reach the kidneys through the lymphatics. This has recently been shown by Eisendrath and Schultz.[126]

While in the majority of cases the colon bacillus is the germ of infection, the tubercle bacillus, the typhoid bacillus and the various pus-producing germs are also causes of pyelitis, and, of course, frequently more than one variety of germ is present.

Females have infected kidneys more frequently than males; this is especially true in young children. The exact reason is not clear. Though the ease with which vaginal infection reaches the bladder may be a factor in the cause of kidney infection, in pregnant women it is doubtless due to some ureteral obstruction from pressure or twisting with the consequent dilatation of the renal pelvis; as stated, such a kidney is susceptible to infection.

SYMPTOMS

A kidney infection may cause only a bacilluria as evidenced by a slightly cloudy urine with a peculiar fishy odor; or it may cause a slight cystitis, with cloudy urine and an increased amount of mucus, perhaps followed by pus. Only cystoscopy and the passage of the ureteral catheter will determine whether one or both kidneys are affected. In these cases, if the urine is strongly acid there is less bacilluria and the urine is less cloudy than when it is alkaline in reaction. Localized pain, a loose kidney, or a palpable enlarged kidney may presumably show which kidney is affected. It is probably rarely found that pus comes from the two kidneys at once, but a purulent infection of one kidney sooner or later causes inflammatory or other disturbances of the other kidney.

A colon infection and bacilluria may continue for months without the development of pus and without causing many symptoms, but if pus is issuing from a kidney, there is almost invariably a history of pain, with colicky ureteral pains, in an exacerbation of which blocking of the ureter often occurs. The urine at this time coming from the healthy kidney may be clear. After the urine and pus back of a blocked ureter force a passage, a large amount of pus suddenly appears in the urine. While the pus is being retained and not freely evacuated from the kidney, fever generally occurs, often preceded by chills, rigors, and frequently by attacks of profuse sweating. Repetition of this history is typical of a purulent pyelitis.

These purulent urines from a kidney source are generally acid in reaction, and contain albumin often more than can be accounted for by the pus, and, sooner or later, casts. Frequently, however, there may be no albumin in the urine after the pus has been filtered out.

There is usually progressive loss of weight, loss of appetite, indigestion, restlessness during the night, and finally anemia. A somewhat constantly recurring afternoon or evening rise of temperature suggests a tuberculous infection, while an ordinary septic infection generally causes fever only when there is an obstruction to the free flow of pus. Hence a purulent pyelitis may go on for months without apparent fever.

It has long been recognized that typhoid bacilli may be found in the urine for weeks or even months after typhoid fever. It has been shown also that not infrequently tubercle bacilli may appear in the urine when there is a tuberculosis of some part of the body, especially of the lungs, even though the kidneys may not be involved. These bacteria, unless associated with secondary infection, may not produce symptoms, and do not cause pus. Doubtless colon bacilli occur in the urine on account of some stasis or intestinal indigestion much more frequently than is now known, and probably generally without causing symptoms.

The amount of pus in the urine may diminish and entirely disappear for a time and then recur; in the interim, however, the urine, if cultivated, may show germs.

(*To be continued*)

126. Eisendrath, D. N., and Schultz, O. T.: Lymphogenous Infection of the Urinary Tract, THE JOURNAL A. M. A., Feb. 17, 1917, p. 540.

Wild American Digitalis

The present scarcity of some varieties of botanical drugs has led to the search for new sources of supply. Following the suggestion of the late M. I. Wilbert, an examination of samples of wild-growing digitalis, which has now become a weed in various parts of the United States, was undertaken by the division of pharmacology of the Hygienic Laboratory, U. S. Public Health Service (*Public Health Reports,* March 9, 1917). Four samples of the wild plant from Oregon and one from Washington, together with samples of the cultivated plant from Wisconsin and Ohio, were collected at varying periods of their growth and air dried under favorable conditions, the leaves were extracted, and tinctures made according to the U. S. P. method were tested physiologically by the one hour frog method. The conclusion reached from the investigation was that the wild digitalis found in the northwestern states may be used as a source of supply for the various official preparations of digitalis, and that by using the ordinary methods of handling and preparing the leaves a highly active product may be secured which compares favorably with the activity of the cultivated leaves grown under more favorable conditions.

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SATURDAY, JUNE 9, 1917

THE FOOD REQUIREMENT OF HEALTHY CHILDREN

So much attention has recently been devoted to the problems of nutrition and the energy transformations of the adult body that the requirements as expressed in units of food fuel are beginning to be better understood both by the professions which have to deal with diet and by the laity. It would be an exaggeration to say that many persons are qualified to speak of daily food in terms of calories as they discuss gallons of gasoline or tons of coal in connection with other affairs of daily life. But there are signs of a more tolerant attitude toward the new language in which human dietary needs are best expressed. The exigencies of the present moment have served to focus attention more firmly than ever on what the nutritive needs of living bodies really involve.

For the long period of childhood and adolescence the available information is still far from adequate; and what is known has not yet become as readily accessible as it ought to be. A few years ago it was customary, in calculating dietary needs, to figure the portion belonging to the children of the family in terms of some roughly fixed fraction of the daily allowance for grown-ups. There is, however, an enormous range of variation in the food needs of children occasioned by the unlike physiologic status of these individuals at different ages and stages of growth. Age, size and activity occasion distinctive demands which have come into bolder prominence since the relief of enormous numbers of children of all descriptions has become a national duty in many parts of the world.

It has been said that when food is unrestricted, and the appetite is of the healthy juvenile character, there need be little fear of undernourishment. But delicate children do not always have a normal appetite; and where the food distribution is controlled as it is in public institutions, when a free choice or unlimited supply is not always permitted, the possibility of error expressed in malnutrition or retarded growth is ever present. It is peculiarly timely, therefore, to have a summary of the best evidence now available, such as has just been published by the New York Association for Improving the Condition of the Poor.[1] Its avowed object is to furnish a survey of the literature, observations, and experiments pertaining to the food requirements of children so that it will become easier to make an intelligent allowance for the adequate nourishment of children and at the same time to reach as many needy families as possible. As the author says, "while it is apparent that insufficient food may result in serious harm to the children, it is equally clear that an unnecessarily liberal allowance to some families may mean the denial of food to many others where thousands of dollars are used in relief."

The statistics collated in the New York survey of the evidence regarding food allowances for healthy children represent the indications furnished by three independent types of investigation, namely: (1) dietary, or observation studies in which the weight of the food eaten by the subject was recorded for a given period of time, and the food values either determined by analysis, or more commonly calculated from figures representing average composition; (2) metabolism or balance experiments in which the intake and output were compared by determining chemically the composition of both the food eaten and the excretory products, thus showing the amount of nitrogen retained in the body for growth of protein tissue, and (3) respiration experiments in which the actual heat produced by the body was either measured directly in an air-tight chamber impervious to heat, or calculated from the amount of oxygen consumed and the carbon dioxid exhaled. Since it is known that the oxidation of food yields energy, it follows that a measurement of the oxidation of foodstuffs in the body will give the amount of energy produced. This is usually and most conveniently expressed in calories.

In a general way the available data furnished by these three somewhat unlike methods of approach are quite similar. The averages may be summarized as in Table 1.

TABLE 1.—CALORY REQUIREMENT OF CHILDREN AT DIFFERENT AGES

Ages, Years	Calories	
	Boys	Girls
From 2 to 5	1,309	1,245
From 6 to 9	1,797	1,575
From 10 to 13	2,337	2,015
From 14 to 17	2,534	2,253

It will be noted that there is a difference between the requirements for the children of the two sexes. It might be thought that this is due solely to differences in size at the same age. This seems less likely at present than the assumption of unlike bodily activities, on which a part, at least, of the different needs depends. It is believed that the two sexes have the same basal requirement; that is, the amount of energy required for the maintenance of such internal activi-

1. Gillett, Lucy H.: A Survey of Evidence Regarding Food Allowances for Healthy Children, Publication 115, New York Association for Improving the Condition of the Poor, 1917.

ties as respiration, heart beat and circulation of the blood, and attainment of suitable muscular tone is comparable.

Age is the largest factor in determining the food requirement of the young. Per unit of weight the amount of energy required for "the mere processes involved in remaining alive"—in other words, the basal need—decreases with increase in age. Although these facts have long been recognized, the unusually conspicuous activities of growing children—a factor added to age and size—have not been so thoroughly appreciated in taking account of the proper food demands of the young. To this must be added further the requisite quota for increment of tissue or growth. Gillett[1] has further pointed out that greatly emaciated children with depleted tissues, which can and ought to be rebuilt rapidly, should receive a more liberal food allowance than would be required by normal children either of the same age or of the same weight. If suitable nutritive conditions are established, recovery or repair can proceed at a speed out of all proportion to the usual rate of growth at the same age.

In view of these considerations, involving features that are highly important rather than novel, we are admonished to adopt the recommendation of Sherman that the food requirement (calories per day) of each member of a family be estimated on his own merits. A small inactive man may require less than a large active boy or girl. This should be recognized and provided for. The upshot of the New York survey has been the compilation of a new set of "Standards" (Table 2) which deserve widespread recognition because of the care and intelligence with which they have been prepared.

TABLE 2.—FOOD ALLOWANCES FOR CHILDREN[1]

Age, Years	Calories per Day—Boys	Calories per Day—Girls
Under 2	900-1,200	900-1,200
From 2 to 3	1,000-1,300	980-1,280
From 3 to 4	1,100-1,400	1,060-1,360
From 4 to 5	1,200-1,500	1,140-1,440
From 5 to 6	1,300-1,600	1,220-1,520
From 6 to 7	1,400-1,700	1,300-1,600
From 7 to 8	1,500-1,800	1,380-1,680
From 8 to 9	1,600-1,900	1,460-1,760
From 9 to 10	1,700-2,000	1,550-1,850
From 10 to 11	1,900-2,200	1,650-1,950
From 11 to 12	2,100-2,400	1,750-2,050
From 12 to 13	2,300-2,700	1,850-2,150
From 13 to 14	2,500-2,900	1,950-2,250
From 14 to 15	2,600-3,100	2,050-2,350
From 15 to 16	2,700-3,300	2,150-2,450
From 16 to 17	2,700-3,400	2,250-2,550

Quoting the report, the limits given make allowance for individual variation. If a child is tall and growing rapidly at 6 years of age, he may—and probably will—require 1,600 calories. If of smaller frame, an allowance of only 1,400 or 1,500 calories will be necessary with a normal amount of activity. If he is both large for his age and very active, he will doubtless require the upper limit of the allowance, 1,700 calories. It will be seen that this range of calories may be used to provide for the actual needs of each individual child at any age.

WAR MEASURES AGAINST TUBERCULOSIS

Our entrance as a nation into the war has made it necessary, as probably no other turn of events could have done, to take stock of our resources in all useful activities. We must sort the chaff from the wheat, the luxury from the necessity, the well tried and reliable from the dubious. This is not the time for theory. In the fight against tuberculosis, those measures which are merely theoretically pretty, those which are of dubious value, and especially those which are known to be worthless, should be eliminated.

The essential facts of tuberculosis were recently summed up by Dr. Theobald Smith.[1] We may deduce from this summary certain working principles: 1. There is every reason for continuing adequate rational measures for the restriction of tubercle virus in transit, that is, from sick to well. 2. Logically the first step in preventing the spread of tuberculosis is to render patients in the advanced cases harmless to others. 3. In the incipient cases they should receive treatment, looking to their cure, and the prevention of their becoming dangerous. 4. Recrudescence from latency is mostly produced by untoward conditions of life which lower general or local resistance. Resistance is kept up by normal conditions of life as regards food, shelter, rest, air, etc. 5. The only increase of resistance which can be achieved by treatment with tubercle bacillus preparations is that caused by the injection of living tubercle bacilli—in other words, "no tubercle, no immunity." "We cannot afford to play with this dangerous method." 6. Tuberculous infection with the bovine type, derived from cow's milk, is not in general a disease concerning human epidemiology, since it is not transmitted from man to man as is the human type. 7. The theory that infection is always obtained in early life has not been conclusively proved.

Translated into terms of action, this means that we must continue to apply well tried rational measures, and in as rapidly widening scope as the increased demands on our facilities will permit. Patients with advanced and dangerous cases must as far as possible be segregated in hospitals, or instructed and supervised. The incipient cases must be detected early and official notification made. Dispensary and sanatorium treatment should be provided. A large part of the increase of tuberculosis noted in those European nations which have borne the severest brunt of the war is contributed by recrudescences in those "cured," "arrested" or "latent" cases in which, under normal conditions, the patients would for the most part have continued in comparatively good health. Persons of this class constitute a hard problem for those who will administer the selective draft, either for military

1. Smith, Theobald: Certain Aspects of Natural and Acquired Resistance to Tuberculosis and Their Bearing on Preventive Measures, THE JOURNAL A. M. A., March 3, 1917, p. 669; March 10, p. 764.

or for industrial service. While some patients have been benefited by the outdoor regimen, others have speedily succumbed to the hardship. There is, however, one outstanding fact which we can apply. Unless the population as a whole is well nourished, we may expect an increase in the number of recrudescences. In a short time this will throw on our hands an enormous number of dangerous cases. If we cannot take care of these patients they will play their grave part in the vicious circle of tuberculosis transmission. The European figures available are too fragmentary for definite conclusions, but we should profit by the hint that the fat shortage is perhaps a serious deficiency in the dietary of certain of the stricken nations. To prevent bovine infection from milk, it must be pasteurized or boiled. We cannot wait for the establishment of nontuberculous herds.

So much for what we must attempt to accomplish. It is supremely important that neither time nor money be wasted on methods which have no demonstrated value, or on those which have been shown to be worthless. It would seem scarcely necessary to mention the latter, were it not for the fact that enthusiasts, cranks, and worse than these, are perennially active in trying to secure in influential circles the adoption of various serums, vaccines and other preparations which pretend to prevent and cure tuberculosis. It would appear that certain of these products are being "boosted" by the concerted action of persons who would expect to profit by their adoption. Under the disguise of a scientific or even an altruistic veneer, they advertise their wares in medical journals. The similarity of their phraseology and argument betrays their common interest in a concerted "drive."

We can easily avoid the alluring representations of propagandists of this class — alluring because of the guise of science and altruism which they assume — by holding fast to one fact established by all of the serious work on tuberculosis since Koch, that in order to induce immunity to tuberculosis one must first introduce living tubercle bacilli, and that even this immunity is transient and only relative, and certainly impracticable.

The material reduction in the tuberculosis death rate in the past fifty years has not been due to the use of any serum, vaccine, tuberculin or drug. It has been due to a combination of sociologic, sanitary and hygienic changes, some deliberately planned and others inevitably accompanying what we call "progress." We cannot name or even trace all of these factors, but we can safely attribute much of the improvement to better and more food per capita, better housing conditions, less exposure to hardship, earlier diagnosis and consequently earlier treatment, the growth of the hospital, sanatorium and dispensary idea, better milk, and finally a more enlightened attitude on the part of the public toward the transmissible diseases.

In this emergency we must retain and encourage the intensification of the methods and conditions which have proved valuable in the past, and which no radical innovation has as yet arisen to supplant.

NEWER FEATURES OF ADEQUATE DIETARIES

The lecture of McCollum of the University of Wisconsin on the supplementary dietary relationships among certain of our naturally occurring foodstuffs, which was given before the Harvey Society of New York and recently published in The Journal,[1] illustrates the remarkable innovations which recent years have brought about in the study of the science of nutrition. It reviews the experiences in feeding experiments which have wrought these changes, and indicates why the supposedly ideal plans of a decade or more ago to nourish animals on diets composed of purified protein, carbohydrates, fats and inorganic salts with cellulose as "roughage" — a ration theoretically correct from the standpoint of that time — were doomed to failure.

Ever since Hopkins[2] reported his observation that the addition of small amounts of milk to food mixtures consisting otherwise of purified protein, fats, carbohydrate and salt exerted a favorable influence on nutrition which was out of all proportion to the caloric value of the added milk, it has become more and more probable that there are certain as yet unrecognized substances, present in many of our natural foods, which are indispensable, in an otherwise adequate diet calculated to promote perfect nutrition. The story of how these so-called vitamins have come into prominence as something to be kept in mind and provided for in the construction of the dietary has been told from time to time in these columns[3] as new contributions have been added to our store of facts.

At the present moment the foremost American workers in the study of nutrition are inclined to postulate the need of at least two types of vitamins, one of which is soluble in fats and is present in such natural products as milk, beef fat, cod liver oil and egg yolk, but not in any notable abundance in the ordinary vegetable oils or the common cereals. The other, water-soluble vitamin, is more widely distributed where active cell structures are found, and is conspicuous in milk and eggs.

The enthusiasm for these new ideas has tended, for the moment, to divert attention from other equally important and perhaps equally novel aspects of the subject. Since various factors essential to the dietary

1. McCollum, E. V.: The Supplementary Dietary Relationships Among our Natural Foodstuffs, The Journal A. M. A., May 12, 1917, p. 1379.
2. Hopkins, F. G.: Jour. Physiol., 1912, **44**, 425.
3. Flavors and Vitamins, Current Comment, The Journal A. M. A., Dec. 26, 1914, p. 2296; Modern Bread and Deficiency Diseases, April 22, 1916, p. 1314; What Is a Vitamin? editorial, May 6, 1916, p. 1470; Dietary Toxicity Versus Deficiency, Oct. 7, 1916, p. 1094.

are now clearly recognized, it is quite possible to compound a ration in which one or more of them is lacking. Nutritive disaster then ensues sooner or later. It remains to be seen, says McCollum, whether or not the animals which have been brought experimentally into a condition of nutritive disaster by a series of diets, each of which was faulty in respect to only a single dietary factor, as inorganic salts or protein, or the unknown A or B, will reveal to the histologist and pathologist lesions analogous to those seen in the states of human malnutrition presumably of dietary origin.

In the case of maize, for example, more than a single dietary factor is at fault in determining the failure of young animals to grow on this seed. When suitable inorganic salts, additional protein of an adequate sort, such as the casein of milk, and butter fat with its fat-soluble vitamin are added, successful nutrition becomes assured. All of these additions, representing the remedying of three distinct defects of maize alone, are needed. For wheat a similar story has been evolved, except that the special deficiencies of this seed are somewhat different from those of maize.

By an appropriate selection and combination of natural foods based on a physiologic analysis in the manner briefly indicated, it has at length begun to be possible to accomplish in a somewhat scientific way the construction of dietaries in which two or more products, each inadequate by itself, may supplement each other so as to make an adequate mixture. Many of our common food concoctions are in reality exemplifications of such combinations. But empiricism is by no means a safe guide. It is gratifying to realize that a mode of attack on the problems of suitable combinations is in sight. Meanwhile we must learn to avoid too great dogmatism, the dangers of which have already been indicated in another connection in relation to questions of diet.[4] As McCollum points out:

> The consumption of a varied diet makes in some degree for safety, but will by no means insure safety. . . . The inadequate diets of man are probably never highly satisfactory with respect to all factors but one. Rather they are in some degree unsatisfactory with respect to two or three dietary factors simultaneously, and the probability that they will be so increases greatly as the food supply tends to be limited to the seeds of plants, and such manufactured products as are derived from the endosperm of seeds. The time will doubtless come within a few years when specific advice can safely be given as to the best way to plan a variety of human dietaries; but a consciousness of the paucity of our knowledge concerning the peculiar supplementary relationships among our natural foodstuffs forbids more than a general statement as to the safest policy now.

4. Limitations of the White Bean as a Dietary Component, editorial THE JOURNAL A. M. A., June 2, 1917, p. 1627.

War, a Traumatic Epidemic.—"War," said the Russian army surgeon Pirogoff, "is a traumatic epidemic. Not medicine, but administration plays the leading part in the aid of the sick and wounded in the scenes of war."—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *The Scientific Monthly.*

Current Comment

OKLAHOMA AND THE CHIROPRACTORS

Slowly but surely the public is becoming informed regarding the utter inadequacy of chiropractic, and legislatures are beginning to deal with this cult more intelligently. There is no more fitting proof of this than what recently took place in Oklahoma. The chiropractors had made their customary attempt to secure a legal status in that state without having to comply with the requirements of the medical practice act. This bill was defeated. Another bill was substituted for it, which properly placed their licensure in the hands of the state board of medical examiners. The latter bill was passed in spite of a powerful lobby, who referred to the bill as "the crowning iniquity of the medical trust," "this damnable bill," "damnable crime" and other like epithets. The bill had passed the senate and was being considered in the house when "Dr." Willard Carver, the leader of the chiropractors and head of a chiropractic college in Oklahoma City, made an astounding and utterly unfounded charge, that the medical profession had raised "a fund of over $674,000" to defeat chiropractic legislation in Oklahoma. He thus charged, by implication at least, that the senate had been bribed. The senate took prompt action by citing Carver to appear and answer contempt charges. A report says that on his inability to offer proof of his statement, he was fined $500 and sentenced to serve ten days in jail. These procedures are a duplicate, although somewhat more spectacular, of what has been going on in many states during the last few years, in the efforts of this ill-trained group of "healers" to obtain the right to practice medicine without first securing the education required by medical practice acts. During the present sessions of the various legislatures, excepting in one state — North Carolina — their efforts have been defeated. Meanwhile, Oklahoma has secured an amendment to its practice act giving the licensing board ample control of this medical cult.

PRAYERS FOR PROFIT

The Christian Science Church is said to have among its followers no scientist recognized by men of science, no authority on the Bible recognized by biblical students, no man of standing in the world of philosophy, and no physician of standing among medical men — all of which may be true. Anyhow, it is well known that its "healers" offer prayers at so much per; that they give "absent treatments," for which a charge is made, and that they "treat" human disorders by spiritual means — for the profit there is in it — yet Christ did not exact payment from those He healed. Which, of course, is immaterial. It is in keeping with the evidently commercial character of this "church" that those interested in its propagation have succeeded in securing exemption for its "healers" from the educational requirements of the medical practice acts in twenty-eight states! Ohio, however, does not seem to believe in thus commercializing religion, since in that state, in spite of a powerful lobby, the Eddyites were defeated in their efforts to secure exemption

from the medical practice act. They can pray for the sick all they please; they can give either present or absent treatments, but they cannot legally charge for so doing. Of course this will not prevent them from continuing to reap a rich harvest without work and without expense. Oh, what a joyous, carefree life is that of an Eddyite practitioner!

SHALL CIVILIAN PHYSICIANS EXAMINE RECRUITS?

The Journal has received many inquiries as to why civilian physicians cannot be authorized to examine recruits for the army, thus relieving the commissioned medical officers of an immense burden. Possibly the reason may be the untrustworthiness of such examinations on account of the personal interest of or other influence brought to bear on the examiner, and especially because civilian physicians are not informed as to military requirements. We are led to believe this from a communication received from a medical reserve officer, who relates his observations during the first week of his active duty in connection with a reserve officers' training camp. When the young men received orders to present themselves at the training camp, they were instructed to have themselves examined by their home physician before reporting for duty, the object being to eliminate the manifestly unfit and also to save such men the time and expense of a trip to camp. At the training camp from which our correspondent writes there are between 4,000 and 5,000 prospective reserve officers. During the first week there were found simply among those who reported to the Medical Department for "sick call" before the regular routine examinations by medical officers were instituted, two men with exophthalmic goiter, one with a chronic heart condition not compensated, and several with acute venereal disease contracted before coming to camp. One case in particular attracted attention because of the numerous defects found which would disbar the man from service. The first step in the examination of recruits is to take the weight and height. This man was 64½ inches tall, and weighed 104½ pounds. Only the Adjutant General of the Army has the special authority to accept an applicant whose weight falls below 120 pounds. Among other defects found on a cursory examination of the man mentioned were marked hammer toe of the large toe of each foot with painful bunion, hammer toe of the second and third toes of each foot so severe that the nail struck the ground, and one leg was an inch shorter than the other. This the man compensated by standing in a position which gave him the appearance of marked scoliosis. There was severe pyorrhea. There was a distinct heart murmur; the apex beat was in the sixth interspace outside the nipple line; the heart reacted severely to the slightest excitement. Finally, there were both external and internal hemorrhoids. This case is an exceptionally severe one, but it is an actual case. And yet this man had presented himself with a certificate of perfect health in the form of a report of an apparently rigid examination made by his family physician, had been enrolled in the training camp for a week, and his condition discovered when he reported for sick call, before the official examination had been made. Medical officers are supplied with "Rules for the Examination of Recruits."[1] They should thoroughly familiarize themselves with these rules before attempting the work.

THE CONTROL OF INDUSTRIAL ANTHRAX

Although the cause and mode of infection of human anthrax have long been known and energetic measures have been taken to prevent its spread in Europe, the United States only recently has awakened to the need of preventive legislation. Andrews[2] states that there is one death from anthrax for every five deaths from lead poisoning in the registration area of the United States. About one case of every five reported is fatal. Practically all industries in which anthrax occurs are found in this country. Of these the leather, wool, animal hair and bristle, horn, bone and glue industries rely in large part for animal products on portions of Russia, China and other Asiatic countries, and South America, in which sanitation is not highly developed and anthrax prevails. To reduce the danger from these sources, the United States recently has forbidden the importation of products from animals infected with anthrax, and now requires disinfection of such products as may come from infected districts. While this measure will reduce the danger from working with such materials, it cannot eliminate it because of the great resistance of the anthrax spore to germicides. From reports of European commissions on anthrax, it appears that no certain means of destroying the spores by heat or antiseptic solutions without injuring the commercial value of the hides, wool or other material have yet been discovered. The real need in America would seem to be specific regulations compelling employer and employee to take certain simple precautions in the handling of suspected materials, as the wearing of gloves and masks for those carrying hides and wool, separate working clothes for the factory, facilities for washing and bathing with hot water and soap, the disinfection of workrooms and benches, and especially the elimination of dust by exhaust systems in dusty processes, such as wool-sorting, from which the exceedingly dangerous pulmonary type of anthrax is contracted. The posting of notices which would bring home to the worker the modes of infection of anthrax, the danger of infecting slight abrasions of the skin, the first symptoms of the disease (the pimple which later becomes the black centered pustule), and especially the need for early treatment by the physician, would also be of great help. Arrangements should be made for the liberal use, at little or no cost to the infected worker, of antianthrax serum, which now is expensive. When preventive means of definite value are so near to hand, it is a pity if life is lost because of neglect and carelessness by those who are responsible for the health and welfare of workers exposed to the dangers of anthrax.

1. This pamphlet, G. O. 66, W. D. 1910 and supplementary circular No. 2 will be sent by The Journal on receipt of a stamped self-addressed envelope.
2. Andrews: Bull. 205, U. S. Bureau of Labor Statistics, 1917.

Medical Mobilization and the War

KINSMEN, HAIL!

This poem, by one of England's poet-laureates, was written in 1894. It reads as though it were written for the present war; in any event, it is so appropriate to the day that it is worth reproducing.

What is the voice I hear
On the winds of the western sea?
Sentinel, listen, from out Cape Clear,
And say what the voice may be.
'Tis a proud free people calling loud
To a people proud and free.

And it says to them, "Kinsmen, hail!
We severed have been too long,
Now let us have done with a wornout tale,
The tale of an ancient wrong;
And our friendship last long as love doth last,
And be stronger than death is strong."

Answer them, sons of the selfsame race,
And blood of the selfsame clan;
Let us speak to each other face to face,
And answer as man to man;
And loyally love and trust each other
As none but free men can.

Now fling them out to the breeze,
Shamrock, Thistle and Rose;
And the Star Spangled Banner unfurled with these—
A message to friends and foes
Wherever the sails of peace are seen,
And wherever the war-wind blows.

A message to bond and thrall to wake;
For wherever we come, we twain,
The throne of the tyrant shall rock and quake,
And his menace be void and vain;
For you are lords of a strong young land,
And we are lords of the main.

Yes, this is the voice on the bluff March gale:
We severed have been too long,
But now we have done with a wornout tale,
The tale of an ancient wrong;
And our friendship last long as love doth last,
And be stronger than death is strong.

—Alfred Austin.

MEDICAL MILITARY INFORMATION FOR PHYSICIANS

The following pamphlet will be sent on receipt of 6 cents in stamps to cover cost of mailing:

"The Medical Officers of the Army," by Major William N. Bispham, M. C., U. S. Army; including "The Medical Corps of the Army as a Career," by Major R. C. Noble; the text of the Geneva Convention; lists of literature, etc. 72 pp.

Any of the following mentioned pamphlets or circulars will be sent by The Journal on receipt of a stamped self-addressed envelope:

1. What the Civilian Doctor Called to Active Service with the Army Should Know, by Major W. J. Lyster; a reprint of three articles which appeared in The Journal in 1916, giving the duties of the physician in the zone of the interior, on the line of communication, and in the zone of the advance.

2. Rules for the Examination of Recruits; consisting of G. O. No. 66 and Circular No. 2, giving the regular technic of examination of recruits for the United States Army.

3. Examining Boards for Applicants for the Medical Reserve Corps; a list of boards officially constituted to pass on applicants for the Medical Reserve Corps.

4. Information Regarding Application for Appointment in the Medical Reserve Corps.

5. Application Blanks for Appointment to the Medical Corps and to the Medical Reserve Corps.

6. General Information for Officers Entering Service in the Medical Reserve Corps; Bulletin VII, Army Service Schools, 15 pp.

Salary of Reserve Officers in Camp

To the Editor:—Please inform me if medical officers in the Reserve Corps draw salaries when ordered to training camps.

OLIVER H. GRIFFITH, M.D., Parkersburg, W. Va.

ANSWER.—A medical officer when ordered to active duty receives the salary of the rank in which he is commissioned.

Examination of Recruits Under Draft

To the Editor:—Will you please inform me who is going to examine the men recruited by selective draft as to their physical qualifications? Are the members of the Medical Corps the examining board, or are volunteer civilian physicians to pass on the candidates?

J. A. VALENTA, M.D., Iowa City, Iowa.

ANSWER.—It is understood that the examination of recruits will be made by regularly created boards, and that these boards will be composed of Medical Reserve Officers on active duty and detailed for this purpose.

Moving to Another Location After the War

To the Editor:—If a man enters the service of the government, serves through the war and is honorably discharged when his services are no longer needed by the government, finds circumstances so changed on his return to his former location that it is not advisable for him to reopen his office there and must find a new location in some other state that does not reciprocate with his former location, will he be required to stand another examination before the State Board of Medical Examiners in the state of his choice before he will be allowed to practice medicine? In other words, will active service in the Army, Navy, Public Health Service, etc., during the time of war, entitle a physician to practice medicine in any state of the Union? I am in a small town that is not large enough for two. Should I enter the service and find on my return home that I have lost my practice to some "slacker" or for other cause, and find it necessary to locate elsewhere, will my service to my government entitle me to locate in some other state without examination? No other state reciprocates with Alabama, and the study necessary for me to pass an examination would be an enormous loss of time and money when most needed, makes me hesitate before giving up the practice it has taken me several years to build.

S.

ANSWER.—The great sacrifice that many physicians will make when they leave their homes to go into the army work will be the possible loss of their practice—the business they have built up. The organized profession in nearly every state is trying to make arrangements whereby the loss will be minimized, but undoubtedly absence for a year or two will mean the total loss of practice, if that practice was general in character, and in a locality where there are many other physicians.

In regard to securing new locations: This will not be difficult in many states in which reciprocity has been provided for by the Medical Practice Act, and in which the licensing board has established reciprocal relations with other states. In some states—Alabama, for example—the law provides for reciprocity, but the licensing board has not established such relationships. The probability is, however, that this will be established if there are many cases such as that of our correspondent from Alabama. Furthermore, already the practice acts in eight states provide for the licensing of retired medical officers of the United States Army, Navy and Public Health Service without further examination, and possibly this may be extended to apply to medical reserve officers who have been in active service.

Appointment of Officers in Medical Reserve Corps

During the week ending May 26, 1917, there were recommended to the adjutant-general of the army for commissions in the Medical Reserve Corps, twelve majors, seventy captains and 139 lieutenants.

During the week ending June 2, 1917, there were recommended to the adjutant-general of the army for commissions in the Medical Reserve Corps, ten majors, 160 captains and 663 lieutenants.

Orthopedic Surgeons Arrive in England

The Goldthwaite unit of orthopedic surgeons, which went to England to undertake orthopedic work under the direction of Col. Robert Jones, arrived safely during the week ending June 2.

Chicago Unit Reaches England

A cablegram from London announces the arrival in England of the last of the six American Red Cross units ordered

abroad, namely the Chicago unit. This unit is commanded by Major Christopher C. Collins, with Major Frederic A. Besley as medical director. Another message from Mrs. Whitelaw Reid of London announces that the New York, Boston and Cleveland units have already gone to hospitals in France.

What's the Matter with Pocatello?

To the Editor:—Anent your current comment, THE JOURNAL, May 26, "The Duty of the Medical Profession," I desire to state that when war was declared there were sixteen practicing physicians in Pocatello, Idaho. Since that date one has entered the Navy Medical Corps, one has reported for duty in the Medical Reserve Corps, four others have already received commissions in the same service, and two others have applied for commissions, making a total of eight out of the sixteen. Is there anything wrong with Pocatello?

FRANCIS H. POOLE, M.D.
Secretary, Pocatello Medical Society.

Many Ask Exemption

In an address delivered by Major Robert E. Noble, M. C., U. S. Army, before about 1,500 physicians of New York City, at a medical reserve rally, May 28, he is reported to have said:

> We have offered commissions to five thousand men. One-half of them have accepted. Of the officers ordered to the training camp the number who have asked to be exempted is simply appalling. I entreat you as citizens of this great country and as members of this noble profession to give the service we ask, in this time of crisis.

Special Committee to Study Medical Conditions at the Front

Major Hugh Hampton Young, M. R. C., Baltimore, director of the James Buchanan Brady Institute at the Johns Hopkins Hospital, has been selected to head the special mission under the direction of Gen. William C. Gorgas, Washington, D. C., and the Council of National Defense that is to study medical necessities at the battle front, and will have entire charge of the medical care of the American Army in France. Dr. Young has already started on his mission and on his arrival in England will report to Surg.Gen. Sir Alfred Keogh, R. A. M. C. He and his staff will also report on the advisability of establishing in this country a hospital for the care of wounded and disabled American soldiers who may have to be sent home. Dr. Young will be accompanied by Capt. Louis C. Lehr of Georgetown University, Capt. Montague L. Boyd of Emery College, Atlanta, and Lieut. Howard L. Cecil of the Brady Institute, Johns Hopkins Hospital.

Staple Supplies for War Conditions

The Council of National Defense has issued under date of May 9, 1917, Part One of a series of pamphlets which will include lists of staple medical and surgical supplies selected to meet war conditions. These pamphlets have been prepared by the Committee on Standardization of the Council of National Defense. Part One is devoted to surgical instruments and includes a miminum number of articles. The lists of surgical instruments and apparatus were selected by subcommittees appointed by the Committee on Standardization. These committees were composed of medical officers of the Army, Navy, Public Health Service a 1 Red Cross, and civilian practitioners representing all the specialties of medicine, working in conjunction with committees of manufacturers of such instruments and appliances. All of the instruments are illustrated and adequately described. The book may be obtained by addressing the Government Printing Office, Washington, D. C.

Training of Volunteer Nurses' Aids

The Committee on Hospital and Medical Facilities of the Mayor's Committee on National Defense, New York, believing that many hospitals will wish to train women as volunteer nurses' aids to serve in their own or other civilian hospitals during the period of the war, has outlined standards for such a course of training. These have been formulated by a subcommittee of this committee, working in cooperation with the New York County Chapter of the American Red Cross, and have the approval of the American Red Cross.

It appears that a plan for the training of volunteer nurses' aids has already been worked out by the Red Cross Nursing Service, and that a course of instruction for that purpose has for some months been given in base hospitals. With certain slight changes in the theory and a moderate increase in the amount of time devoted to certain practical procedures, the course appears to be a suitable one for the purpose for which it is intended.

The committee recommends that the plan of training for volunteer nurses' aids now given in base hospitals under the auspices of the Red Cross Nursing Service be accepted and extended to such other hospitals as may be approved by the Red Cross for the purpose, and that such courses wherever given should conform substantially to this plan and be carried on under the same auspices.

In view of the fact that hospitals lacking proper educational facilities and unable to offer a proper field for such training, are attempting to establish short courses of training, it is of considerable importance that such efforts should as far as possible be placed under the control of the Red Cross, which forms our national nursing service. In no other way can volunteer nurses' aids be given the official recognition which will make them available for service wherever they may be most needed.

The plan of training for volunteer nurses' aids in connection with base hospital units calls for a short course of theory covering fifteen periods of two hours each (thirty hours in all, for theory) followed by a course of training in practical work in hospital wards, covering twenty-four periods of three hours each (seventy-two hours in all, for practice).

It is recommended that the courses of theory and practice be carried on in the manner described above, or concurrently, where that method proves more convenient to the hospital giving the course, and that the period of practical work be increased from seventy-two hours to a maximum of 120 hours. This increase seems advisable, not in order that the range of work for which nurses' aids should be prepared may be enlarged, but rather that more time may be given them to acquire some reasonable degree of skill and reliability in the performance of the tasks to which they be assigned.

The adjustment of the time in which these courses may be completed should be left to the hospital selected.

The general requirements laid down by the Red Cross for the training of volunteer nurses' aids are:

(*a*) That candidates for admission to the course should not be under 23 years nor over 50. (It is recommended that they bring in addition satisfactory evidence of a good English education and of good moral character.)

(*b*) That a paid instructor be appointed for this special work who shall preferably be an enrolled Red Cross nurse, selected by the superintendent of nurses, and her appointment approved by the Red Cross Nursing Service.

(*c*) That the number of persons admitted to classes in theory should not exceed twenty, and that for practical work not more than ten should be admitted to any hospital at any one time for training.

(*d*) That the usual uniform for volunteer aids be worn during the training, but that the insignia of the Red Cross be allowed only when on satisfactory completion of the course the aid is detailed to regular duty.

(*e*) That students entering for training as volunteer nurses' aids should be enrolled by the Red Cross Nursing Service and that examinations be conducted and certificates awarded through that service.

(*f*) That a suitable fee be charged for the course of instruction, of which 50 cents per capita be sent to the Bureau of Nursing Service at Washington, D. C.

Ambulance Items

One dozen General Motor Company special war ambulances have been ordered by Lieut. Austin F. Riggs for the use of Ambulance Company No. 13, Stockbridge, Mass.——Ambulance Company No. 3, of the University of Chicago is said to have received instructions to mobilize at once. It is understood that the company will proceed to a point near Allentown, Pa., where it will be equipped and placed in readiness to proceed to France.——The nineteenth section of the American Field Ambulance left Paris for the front, May 17, and the second transportation section left on the following day. The Chicago Traffic Club has donated an

ambulance with full equipment for service in France.——Minneapolis business men have offered three motor ambulances, fully equipped, to the University of Minnesota Red Cross Base Hospital.——Students of the University and Bellevue Medical College, New York, have offered to furnish and equip ten ambulances to be sent with the American troops for foreign service.——Ambulances for use in France have been given by Thomas M. Dickinson and Laurence H. Armour of Chicago.——A Red Cross Ambulance Company was organized at Butler House, Chicago, May 28.——Amherst College Alumni, Chicago, have received $1,600 for an ambulance for the American ambulance field service. Louis G. Caldwell of the class of 1913 will drill the ambulance.——The citizens of Riverside, Ill., have unanimously agreed to provide and equip an ambulance for France, instead of having a Fourth of July celebration; the ambulance will be driven by Clinton B. Evans, Jr., Riverside.——The Chicago Athletic Association has donated two ambulances for use in France, one to be driven by Joe Loomis, the other by Harrison Lobdell.——Mrs. A. Montgomery Ward, Chicago, has given two ambulances for service in France.

Reserve Officers Ordered to Active Duty

The following officers of the Medical Reserve Corps have been ordered to active duty at the places mentioned:

To FORT MEYER: Lieut. John Milliken, Redding, Maine.

To NORTHEASTERN DEPARTMENT: Lieut. Paul D. White to report to commanding general for duty pertaining to examination and enlistment of Massachusetts General Hospital base unit.

To FORT RILEY, KAN.: Major Philip K. Gilman, San Francisco; Capts. Eugene L. Opie and Harry M. Moore, St. Louis; Lindsay S. Milne, Kansas City, Mo.; Richard T. Glyer, Brooten, Minn.; James W. Thornton, Ackley, Iowa; Eugene R. Lewis, Dubuque, Iowa; William H. Hargis, San Antonio, Texas; Thomas P. Doole, Eagle Lake, Texas; Mendell A. Jones, Riverside, Calif.; Bruce Ffoulkes and Bertram F. Alden, San Francisco; Harry T. Southworth, Prescott, Ariz.; Lieuts. William F. Ball, Batesville, Ark.; James V. Falisi, Little Rock, Ark.; Delbert Smith, Michael J. Owens and Frederick A. Hecker, Kansas City, Mo.; Walter P. Glendon, Bridgeton, N. J.; William C. Dieckman, Dexter, Mo.; Emmett F. Cook, St. Joseph, Mo.; Leo P. Bell, Rochester, Minn.; Homer Beall, Malden, Mo.; Warner G. Workman, Tracy, Minn.; Theodor Bratrud, Grand Forks, N. D.; Stephen A. O'Brien, Mason City, Iowa; Cecil G. Morehouse, Waukon, Iowa; Frederick W. Bowles, Ottumwa, Iowa; Harry H. Robinson, Rufus I. Newell and William S. Frost, Spokane, Wash.; William L. McClure, N. Yakima, Wash.; Charles E. Eaton, Seattle; Karl T. Brown, Indianapolis; John B. Steele, Chattanooga, Tenn.; Albert S. Rider, Flanders, S. D.; William C. Smith, Ralph L. Sharkey, Joseph A. Pettit and Ferdinand H. Dammasch, Portland, Ore.; Leo W. Chilton, Canyon City, Ore.; Vestal R. Abraham, Hook River, Ore.; Pleasant P. Nesbitt, Muskogee, Okla.; Louis A. Milne, Lawton, Okla.; Charles E. Swezy, Winnemucca, Nev.; Frederick A. Van Buren, Omaha; James C. Tucker, Long Pine, Neb.; Willard S. Howard, Alliance, Neb.; Paul R. Howard, North Bend, Neb.; Frederick Binder, Corning, Iowa; John D. Bartlett, Grass Range, Mont.; Edwin R. Tenney, Kansas City, Kan.; Joseph D. Pettet, Arcadia, Kan.; Jarvis E. Hodgson, Downs, Kan.; John B. Close, Marysville, Kan.; Frank M. Sprague, Pocatello, Idaho; Philip Work, Pueblo, Colo.; Charles F. Stough, Colorado Springs, Colo.; Caleb W. Presnall, Trinidad, Colo.; Oscar F. Broman, Greeley, Colo.; W. Claude Copeland, Hotchkiss, Colo.; Andrew W. Smith and Joseph D. Condit, Pasadena, Calif.; Albert M. Meads, Berkeley, Calif.; Edgar H. Howell, Richard J. Dowdall and Arthur C. Gibson, San Francisco.

To FORT OGLETHORPE, GA.: Majors John T. Burris, High Point, N. C.; Bert Wilder Caldwell, Pittsburgh; Harold Dunbar Corbusier, Plainfield, N. J.; Edgar S. Linthicum, Baltimore; Capts. Howard E. Ashbury, Bertram M. Bernheim, Eveleth W. Bridgman, Thomas R. Chambers and John G. Murray, Baltimore; Elliott B. Edie, Connellsville, Pa.; Thomas M. Foley, Washington, D. C.; Stillwell C. Burns, George S. Mintzer, Alfred J. Ostheimer and John S. Rodman, Philadelphia; William H. Thomas, Steele's Tavern, Va.; Lieuts. Joseph D. Aronson, Philadelphia; William Bates, Philadelphia; Clarence F. Bernatz, Braddock, Pa.; James D. Blevins, Pittsburgh; Lewis Booker, New Castle, Del.; Guy C. Boughton, Erie, Pa.; Joseph H. Boyles, Greensboro, N. C.; Noss D. Brant, Crafton, Pa.; Samuel H. Braude, New Haven, Conn.; Alfred J. Buka, Pittsburgh; Webster Calvin, Hollidayburg, Pa.; Charles J. Cole, Jr., Elkins Park, Pa.; Charles A. Coll, Philadelphia; Joseph H. Collins, Pittsburgh; Carson Coover, Harrisburg, Pa.; Ralph E. Dees, Greensboro, N. C.; Thomas F. Dodd, Lincolnia, Va.; Ernest W. Downton, Kirkwood, N. Y.; Joseph C. Edgar, Oakmont, Pa.; James Burrow Edwards, Chanute, Kan.; Lester Efird, Tampa, Fla.; Leon Felderman, Philadelphia; Charles S. Flagler, Stroudsburg, Pa.; Frank Freeland, Maywood, N. J.; Friend B. Gilpin, Cranford, N. J.; Donald Guthrie, Sayre, Pa.; William M. Hopp and Eugene H. Hayward, Baltimore; John R. Hemminger, Somerset, Pa.; Thomas B. Henderson, Henderson, N. C.; John N. Henry, Philadelphia; George J. Heuer, Baltimore; William W. Hoggatt, Bradentown, Fla.; Russell R. Jones, Edgewood, Pa.; Robert A. Keilty, Lansdowne, Pa.; David D. Kennedy, Pittsburgh; George C. Kilpatrick, Mobile, Ala.; George M. Laws, Philadelphia; Walter E. Lee, Darby, Pa.; Horace R. Livengood, Elizabeth, N. J.; Floyd D. Lohr, Derry, Pa.; William J. McAnally, Boston; Gilpin M. McCain, New York; Henry E. McClenahan, Pittsburgh; Thomas L. McCullough, Homewood, Pa.; John A. McKenna, Lansdowne, Pa.; Hertel P. Makel, Baltimore; Harrison Martland, Newark, N. J.; Jacob L. Mathesheimer, Jersey City, N. J.; Frank V. Meriwether, Gantt, Ala.; Floyd Miller, Ashboro, N. C.; Charles H. Mitchell, Trenton, N. J.; James C. Motley, Abingdon, Va.; John H. Musser, Jr., Philadelphia; Bert F. Ober, Latrobe, Pa.; Newdigate M. Owensby, Baltimore; Frederick J. Pate, Greensboro, N. C.; Thomas C. Peightal, New York City; Don P. Peters, Baltimore; Damon B. Pfeiffer, Philadelphia; Kenneth A. Phelps, New York; George M. Piersol, Philadelphia; Llewellyn Powell, Alexandria, Va.; John K. Chorlog, Madison, Wis.; Frank E. Darling, Milwaukee; Curtis A. Evans, Milwaukee; J. Gregory Hoffman, Hartford, Wis.; Charles Wilford Hughes, Winneconne, Wis.; Paul E. M. Kersten, J. R. Longley, Fond du Lac, Wis.; Harry C. Mix, Green Bay, Wis.; George Senn, De Pere, Wis.; Adolph J. Shimek, Manitowoc, Wis.; Carl C. Vogel, Elroy, Wis.; Michael R. Wilkinson, Oconomowoc, Wis.; Thomas Willett, West Allis, Wis.; Vincent J. Irwin, Jr., Granby, Conn.; James D. McGaughey, Wallingford, Conn.; William P. Boardman, Boston; David E. Dolloff, Biddeford, Me.; Lew B. Hayden, Livermore Falls, Me.; Paul S. Hill, Biddeford, Me.; Harrison B. Webster, Castine, Me.; Roland A. Behrman, Boston; Nathaniel Pope Breed, Lynn, Mass.; Harry F. Byrnes, Springfield, Mass.; Frederick B. McAdy and Harold E. Carney, Boston; Arthur W. Carr, Bridgewater, Mass.; Robert C. Cochrane, Boston; Harold E. Eggers, Omaha, Neb.; Arthur B. Emmons, Dover, Mass.; Channing Frothingham, Jr., Boston; Frederick H. Howard, Williamstown, Mass.; William J. McDonald, Fowler, Colo.; Daniel F. Mahoney, Boston; Francis R. Mahoney, Lowell, Mass.; James H. Means, Boston; Leon S. Medalia, Boston; John Joseph Murphy, Chicago; Albert Pfeiffer, Lima, O.; Augustus Baxter Riley, Hartford, Ky.; David D. Scannell, Boston; Nathan P. Pulsifer, Lowell, Mass.; Austin F. Riggs, Stockbridge, Mass.; Edward B. Simmons, Worcester, Mass.; Ralph Rayburn Simmons, Columbia, Mo.; Pierre Norbert Bergeron, Philadelphia; James Stevenson Allen, Geneva, N. Y.; William H. Baughman, Conrad Berens, Jr., Attilio M. Caccini, Douglas W. Cairns, James L. Cobb, Edward M. Colie, Jr., Edmund McC. Connoly, William A. Dalton, Thomas K. Davis, Sumner Everingham, Linwood M. Gable, Joseph Girsdansky, Charles Gottlieb, Malcom McBurney, Bruce G. Phillips, Daniel Poll and Hugh A. Riley, New York; Edmund C. Boddy, John R. Booth, Lawrence J. Nacey, Edgar W. Phillips and James M. Flynn, Rochester, N. Y.; Henry M. Feinblatt and John F. Ranken, Brooklyn; Samuel A. Munford, Ithaca, N. Y.; Alfred H. Parson, Great Neck, N. Y.; Charles L. Redfield, Middletown, N. Y.; Nathaniel P. Brooks, Seattle, Wash.; Charles H. Holt, Pawtucket, R. I.; Ira H. Noyes and Harmon P. B. Jorden, Providence, R. I.; Norman R. Price, Marlintown, W. Va.; Irvin Hardy, Morgantown, W. Va.; Capt. Beth Vincent, Boston; Mont R. Reid, Baltimore; Edd L. Robertson, Belzoni, Miss.; Wilton H. Robinson, Pittsburgh; Lewis J. Rosenthal, Baltimore; Herbert De Grove Sherman, White Plains, N. Y.; C. L. Sherrill, Statesville, N. C.; Harry R. Slack, Jr., Baltimore; Marvin L. Smoot, Fayetteville, N. C.; Caleb W. Sommerville, Philadelphia; August A. Strasser, Arlington, N. J.; Maurice L. Townsend, Charlotte, N. C.; James W. Vernon, Morgantown, N. C.; Wm. L. Vroom, Ridgewood, N. J.; James P. Wall, Jackson, Miss.; James R. Wells, Stone Mountain, Ga.; William E. Whitson, Washington, D. C.; John E. Williams, Roselle Park N. J.; William E. Wilmerding, Selma, N. C.; Newton G. Wilson, Summerfield, N. C.

To FORT BENJAMIN HARRISON: Majors Lucius E. Burch, Nashville, Tenn.; Ernest E. Irons, Chicago; Harry N. Torrey, Grosse Point, Mich.; Eugene H. Pool, New York City; Udo J. Wile, Ann Arbor, Mich.; Capts. William F. Bernart and Lewis W. Bremerman, Chicago; Vernon C. David, Evanston, Ill.; Francis Deacon and Frank E. Pierce, Chicago; Hugo A. Freund, Detroit, Mich.; William H. Honor, Wyandotte, Mich.; George Waters, Memphis, Mich.; Zabdel B. Adams, Brookline, Mass.; Roger Kinnicutt, Worcester, Mass.; Abram S. Clark and Wm. P. J. Ruddy, New York City; Herbert W. Taylor, Brattleboro, Vt.; Lieuts. James A. Britton, Chicago; Andrew J. Butner, Harrisburg, Ill.; William Arthur Clark, Peter Selbie Clark, and Roy H. Cox, Chicago; John C. Dallenback, Champaign, Ill.; George De Tarnowsky, Erle F. Fisher, Thomas P. Foley and Arthur H. Geiger, Chicago; Ross W. Griswold, Litchfield, Ill.; James B. Hastings, Alton, Ill.; Otto A. Kreme, Joliet, Ill.; William R. Larkin, Lawrence H. Mayers, Edwin Morton Miller, George H. Musselman, Harry D. Orr, Lester J. Palmer and George N. Pratt, Chicago; Roswell T. Pettit, Ottawa, Ills.; Samuel H. Richman, Oak Forest, Ill.; William R. Robison, Chicago; Henry J. Ullmann, Highland Park, Ill.; George W. Woodnick, Chicago; Oliver O. Alexander, Terre Haute, Ind.; Zera M. Beaman, North Manchester, Ind.; Clinton G. Beckett, Attica, Ind.; James Duckworth, Indianapolis, Ind.; Baruch M. Edlavitch, Ft. Wayne, Ind.; Laurence E. Jewett, Wabash, Ind.; Maurice H. Krebs, Huntington, Ind.; Otho R. Lynch, Peru, Ind.; Jesse L. McElroy, Indianapolis, Ind.; Edgar H. Myers, South Bend, Ind.; Garland D. Scott, Sullivan, Ind.; John P. Shomer, Peru, Ind.; John M. Titus, Hebron, Ind.; Warren L. Babcock, Detroit, Mich.; Adolph E. Dreyer, Detroit, Mich.; William Curtis Gibson, Suffolk, Va.; Harry H. Hammel, Ann Arbor, Mich.; Marinus L. Holm, Lansing, Mich.; Harry M. Malejan, Ann Arbor, Mich.; Charles H. Merrill, Detroit, Mich.; Norman Murphy, Bangor, Mich.; Dean W. Myers, Ann Arbor, Mich.; Don H. Silsby, St. Johns, Mich.; Charles L. Washburne, Ann Arbor, Mich.; Charles A. Bowers, Cleveland; Townsend H. Dickinson, Germantown, O.; Forrest M. Evans, Balboa, Canal Zone; Alfred G. Farmer, Athens, O.; Michael R. Haley, Piqua, O.; Burt Hibbard, Lima, O.; Elmer A. Klein, Norwood, O.; Charles H. MacFarland, Jr., Cleveland; Orville T. Manley, Warren, O.; Clarence F. Murbach, Archbold, O.; Joseph C. Placak, Cleveland; Goodrich B.

Rhodes, Cincinnati; LeRoy B. Sherry, Cleveland; Harry R. Wahl, Cleveland, and Glenford Bellis, Wauwatosa, Wis.

Miscellaneous Orders: Capt. Arthur A. Finch, M. R. C., Astoria, Ore., to Fort Stevens. First Lieut. William J. Topmoeller, M. R. C., Cincinnati, to report to Col. Lansing H. Beach for examination of reserve corps recruits. First Lieut. Charles W. Woodall, M. R. C., Schenectady, N. Y., to the Plattsburg Barracks. First Lieut. John C. Murphy, M. R. C., Hinesburg, Vt., to Ft. Ethan Allen. First Lieut. George R. Harris, M. R. C., Pittsburgh, to Fort Niagara. First Lieut. Joseph V. Klauder, M. R. C., Philadelphia, to home. First Lieut. J. David M. Roberts, M. R. C., New Richmond, O., to home. Capt. George A. Evans, M. R. C., and First Lieut. Fred D. Fairchild, M. R. C., George K. Herzog, M. R. C., William J. Lewis, M. R. C., and Benjamin Jablons of M. R. C., San Francisco, for active duty at San Francisco.

First Lieut. Harry C. Blair, Soldiers' Home, Washington, D. C., to report by telegraph to the commanding general of the southeastern department; First Lieut. George C. Ruhland, Milwaukee, report by telegraph to the commanding general of the central department.

A Special Committee Appointed to Investigate Health Conditions in the Navy

Secretary Josephus Daniels of the Navy on June 1 appointed a special committee to investigate conditions aboard naval vessels and in naval recruiting camps ashore, and to report their findings for the information of the public. The committee consists of Dr. William H. Welch, Baltimore; Dr. Abram Flexner and Nathan Straus. The committee will make a thorough investigation beginning with the hospital ship "Solace" and the Atlantic fleet.

Tuberculosis and War

Dr. Herman M. Biggs of the New York State Department of Health, in the *Survey,* May 5, 1917, discusses tuberculosis in France as influenced by war conditions. While practically all epidemic diseases which have heretofore been scourges of armies in the field have been brought under control in the present war, tuberculosis has assumed a large part in the sanitary history of the present struggle. France is the country that has been hard hit in this respect, though Biggs says that from such data as are obtainable Austria, Hungary, Russia, and perhaps to a less extent, Germany, have likewise suffered. As contrasted with England with 1 death from tuberculosis per thousand, New York State with 1.5, France before the war had 3 deaths per thousand, and in many cities the rate was higher. Biggs attributes this largely to the fact that even before the war France paid little systematic attention to tuberculosis. It had not been recognized by the sanitary authorities, and even now is not a notifiable disease. With the advent of the war and the rapid mobilization of the troops, with examinations which were not sufficiently rigid, and with the strenuous conditions imposed on troops in the field, latent or arrested tuberculosis manifested itself among the troops and by the end of December, 1915, 86,000 soldiers had been returned to their homes with active tuberculosis. In February, 1917, it was estimated that 150,000 had been returned for this cause. Biggs believes that in addition 3 or 4 per cent. of the population who formerly lived in the departments now in German occupation have the disease, which would mean another 125,000, based on a population of 4,250,000. Half of these live back of the German lines, partly in their own homes, partly in concentration camps and partly deported into Germany, many of whom have been returned on account of illness which made them a burden to their captors. Biggs says that while he was in Switzerland, of 20,000 of these people returned, 5,000 were said to have tuberculosis, though the estimated infection among those deported into Germany has been placed at 5 or 6 per cent., which Biggs believes is conservative. Among the 350,000 or 400,000 French prisoners in Germany an estimate of 5 or 6 per cent. of tuberculous infection has been made, although some French estimates run as high as 30 or 40 per cent. Among the four million men in the active French army at present it is estimated that ½ to 1 per cent. have tuberculosis. It is not believed that the cases of tuberculosis among the civil population has decreased since the war, and in the remaining 30,000,000 not accounted for in the foregoing figures, on a conservative estimate, taking as a basis the prevalence of the disease before the war, there would be at least 150,000 cases, making in all about 500,000 cases, or, say, 400,000, to be extremely conservative, to be dealt with if the war were terminated at once. To deal with this vast number of cases Biggs says there are at present the so-called sanitary stations with 11,000 beds, which number it is hoped to increase to 16,000 by the end of the war, and a dozen or so well equipped dispensaries. There are practically no trained nurses or social service workers, but a few women are being trained in a three months' course in the Laennec Hospital. Not more than a dozen physicians are said to have given any special attention to tuberculosis, few have had sanatorium experience and still fewer who are at all familiar with the tuberculosis work of others. The outlook, Biggs feels, is not encouraging, though the French government has partially realized the situation and is trying to meet the problem by the organization of dispensaries in the populous regions of France.

Senate Committee Hearing on Salvarsan Legislation

The Committee on Patents of the United States Senate gave a hearing on June 4, on the several bills now pending in Congress, looking toward the abrogation or suspension of the patients controlling the manufacture of salvarsan, or the assumption of ownership or trusteeship by the government. The case against the salvarsan patents was stated by Dr. George Walker, J. M. T. Finney and Theodore C. Janeway of Johns Hopkins Hospital, Baltimore, and Dr. Victor C. Vaughan of the University of Michigan, Ann Arbor, Mich. Mr. Herman Metz, New York, who has been supposed to be operating in this country under an assignment or a license from the owners of the German patents, presented his side of the case.

The arguments presented in the support of legislation proposed for the purpose of procuring for the United States a sufficient supply of salvarsan at a reasonable price were in substance those with which physicians are familiar; namely, that the existing patents enable the owners to extort from the American public an unconscionable profit for an absolutely necessary drug under penalty of suffering in the present generation and in generations to come from the suffering and disability incident to syphilis. It was pointed out, too, that there had at times been a grave shortage of the drug in this country, and that American manufacturers who might have relieved the situation had been deterred from doing so by the fear of expensive litigation based on alleged infringement of the German patents, with the possibility of having to pay large royalties should suits of this character be determined against them.

In defense of the course followed by the owners of the German patents and of his own course, Mr. Metz said that the only increase in the price of salvarsan had been based on the increased cost of obtaining the supply necessary for the United States, due to disturbed labor conditions in Europe, increased cost of transportation from Germany to this country, increased insurance rates, etc. There had been no increase based on the scarcity of salvarsan in America. That he had stopped selling to jobbers of the drug and had sold only to physicians and hospitals, but he had done this in order to prevent the supply intended for the United States from being dissipated by exportation by jobbers to other countries. He alleged that some physicians—he expressly stated that he did not claim that they were reputable physicians—had bought salvarsan as a speculation, for resale, and that the increased prices at which such resales were effected had tended to give the impression that the manufacturers and the legitimate vendors of the drug were taking advantage of the shortage to extort unjust prices. Such resales had made possible the flooding of the market with supurious salvarsan by vendors.

Canadian and French preparations had been available as substitutes for the trademarked salvarsan, and Schamberg's article had been on the market, so that the shortage of the preparation was apparent rather than real. Metz himself had agreed not to institute suit against Schamberg for infringement of the German patent, and had as a matter of fact himself purchased from Schamberg when he had been unable to obtain the necessary supply from Germany. For salvarsan obtained in Germany, Metz claimed to have paid 5 marks per ampule. This was for the unlabeled ampules. To this price there should be added, to determine the cost of the drug to him, the cost of transportation from Germany, insurance, 30 per cent. duty, testing of ampules for breakage in transit, losses due to breakage, labeling, packing, advertising, distribution and overhead charges. He had been at some expense, too, he said, in his efforts to detect and to prevent the sale of spurious salvarsan, some of which was absolutely

inert and which was liable to constitute a real danger to the patient. If the finished ampule can be produced for from 50 to 60 cents each, Metz thought that the price to the jobber should be $1.50, the difference between the net cost of the finished ampule and the price to the jobber covering all overhead charges and all profit to the manufacturer. The jobber ought to sell at not to exceed $2 per ampule. For such salvarsan as he has bought from Schamberg, Metz has paid $1.50 per ampule at the Philadelphia office and has had the expense of labeling and of packing to pay in addition. This he has sold at retail for $2.50 per ampule, and to the government at net cost, $1.50. Mr. Metz has erected a laboratory in Brooklyn for the manufacture of salvarsan, which, he said, in about thirty days will be able to put on the market any quantity of salvarsan that may be needed. He has offered to turn this factory over to the government, or to supply the government at cost all salvarsan necessary for the army and navy.

It was developed during the course of Mr. Metz' testimony that until recently his relations with the German manufacturers of salvarsan had been simply those of an exclusive distributing agent in the United States. Such salvarsan as he needed for the American trade he bought and paid for, and he made his profit out of sales. He was not a licensee of the German owners of the patents, nor an assignee of the American patent rights. When difficulty arose in obtaining the necessary supply in America, he sought to obtain an assignment of the American patent rights, but having failed to do so he sent his brother to Germany to see what could be done. His brother was given free access to the factory and allowed to learn the method of manufacture, but when it came to bringing to the United States either an assignment of the patent rights or even a written license to manufacture, he was unable to do so, because he could get no writing of any kind through the British lines. On his return to the United States he executed an affidavit in which he set forth the fact that he had been permitted access to the factory and that he had been given the right to manufacture salvarsan in this country. This license was not limited to the period of the war, but was for all time. This was the only evidence that Metz had of his right to manufacture salvarsan, and was offered in evidence. For the right to manufacture, absolutely no consideration of any kind was given, according to Metz, the German manufacturers simply being desirous that the people of the United States should have the benefit of the drug. This was over a year ago. There was no legal obligation on Metz' part to pay royalties, and any such payment would be only because of a moral obligation. No agreement as to the amount of royalties was in force.

Senator James suggested that if Metz was the donor of the license rights to manufacture and sell salvarsan in the United States because the German owners of the patents wanted the American people to have the benefit of the remedy, then he was substantially merely the trustee of such rights for the public and should have no objection to the government manufacturing the drug. Senator Knox suggested that if he had paid nothing for such rights as he professes to own it might be difficult to find any substantial damage to him if his rights were infringed by any one whomsoever. The AMERICAN MEDICAL ASSOCIATION was criticized by Mr. Metz for its activity against the salvarsan monopoly in the United States. Senator Knox inquired whether the ASSOCIATION was not well within its moral obligations in such action, to which Metz assented.

Mr. Metz saw no objection to the United States government taking over the patents on salvarsan for the period of the war and licensing qualified persons and corporations to manufacture it on fair conditions, as proposed in the Adamson bill, recently introduced into the House of Representatives, but he objected to the propaganda that had been maintained against salvarsan alone. He conceded the right of the government to take over absolutely any patent, or to abrogate it. He was in sympathy, too, with legislation restricting the right to patent drugs necessary for the health of the people.

Mr. Metz finally emphasized the distinction between the patents covering the manufacture of the substance known as salvarsan and the trademarked name of that substance, and the distinction was further made clear by his attorney, and it was stated that however willing the owners of the salvarsan patents might be for the government to take over the patents they must insist that the product be not put out under the trademarked name, except such as came from the owners of the trademark and those licensed by such owners.

The committee adjourned without taking action.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Resolutions Regarding Phillip Mills Jones.—At the forty-sixth annual meeting of the Medical Society of the State of California resolutions were adopted setting forth the loss suffered by the society in the death of its secretary, Dr. Phillip Mills Jones, to whose efforts and work, more than to that of others, the sound reorganization of the society is said to have been especially due.

Personal.—Dr. Arthur A. O'Neill, medical superintendent of the San Francisco Isolation Hospital, has been appointed city physician to succeed Dr. Nathan Rosencrantz, deceased. Dr. Raleigh W. Burlingame has been appointed his successor.——Dr. Walter P. Miller, Fresno, fractured his arm recently while cranking his automobile.——Dr. David E. Stafford, for several years physician to the coroner's office of San Francisco County, has resigned to resume the practice of medicine and has been succeeded by Dr. John R. Clark.

Donation of Tethelin.—Dr. T. Brailsford Robertson, professor of biochemistry and pharmacology in the University of California, has donated to the regents of the University his patents for the growth-controlling substance, tethelin, which he has succeeded in isolating from the anterior lobe of the pituitary body. The proceeds which may accrue from the sale or lease of these patents are to constitute a fund which will be entitled "The University of California Foundation for International Medical Research," and which will be expended in the furtherance of medical research, preferably research in the physiology, chemistry, and pathology of growth.

COLORADO

Changes Location.—Dr. J. Sherwood Jacoby, Platteville, has been appointed surgeon in charge of the Empire Zinc Company at Gilman.

Base Hospital Organized.—The University Hospital, Boulder, with all its facilities and staff, is to be offered to the United States, as a base hospital.

Prohibits Division of Fees.—A law recently enacted prohibits the division of fees by physicians, surgeons, chiropractors, midwives and chiropodists, or the payment of compensation by any such practitioners for the procuring of patients. For so doing the law provides as a penalty a fine of from $25 to $250 or imprisonment not to exceed thirty days, or both fine and imprisonment.

ILLINOIS

Inspection of Naval Training Station.—On account of rumors regarding the sanitary conditions at the Naval Training Station, Great Lakes, Dr. Frank Billings, chairman of the Illinois State Council for Defense, made an inspection of the station, May 30. He made a thorough inspection of buildings, both old and new, examined the official statistics and conversed with officers and men. Less than one half of 1 per cent. of the sailors that have passed through the station have been affected with meningitis and there has been no case of typhoid fever in the camp.

Public Health and Welfare Association.—The Illinois Public Health and Welfare Association is an outgrowth of the Better Community Conference, held at the University of Illinois, in June last. Its purpose is to convey a medium for stimulating and correlating the work of all agencies and individuals, directly or indirectly interested in the public health and welfare, including the state department of health, local health departments, the tuberculosis societies, charity organizations, health officers and other public officials, physicians, engineers, lawyers, biologists, chemists, publicists, social workers and community and public health nurses. The association will cooperate closely with the state department of health, in the conduct of schools for health officers.

Chicago

Addition to Post-Graduate School.—The Post-Graduate Medical School, plans to erect two additions to its present buildings, at a cost of more than $125,000. The buildings are

to be a six story addition to the present hospital and a two or three story addition to the nurses' home.

Appropriation for State Hospitals.—In response to an appeal from Health Commissioner Robertson, the city council finance committee has appropriated $10,000 additional to municipal hospitals for the care of sufferers from contagious diseases. This appropriation is sufficient for the maintenance of the hospitals until the end of July only.

Chicago Unit Leaves Germany.—The Chicago unit of the American Physicians' Expedition, which has been stationed for the last year at Graudenz, left Berlin, June 2, for Christiana, on its return to America. Dr. Frederick Hagler, St. Louis, is director of the unit. The unit was financed by the German-Austro-Hungarian Relief Committee, and having finished its work, donated the remainder of its equipment, brought from the United States to the hospital at Graudenz.

KENTUCKY

Infirmary for War Hospital.—At the direction of the board of trustees of the Norton Memorial Infirmary, Louisville, Dr. Lewis S. McMurty, has tendered the government the use of the institution as a base hospital during the period of the war.

MARYLAND

Alumni Meeting.—At the annual meeting of the General Alumni Association of the University of Maryland, held May 31, in Baltimore, Dr. Albert H. Carroll, Baltimore, was elected president. The medical alumni officers elected were: president, Dr. James M. H. Rowland, Baltimore; vice presidents, Dr. William F. Lockwood, Baltimore; Dr. Thomas H. Brayshaw, Glenburnie, Md.; secretary and treasurer, Dr. Edward A. Leuper; recording secretary, Dr. George M. Settle, Baltimore, and corresponding secretary, Dr. Samuel J. Fort, Catonsville, Md.

Hygienists Meet.—The annual meeting of the Maryland Society of Social Hygiene, cooperating with the Public Instruction Committee of the Medical and Chirurgical Faculty, was held in Osler Hall, Baltimore, May 29. There were two sessions: one in the afternoon at which Dr. Emil Novak, Baltimore, presided, and the evening session, when Judge Morris A. Soper presided. Among the speakers was Dr. William C. Rucker, assistant surgeon general, United States Public Health Service, the title of whose paper was "Social Hygiene Program for the Army and Navy During the War."

MICHIGAN

Battle Creek Unit Formed.—American Red Cross Ambulance Corps No. 11 has been organized in Battle Creek, Mich., with Dr. James T. Case as captain. The other officers are: Drs. J. H. Ross, Carl G. Wencke, Willard N. Putnam and Asa C. McCurdy. The organization has been designed for immediate enlistment in the United States Army Ambulance Corps. Two of the male nurses who were graduated, May 29, by the Battle Creek Sanitarium Training School for Nurses have enlisted in the company. Of the fifty who received diplomas at this commencement, seven were men.

NEW JERSEY

State Physicians to Meet.—The one hundred and fifty-first annual meeting of the Medical Society of New Jersey will be held in Atlantic City, June 11 to 13, under the presidency of Dr. Philip Marvel, Atlantic City.

Associated Physicians Meet.—At the annual meeting of the Associated Physicians of Montclair and vicinity, May 28, the following officers were elected: president, Dr. Richard Cole Newton, Montclair; vice president, Dr. Leslie C. Love, Montclair; secretary, Dr. Browne Morgan, Bloomfield; treasurer, Dr. Robert F. Ringland, Montclair, and historian, Dr. Henry Wallace, Glen Ridge.

Personal.—Dr. Richard E. Knapp, Hackensack, while driving his automobile over a grade crossing of the New York and New Jersey Railroad, was struck by a train and seriously injured.——The fiftieth anniversary of the entrance into the practice of medicine of Dr. George R. Kent, Newark, was celebrated, May 7, when he was the guest of honor at a dinner, given by the Practitioners' Club, at which he was presented with an illuminated autograph testimonial.

NEW YORK

Special Appeal for Medical Reserve Corps.—As a result of a stirring appeal by Col. Theodore Roosevelt and Major Robert E. Noble of the Medical Corps, U. S. Army, and Col. T. H. Goodwin of the British Royal Army Medical Corps, recently made at the Yale Club, New York, 174 physicians applied for enlistment as officers in the Medical Reserve Corps.

Special Arrangement for Care of Rejected Recruits.—The Council on Medical Defense Committee of Kings County, N. Y., has arranged to supply medical treatment for recruits rejected by Army, Navy or Marine Corps service. The recruit is supplied with a blank referring him to recognized institutions and in these institutions will be given aid according to his defect so as to make him eligible for service.

New York City

Supply of Salvarsan.—Resolutions on the shortage of salvarsan similar to those adopted by other medical societies were recently adopted by the Public Health Committee of the New York Academy of Medicine and forwarded to Congress.

Measles Epidemic.—This city is experiencing an epidemic of measles. The epidemic made itself felt in the week ending March 24, when the weekly total of cases reported jumped from 389 to 898. Every week, excepting one, since that time has showed over one thousand cases. It is stated that the German measles are also more prevalent than usual.

Spanish Physicians Hold Meeting.—The Spanish-speaking physicians of New York City have formed an organization, known as the Sociedad Medica Hispano-Americana. Dr. Antonio M. Crispin was elected temporary president and Drs. Anibal Zélaya and M. Uribe Troncoso were elected secretaries of the society.

Paratyphoid Vaccine.—The department of health announces that it is ready to supply paratyphoid vaccine, containing 500 million paratyphoid bacilli, Type A, and 500 million paratyphoid bacilli, Type B, per cubic centimeter. For the present it is advised that the dose for the paratyphoid vaccines for the average adult shall be the same as that for typhoid vaccine. Physicians are requested to assist the department in determining a standard dose by reporting the type of vaccine, dosage employed, and the extent, character and incidence of whatever local reaction or general reactions follow the use of the vaccine.

Faculty Changes.—The board of trustees of the Long Island College Hospital announce the appointment of Dr. James C. Egbert, director of extension teaching, Columbia University, as president of the medical college; Dr. Otto von Huffman has been appointed dean; Dr. Wade W. Oliver, formerly of the University of Cincinnati, has been called to the chair of bacteriology, and Dr. Carl H. Laws, formerly of the department of pediatrics in the University of Michigan, has been appointed professor of pediatrics.

Health Department Cooperates with Recruiting Officers.—The health department has made arrangements with recruiting offices whereby men suffering from tuberculosis will be referred to the tuberculosis clinics of the department. An invitation has also been extended to the recruiting officers who may desire to avail themselves of the services of the department clinics to have the clinics examine and observe intending recruits in order to assist in the diagnosis of questionable cases.

To End Milk Charity.—Mr. Nathan Straus has issued a statement in which he announces his intention of giving up the park milk stations which he has been supporting. He will, however, continue them during the coming summer. This work has cost him more than a million dollars. His reason for giving up this philanthropy, it is reported, is not alone the cost, but because of the lack of cooperation and even the hindrance he has encountered from interference on the part of the park commissioner.

Court Decision Favors Health Department.—The New York Disposal Corporation, which operates the garbage plant on Barren Island, was convicted in the court of special sessions, borough of Brooklyn, May 14, 1917, of a violation of the sanitary code which prohibits the escape and discharge of offensive or noisome odors from any building, vessel, or place in the city of New York, and fined $100. The action in this instance was instituted by the department of health as a result of complaints of citizens residing in the borough of Queens, supplemented by evidence obtained by inspectors of the department of health. This is the first successful prosecution of the operator of the garbage plant on Barren Island.

Committee on Amelioration of Hardships of the Families of Physicians Called into National Service.—A joint com-

mittee of New York Academy of Medicine and Medical Society of the County of New York has been formed for the purpose of collecting and administering funds for the support and care of wives and families of medical men who may require financial aid as the result of the head of the family being called into the service of the country. This fund was started by Dr. Edwin B. Cragin with $10,000, by Dr. John F. Erdman with $5,000 and by Dr. Seth M. Millican with $1,000. The officers of the joint committee are: chairman, Dr. Walter B. James; secretary, Dr. Edward L. Hunt; treasurer, Dr. J. Bentley Squier.

Personal.—Dr. Alexander Lambert has accepted the position of medical adviser to the War Relief Commission of the Red Cross in France and Belgium. He will leave shortly for France.——Dr. Hideyo Noguchi is reported to be ill with typhoid fever.——Dr. Katherine Arends was seriously injured in a struggle with a burglar on the evening of May 20, and is being cared for in Mount Sinai Hospital.——Dr. Cornelius G. Coakley was injured when a horse which he was riding fell.——Dr. Marcus B. Heyman, who has been assistant superintendent of the State Hospital for the Insane at Central Islip, L. I., has been appointed superintendent of the Hospital for the Insane on Ward's Island.——Dr. Thomas Addis Emmet had the degree of Doctor of Literature conferred on him by the Catholic University in Washington, D. C. As Dr. Emmet, who is 89 years old, was unable to go to Washington, Dr. Thomas J. Shahan, the rector of the university, came to Dr. Emmet's home in this city to confer the degree.

Conference of Charities and Corrections.—The Eighth Annual New York City Conference of Charities and Corrections was held in this city, May 22, 23 and 24, 1917, under the presidency of Mr. Leopold Plaut. The subjects considered were "Families," "Wages," "Public and Private Relief Work," "Publicity and Administrative Methods," "Education and Recreation," "Delinquency," "Children." The meeting on public health was held in the New York Academy of Medicine under the chairmanship of Dr. S. Adolphus Knopf. At this session Dr. Josephine S. Baker read a paper on "Constructive Suggestions Toward the Control of the Most Important Infectious Diseases of Child Life," and Dr. Ira S. Wile read a paper on "Constructive Suggestions Toward the Control of the Most Important Infectious Diseases of Adult Life." Dr. Knopf reported for the committee on Public Health of the conference and submitted a proposition that the government establish farm colonies for the men who have been rejected from military duty because of slight tuberculosis. Such colonies, he contended, would not only enable them to so work that they would be of service to the nation, but would so improve their physical condition that eventually they might become fit for military duty.

OHIO

Personal.—Dr. Henry Baldwin, Jr., has announced that he will resign as superintendent of the District Tuberculosis Hospital, Springfield, to take effect, July 1.——Drs. James F. Baldwin and Robert B. Drury, have been appointed members of a commission to investigate vice conditions in Columbus.

Tuberculosis Institutions.—An appropriation of $30,000, for the maintenance of the district tuberculosis hospital, was made, May 9, at a joint meeting of the commissioners of Allen, Van Wert, Shelby, Mercer and Auglaize counties and the trustees of the hospital.——Ground has been broken for a new nurses' home and building for patients at the Warrensville Tuberculosis Sanatorium.

State Society Meeting.—At the seventy-second annual meeting of the Ohio State Medical Association, held in Springfield, May 14 to 16, under the presidency of Dr. Harmon B. Gibbon, Tiffin, the following officers were elected: president, Dr. James F. Baldwin, Columbus; delegates to the American Medical Association, Drs. Alonzo B. Walker, Canton; Herbert C. Haning, Dayton, and John H. J. Upham, Columbus, and alternates, Drs. Lorenzo D. Allard, Portsmouth; E. W. Morgan, Akron, and Robert C. M. Lewis, Marion. The following reelections were: member of committee on medical defense, Dr. Charles T. Souther, Cincinnati, and councilors, second district, Dr. John E. Hunter, Greenville; fourth district, Dr. Charles W. Moots, Toledo; sixth district, Dr. Edgar J. March, Canton; eighth district, Dr. Albert B. Headley, Cambridge, and tenth district, Dr. Wells Teachnor, Columbus. The selection of a meeting place for 1918 was not decided.

Committee on Research.—The university senate of Western Reserve University, Cleveland, has voted to establish a committee on research to be affiliated with the national research board. The committee is composed of Dr. George N. Stewart, chairman, School of Medicine; Dr. Torald Sollmann, vice chairman, School of Medicine; Prof. H. P. Cushing, secretary, Adelbert College; Prof. H. W. Springsteen, Adelbert College; Prof. F. H. Herrick, Adelbert College; Prof. O. F. Tower, Adelbert College; Prof. H. A. Aikins, College for Women, and Prof. Edward Spease, School of Pharmacy.

Military and Naval Items.—Orders have been issued to recruit the Second Ohio Field Hospital, commanded by Major Harry H. Snively, and the Second Ambulance Company, commanded by Capt. Dudley T. Dawson, both of Columbus, to a strength of 150 each.——Drs. Michael P. Motto, Thomas E. Jones and William J. Manning, Cleveland, have been appointed a board for the physical examination of applicants in the Ohio Naval Militia and the National Naval Volunteers. ——The Third Motor Ambulance Company, Ohio N. G., is being recruited at Cincinnati, and will be commanded by Capt. James Bentley.

Western Reserve University Items.—John H. Lowman, professor of clinical medicine and medical ethics, has been appointed a member of the advisory council of the Edward L. Trudeau foundation for research and teaching in tuberculosis.——Dr. L. W. Ladd, associate professor of clinical microscopy, has been appointed visiting physician to Charity Hospital.——The new building of the Dental School is nearing completion and will be occupied in the fall of 1917. The building is situated alongside the university campus and near the site for the new medical school plant. The dental school, formerly affiliated, is now an integral department of the university. An extensive revision of the curriculum and an increase in entrance requirements are contemplated.——Dr Samuel E. Chiu, recent graduate of the school, is now director of the department of dermatology, ophthalmology and Wassermann laboratory of the Eden Dispensary, F 129, Bubbling Well Rd., Shanghai, China, and reports that he is organizing a modern hospital in Shanghai with nursing and medical schools.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Jay Schamberg addressed the graduates of the Philadelphia Polyclinic Training School of Nurses at the annual commencement held in the New Century Club, May 31. ——Dr. Nathaniel Ginsburg addressed the graduating class of the Jewish Hospital Nurses' Training School at the annual commencement, May 29.——Dr. Alonzo E. Taylor, professor of physiologic chemistry in the University Medical School, was recently called before the committee of the house to give expert testimony on the subject of food production and conservation.

Alumni Meetings.—The Alumni Association of the Jefferson Medical College held the annual banquet at the Bellevue-Stratford Hotel, June 1. Among the speakers were the Hon. William Potter, president of the board of trustees; Dr. Hobart A. Hare, Mr. E. J. Cattell, city statistician, and Dr. George D. Porter of Bridgeport, Conn. The following officers were elected: president, Dr. Chevalier Jackson; vice presidents, Drs. P. Brooke Bland, Henry E. Gaskill, E. J. G. Beardsley and William S. Higbee; recording secretary, Dr. H. K. Mohler; corresponding secretary, Dr. E. H. Funk, and treasurer, Dr. Warren B. Davis.——The Alumnae Association of the Women's Medical College of Pennsylvania held their annual business and scientific meetings at the college, June 7 and 8. The president's address was delivered by Dr. Frances Van Gasken. At the scientific meeting the speakers were Dr. Cora Walker E. Kenzie and Dr. Gertrude Walker. In the evening the speakers included Mr. William H. Slayton, executive secretary of the Navy League, and Dr. Rosalie A. Morton. On Friday, at the scientific section, Dr. Margaret F. Butler, Miss Katherine B. Davis, and at the afternoon session, Drs. Theodore LeBoutillier, Annie M. Freese and Bertha M. Meine spoke.

CANADA

Hospital News.—Mr. J. L. Englehart, chairman of the Northern Railway Comission, has donated $10,000 for the purpose of adding a maternity annex to the Englehart Hospital, Petrolia, Ont., which was formerly his private residence.

Canadian Women's Gift for War Hospital Extension.—The women of Canada raised $200,000 for a hospital ship, but decided finally to devote it to something more permanent, and

it was presented to erect a new wing for the great Royal Naval Hospital at Haslar, England. The new quarters were opened recently by the queen with much ceremony.

Society News.—The annual meeting of the Canadian Public Health Association and the Canadian Association for the Prevention of Tuberculosis will be held in Ottawa, Canada, during the fourth week in September. The Association for the Care of the Feeble-Minded will meet in Ottawa the same week; also the Canadian Conference of Public Welfare and the Canadian Conference of Charities and Corrections.

Personal.—Capt. Harry J. Watson, Winnipeg, is in Toronto for a short leave of absence from Bramshott, England.——Lieut.-Col. Graham Chambers, Toronto, has recovered from a severe illness and will shortly resume his medical duties.——Dr. George R. McDonagh, Toronto, has returned from California, but is confined to his residence on account of a very severe illness.——Dr. J. Harvey Todd, Toronto, who has been home from France, was returning, but has been detained in Quebec City.

Ontario Medical Commission.—Dr. William Goldie, Toronto, and Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, appeared before the commissioner last week. The former detailed the splendid work in different forms of manipulative treatment as carried out at the Hospital for Sick Children, Toronto. Dr. Clarke, who is also dean of the Medical Faculty of the University of Toronto, spoke of further development of educating students in the university in electrotherapeutics and hydrotherapy.

Ontario Medical Association.—At the annual meeting of the Ontario Medical Association, held in Toronto, May 30 to June 1, there was an attendance of about 400 medical men from that province, as well as several invited guests from the United States and Quebec. Dr. Henry A. Christian's (Boston) address in medicine on the treatment of nephritis was very much appreciated and attracted a large gathering. Dr. Walter W. Chipman, Montreal, gave the address in gynecology, the subject being the prolapse of the uterus. A very interesting and animated discussion took place on the venereal disease peril through returned infected soldiers. The consensus of opinion appeared to be that the dominion and provincial governments should cooperate with the medical profession so far as possible in eradicating the spread of the diseases to the civic population. Drastic action was necessary immediately, especially to protect the feebleminded from contamination. The government should assume the responsibility of making blood tests in such cases, and inaugurate a policy of placing a ban on the importation of remedies made in Germany and used to a very large extent in cases of this kind. A special committee was appointed to prepare a report to submit to a special meeting of the executive of the association at the call of the chairman. The following officers were elected for the ensuing year: Dr. John P. Morton, Hamilton, president; vice presidents, Drs. George S. Cameron, Peterborough; John Ferguson, Toronto; John M. Rogers, Ingersoll, and J. Fenton Argue, Ottawa; general secretary, F. Arnold Clarkson, Toronto (reelected); assistant secretary, Frederick C. Harrison, Toronto (reelected); treasurer, Dr. Jabez H. Elliott, Toronto (reelected). The next meeting will take place in Hamilton, Ont., in 1918. All members were charged an annual fee of $2, and the former financial arrangements with the Canadian Medical Association where an annual fee of $5 paid for both associations will be abandoned; the financial relations of the two associations will henceforth be entirely separate.

Ontario Health Officers Meet.—Dr. Herbert W. Hill, medical officer of health, London, Ont., was elected president of the Ontario Health Officers' Association at their annual meeting in Toronto, May 28 and 29. Prof. Charles E. A. Winslow was present from Yale Medical School, and said that every American had been thrilled at the heroism displayed by the Canadian volunteer soldiers at Vimy Ridge. His address was on the subject of "Safeguarding the Health of Infants and Young Children." He hoped that American sons would be worthy to stand by Canadian sons, when the former were prepared to take the field. The loss of so many young men on the battlefields of Europe warranted drastic action in reducing infantile mortality as far as possible. He disagreed with the idea of closing down schools indefinitely when an epidemic of some particular disease made itself manifest among them. The children should be kept at school and kept under the close supervision of the school doctors and nurses. Poverty and ignorance were the twin causes for a large percentage of the infant mortality in Canada and the United States. Dr. Adam H. Wright, chairman of the Ontario Board of Health, felt that no munition worker should be called on to work more than eight hours a day. He had visited a number of factories in Ontario and found the bulk of the employers had exercised unusual care in safeguarding the health of their employees. In one institution in Toronto he found a "first-aid" hospital with nine nurses in charge. He declared that women workers would injure their health if they worked over eight hours a day. The new provincial secretary, Hon. William D. McPherson, welcomed the delegates, and said that he recognized to the full the magnificent work which the medical officers of health did in Ontario for the health of the people of the province.

GENERAL

The Control of Syphilis.—At Cincinnati, on May 23 and 24, the American Association on the Control of Syphilis was organized with a charter membership of twenty-nine. The objects of the association are the promulgation among medical men, medical institutions, boards of health, hospital boards, dispensary attendants and boards and other organizations of knowledge of syphilis. It is expected that the association will develop the importance of the social and economic sides of this question; will collect standardized statistics from institutions now treating syphilis; will further the establishment of free clinics and dispensaries in the diagnosis and treatment of the disease, and will encourage the more comprehensive teaching of syphilis in medical schools. The following officers were elected: president, Dr. Martin F. Engman, St. Louis; vice president, Dr. Jay F. Schamberg, Philadelphia, and secretary-treasurer, Dr. Harry E. Kleinschmidt, St. Louis.

New Pediatric Officers.—At the twenty-ninth annual meeting of the American Pediatric Society, held at White Sulphur Springs, W. Va., May 28 to 30, the following officers were elected: president, Dr. Linnaeus E. LaFetra, New York; vice president, Dr. Harvey M. McClanahan, Omaha; secretary, Dr. Howard C. Carpenter, Philadelphia; treasurer, Dr. Charles H. Dunn, Boston, and recorder and editor, Dr. Oscar M. Schloss, New York. The next meeting of the society is to be held in Lenox, Mass.

FOREIGN

Deaths in the Profession Abroad.—**O. Gelpke** of Zurich, a volunteer medical officer during the Franco-Prussian War, and during the years of warfare between the Dutch and the natives of the island of Sumatra. He was author of works on beriberi and on Indian plants that he thought might be useful in therapeutics. He thus introduced simaruba, pomegranate and other astringent drugs.——**A. Salomoni,** professor of surgery at the University of Messina and author of works on topographic anatomy and surgery, aged 63. He has been recently in charge of a military hospital at Piacenza. At the time of the Messina earthquake his superhuman efforts day and night saved the lives of hundreds.——**J. E. Squire** of London, a pioneer and authority on hygienic management of tuberculosis, aged 62.——**T. B. Brumsted,** Cambridge, a noted oarsman in youth, aged 94.——Lieut.-Col. **J. A. Nelis,** Dublin, retired, aged 62.——**H. R. Hutton,** lecturer on diseases of children at the University of Manchester until his retirement, and president of the Pathological Society at one time.

Red Cross Hospital Opened.—President Poincaré, formally opened the American Red Cross Hospital, Paris, May 31. In the course of the ceremonies the president conferred the decoration of the Legion of Honor on Dr. Joseph A. Blake, New York, organizer of the hospital.

Personal.—Drs. Burris A. Jenkins, Kansas City, and M. S. Rice, Detroit, have arrived in Paris, where they will undertake special work under the British Y. M. C. A.——Surg. Holton C. Curl, U. S. Navy, is the medical member of the United States Commission to Russia, which has just reached Tokio.

Casualties in the English Army Medical Corps.—The following are listed in the latest British exchanges as killed in action or died on service: Major **C. Ryley;** Lieut.-Col. **F. A. Symons,** aged 48; Major **A. H. Palmer,** aged 47; Capt. **P. E. Lones,** aged 30; Capt. **J. B. Tackaberry,** aged 34; Capt. **F. Hunton;** Capt. **P. C. MacRae;** Capt. **G. S. Blandy;** Capt. **J. Ewing;** Lieut.-Col. **A. C. Fox** and eight other medical officers lost as the *Arcadian* was torpedoed in the Mediterranean; Capts. **H. G. Smith, T. G. S. Hodson** and Lieut. **J. Naylor** lost as the hospital ship *Salta* was mined in the English Channel.

PROCEEDINGS OF THE NEW YORK SESSION

MINUTES OF THE SIXTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT NEW YORK CITY, JUNE 4-8, 1917

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 4

The House of Delegates met in Hosak Hall, Academy of Medicine Building, and was called to order at 10:10 a. m. by the chairman, Dr. Hubert Work, Pueblo, Colo.

Preliminary Report of the Committee on Credentials

Dr. D. Chester Brown, Connecticut, chairman, made a preliminary report for this committee, stating that the committee had examined the credentials of delegates now reported and found that these credentials conformed to the by-laws of the Association; that the delegates had signed the register, had been invested with the badge of membership and were duly qualified to take seats as delegates to the American Medical Association, and that a quorum had so registered. The report was received and adopted. The chairman thereon declared the House duly organized.

The next thing in order was the roll call by the Secretary.

The Secretary reported that the delegates had registered their attendance.

The next order of business was the presentation, correction, and adoption of minutes of the sixty-seventh annual session.

The Secretary stated that these minutes had been printed, distributed among the members of the sixty-seventh annual session, and no changes had been called to his attention.

Dr. Arthur T. McCormack, Kentucky, moved that the reading of the minutes be dispensed with.

Seconded and carried.

Dr. John D. McLean, Pennsylvania, moved that the minutes be adopted as printed.

Seconded by Dr. C. E. Cantrell, Texas, and carried.

The chairman introduced Dr. Rupert Blue, Washington, D. C., President of the American Medical Association, who delivered a brief address, which was referred to the Reference Committee on Reports of Officers.

The address follows:

Supplemental Report by the President

RUPERT BLUE, M.D.
President of the American Medical Association

To the Members of the House of Delegates of the American Medical Association:

On account of the present international situation and the relation of our government to it, emergencies affecting the Association have arisen which required immediate action by me as President. These actions I desire to report to the House of Delegates. They have related to the need of medical preparedness in view of the danger of our country being drawn into the war.

APPOINTMENTS TO MEMBERSHIP OF STATE RED CROSS COMMITTEES

At the last meeting of the House of Delegates, the Committee on Red Cross Medical Work recommended that the President of the American Medical Association should invite the attention of the state medical societies to the desirability of prompt organization of state and county committees on Red Cross medical work so that the medical profession would be prepared to respond should the country need its services.

With its report, this committee submitted the "regulations of the national committee on Red Cross medical service," embodying the plan of organization of state committees.

As will be seen by consulting this report and the appendix mentioned (Proceedings of the House of Delegates of the American Medical Association, sixty-seventh annual session, p. 63), this plan called for the appointment of state committees to consist of not more than nine physicians, three of whom should be selected by the President of the American Medical Association, three by the president of the Congress of American Physicians and Surgeons, and three by the president of the American College of Surgeons.

In conformity with the above and on request of the director general of military relief of the American Red Cross, three members were so named by me. Two of the three members named were the president and secretary of the state medical society. The letters of appointment were sent out through the Red Cross. I believe these appointments are in harmony with the purposes of your Committee on Red Cross Medical Work and in the interest of Red Cross organization.

APPOINTMENT OF COMMITTEE TO REPORT ON RESOURCES OF ASSOCIATION AND THEIR UTILIZATION IN CASE OF WAR

On request of Dr. Franklin Martin, member of the advisory commission, and Dr. F. F. Simpson, chief of the medical section, Council of National Defense, a committee of three was designated by me to report on the best way of utilizing the activities of the members and the materials represented by the American Medical Association. The personnel of this committee was as follows: Dr. Arthur Dean Bevan, Dr. Alexander Lambert and Dr. J. W. Kerr.

After considering the matter fully, this committee submitted a report, April 21, 1917, which was referred by me to the Council of National Defense. In this report (copy of which is submitted herewith) there is presented a brief history of the organization of other committees variously constituted, relating to medical preparedness and the Red Cross medical work. Attention is also invited to the extent of organization of the American Medical Association, the number of its members, and its facilities for reaching this membership, and the recommendation is made that the President and the officers of the Association offer to the government for the purpose of organizing the medical profession for war the services of the entire organization. I have to request that Dr. Bevan, chairman of the committee, be permitted to read the report in full for your information and for such action as may be deemed necessary. In conformity with this recommendation, I tendered the services and resources of the Association to the government through the General Medical Board of the Council of National Defense at its meeting in May last. I need hardly say that this action met with a very hearty reception, and a vote of thanks was tendered to the Association for its patriotic offer.

SUGGESTIONS TO COMPONENT SOCIETIES RELATING TO MEDICAL PREPAREDNESS

At the instance of the Secretary of the Association, letters were addressed to the presidents and secretaries of component medical societies of the Association, inviting their attention to the need of officers in the medical departments of the Army and Navy and in their respective reserve corps. It was also suggested that societies should consider the number of their members who could be spared for this purpose and the steps that should be taken by societies to safeguard the interest of those who respond to the call of duty.

I need hardly say that the present conditions have no precedent in our generation. In all probability, extensive demands will be made on the country in the present crisis, and the medical profession will have the privilege of contributing largely to meet these demands. The steps taken thus far are only a beginning. I trust the House of Delegates will approve the action taken by me, and that it will specifically authorize its officers to offer to the government, for the

purpose of organizing the medical profession for war, the services of the medical organization, and give to the governmental authorities the assurance that the American Medical Association desires to cooperate in every possible way in this work of the government and with other medical organizations that have offered their services for this purpose.

Address of Chairman of the House of Delegates

Dr. Hubert Work, chairman, presented the following address to the House of Delegates:

To the Members of the House of Delegates of the American Medical Association:

The by-law creating the new office of chairman of the House of Delegates extended to him permission to make suggestions to the House, in writing, at any time.

I construe the functions of this office to be executive rather than suggestive, and prefer not to indicate needed legislation. This will be specifically called to your attention through reports of officers soon to be read and by delegates from the floor.

Cooperation between us will, however, be necessary for effective and economical use of the time allotted for your deliberations.

Rules of order and procedure have heretofore been arranged and adopted, intended to admonish delegates who might become more intent on personal vantage than on the greater good to the larger numbers, and equally to restrain your speaker from arbitrary enforcement of his personal views.

It is confidently expected that with this mutual understanding of a common purpose the letter of the law may never be invoked, but that its spirit will control and no one of us will forget our duty to each other immediately, to the Association we represent eventually, and to the millions of sick which 70,000 members care for ultimately.

To those of you who sit in this House for the first time, perhaps I may say that its rules and mode of procedure are similar to those of other deliberative bodies of like kind.

All routine and new business requiring much time for consideration is referred to committees selected from the floor, who report back a digest of their findings with recommendations.

It is not necessary that these committees report unanimously. Some of the most effective work of this House has been accomplished on reports of minority members of committees.

It is intended that the delegates in this House shall have equal opportunity to be heard, whether representing a state alone or one of the delegations numerically strong; or whether a new member or one long familiar with his opportunities.

The reference committees which I shall later name have been selected so far as possible from geographic location, and from those who by reason of previous service in the House have had their attention directed to the legislative needs of the Association.

The setting apart of two days for uninterrupted work of the House will, I believe, promote thorough work and efficiency.

Heretofore delegates were compelled to forego their section work or neglect their House duties. This work of committees was done by a minority of members, with the result that the Association's legislation has been directed from necessity by its officers and chairmen of reference committees, a responsibility not courted by them nor contemplated by the constitution.

The duties of these reference committees are of the utmost importance to the welfare of the Association, and I would earnestly urge that every committeeman give to this work his very best attention.

Through no dereliction of our profession or of our people, our country, and we are citizen medical men, is being drawn by the logical circumstances toward conditions for which history records no parallel.

The American Medical Association looks to you, gentlemen, its executive guardian and final authoritative body, to direct its officers whom you elect how to meet this national crisis as an organization.

When war burst on Europe and was later threatened and declared by our own United States, the medical profession with its handmaiden, the Red Cross, was the first called of each country and the first to answer.

The American Medical Association from its membership offered to the cause of humanity the best equipped medical men the world has ever known. Others by the thousand are preparing to follow, many of them sacrificing incomes that seem like fortunes to some of us—duty trained professional men, not tradesmen for hire—for ours is a labor organization which has never discussed the length of working hours or a fixed compensation for service.

As individuals we can cheer those who go forward and hearten those they leave behind, and help each other care for them, but what service the splendidly organized American Medical Association may render as an organization is for you to both suggest and direct.

Reference Committees

At the conclusion of his address, the chairman announced the following reference committees:

RULES AND ORDER OF BUSINESS

G. Wythe Cook, Chairman.....District of Columbia
H. L. Bartlett.....Maine
John O. Polak.....New York
J. W. Riley.....Oklahoma
J. H. Irwin.....Montana

MEDICAL EDUCATION

William S. Lalor, Chairman.....New Jersey
L. W. Littig.....Iowa
Robert E. Noble.....U. S. Army
R. A. Hatcher.....New York
Dean Lewis.....Illinois

LEGISLATION AND POLITICAL ACTION

M. L. Graves, Chairman.....Texas
E. J. Goodwin.....Missouri
C. J. Whalen.....Illinois
Sol G. Kahn.....Utah
F. W. McRae.....Georgia

HYGIENE AND PUBLIC HEALTH

William C. Rucker, Chairman....U. S. Public Health Service
A. T. McCormack.....Kentucky
John Ridlon.....Illinois
LeRoy Crummer.....Nebraska
E. B. Heckel.....Pennsylvania

AMENDMENTS TO CONSTITUTION AND BY-LAWS

Floyd M. Crandall, Chairman.....New York
C. L. Stevens.....Pennsylvania
George A. Lund, U. S. Navy.....New York
Perry Bromberg.....Tennessee
M. N. Valdeng.....Iowa

REPORTS OF OFFICERS

H. G. Wetherill, Chairman.....Colorado
E. A. Hines.....South Carolina
B. R. McClellan.....Ohio
Southgate Leigh.....Virginia
A. E. Bulson, Jr.....Indiana

CREDENTIALS

D. Chester Brown, Chairman.....Connecticut
F. C. Warnshuis.....Michigan
C. P. Meriwether.....Arkansas
H. P. Newman.....California
C. W. Hannaford.....New Hampshire

MISCELLANEOUS BUSINESS

J. S. Blake, Chairman.....Massachusetts
D. E. McGillivray.....Washington
Alexius McGlannan.....Maryland
H. R. Ritchie.....Minnesota
F. LeM. Hupp.....West Virginia

Reports of Officers

Report of the Secretary

The Secretary presented the following report, which was referred to the Reference Committee on Reports of Officers:

To the Members of the House of Delegates of the American Medical Association:

TABLE—ORGANIZATION OF CONSTITUENT ASSOCIATIONS

Constituent Association of	No. Counties in State	No. Component Societies in State Assn.	Number Counties in State Not Organized		Physicians in State (5th Ed. Directory)	Number Members of State Association		No. A. M. A. Fellows in State	No. Subscribers to Journal in State*
			1916	1917	No. in State (5th Ed. Directory)	1916	1917	No. A. M. A. Fellows in State	No. Subscribers to Journal in State*
Alabama	67	67	.....	.....	2,569	1,760	1,851	348	188
Arizona	14	12	3	2	207	147	153	124	84
Arkansas	75	62	9	13	2,637	1.091	1.103	337	164
California	59	38	20	19	5,687	2,703	2,790	1,950	835
Colorado	63	25	34	31	1,733	811	868	489	188
Connecticut	8	8	.....	.....	1,678	970	1,039	695	348
Delaware	3	3	.....	.....	261	101	101	57	32
Dist. Columbia	.....	.....	.....	.....	1,482	572	560	356	199
Florida	52	31	20	20	1,321	530	573	239	156
Georgia	152	85	56	58	3,421	1,415	1,323	508	369
Idaho	37	6	20	12	439	133	154	86	118
Illinois	102	98	1	1	10,648	5,934	6,057	3,897	2,050
Indiana	92	87	1	1	4,872	2,474	2,418	1,158	461
Iowa	99	97	2	2	3,751	2,186	2,277	1,214	488
Kansas	105	70	27	27	2,683	1,475	1,117	812	323
Kentucky	120	115	2	4	3,584	2,373	2,300	707	256
Louisiana	64	41	22	21	2,060	821	805	375	255
Maine	16	14	2	2	1,205	717	753	313	146
Maryland[1]	23	21	3	2	2,292	1,198	1,200	694	415
Massachusetts[2]	14	18	.....	.....	5,869	3,620	3,593	2,155	945
Michigan	83	57	2	2	4,360	2,892	3,027	1,845	480
Minnesota	86	28	3	3	2,447	1,416	1,552	1,210	511
Mississippi	81	47	4	3	2,048	1,068	984	196	155
Missouri[1]	114	98	11	11	6,399	3,097	3,251	1,465	597
Montana	42	14	25	25	636	220	323	205	132
Nebraska	93	62	25	24	1,911	953	970	569	415
Nevada	16	3	13	13	154	40	52	51	29
New Hampshire	10	10	.....	.....	690	508	509	298	71
New Jersey	21	21	.....	.....	3,239	1,670	1,757	948	442
New Mexico	26	10	16	16	430	185	199	123	62
New York	62	59	2	1	15,670	8,191	8,512	5,075	2,268
North Carolina	100	76	12	17	2,102	1,211	1,262	399	274
North Dakota	53	14	3	2	586	351	383	282	98
Ohio	88	87	1	1	8,045	4,398	4,679	2,403	1,032
Oklahoma	77	74	3	3	2,634	1,506	1,407	612	224
Oregon	36	13	3	3	1,187	590	596	269	200
Pennsylvania[3]	67	63	4	4	11,502	6,202	6,800	3,937	1,716
Rhode Island[2]	5	6	.....	.....	772	417	446	326	146
South Carolina	45	41	3	3	1,399	685	732	277	143
South Dakota	68	9	7	7	676	343	376	256	135
Tennessee	96	65	36	29	3,457	1,355	1,675	667	428
Texas	250	147	70	70	6,240	3,450	3,443	1,389	500
Utah	28	5	23	23	465	266	259	158	70
Vermont	14	11	.....	.....	668	384	380	157	67
Virginia[4]	100	46	51	51	2,547	1,775	1,756	572	318
Washington	39	20	18	18	1,695	825	956	523	268
West Virginia	55	30	12	12	1,729	997	793	500	207
Wisconsin	71	54	.....	.....	2,803	1,816	2,894	1,064	474
Wyoming	22	5	17	15	251	117	117	59	62
Canal Zone	.....	.....	.....	.....	97	61	82	22	31
Alaska	.....	.....	.....	.....	.....	.....	.....	8	24
Hawaii	5	.....	.....	.....	162	69	79	36	28
Porto Rico	7	2	.....	.....	292	115	114	35	25
Philippine Isl.	.....	.....	.....	.....	735	94	101	30	63
Totals	3,025	2,085	586	571	146,527	78,301	81,501	42,480	19,724
Fellows listed at foreign addresses, Honorary and Affiliate Fellows								106	.....
Fellows in government services								1,424	.....
Number on Fellowship roll, May 1, 1917								44,010	.....
Number on mailing list of THE JOURNAL, May 1, 1917								.....	63,678

* Not including Fellows of American Medical Association.

Note.—The number of members of the different associations stated in this table is in accord with the membership of the several associations as they were reported to the Secretary on May 1, 1917.

The lack of an effective uniform system for reporting the membership of the state associations accounts for whatever discrepancies this table shows and detracts from the value of the statement.

Component societies are those societies which compose the state association. A component society may include one county or more.

1. The state of Maryland has 23 counties and the city of Baltimore; Missouri has 114 counties and the city of St. Louis.

2. These state associations are divided into district societies, and these are listed in the table as component societies. Some of these districts are smaller and some larger than the county, the county lines being ignored.

3. Provision is made for the physicians in each of these counties to join the component society in an adjoining county.

4. Virginia has recently adopted the plan of organization and is now establishing component county medical societies.

MEMBERSHIP

The membership of the various constituent state associations, which constitutes the membership of the Association, according to the records in the Secretary's office, May 1, 1917, was 81,501 as shown in the table on page 32.

FELLOWSHIP

The Fellowship of the American Medical Association on May 1, 1916, was 43,181. During the past year, 416 Fellows have died, 1,894 have resigned, 477 have been dropped as not eligible, 672 have been dropped for nonpayment of dues and 20 have been removed from the rolls on account of being reported "not found," making a total of 3,479 names to be deducted from the Fellowship roll. There have been added 4,308 names to the Fellowship roll, of which 3,066 were transferred from the subscription list. The Fellowship of the American Medical Association on May 1, 1917, was 44,010, a net increase for the year of 829.

This gain in the number of Fellows, as in previous years, is due largely to circularizing subscribers to THE JOURNAL who were eligible, urging them to become Fellows.

AD INTERIM APPOINTMENT OF COMMITTEES

On request of Dr. Franklin H. Martin, Member of the Advisory Committee on National Defense, and Dr. F. F. Simpson, Chief of the Medical Section, Council on National Defense, the President appointed the following committee to outline recommendations for the best method of utilizing the facilities of the American Medical Association in preparing for war. The committee, which, we are advised, has reported to the President, is as follows: Arthur Dean Bevan, Chairman, Illinois; Alexander Lambert, New York, and John W. Kerr, U. S. Public Health Service.

On March 29, in view of the critical condition in the relationship of the United States with Germany, I addressed letters to both the surgeon-general of the United States Army and the surgeon-general of the United States Navy tendering the services and cooperation of my office as Secretary of the American Medical Association in any way in which the facilities of the office or of the organization might best serve the medical departments of the federal government. This action was a personal one which I felt the emergency warranted. It is now reported to the House of Delegates for its official approval if the house deems such action advisable.

Other matters in which the office of the Secretary of the Association has been concerned are reported to the House of Delegates from other sources.

Respectfully submitted,

ALEXANDER R. CRAIG,
Secretary.

Report of Board of Trustees

Dr. W. T. Councilman, Chairman, read the following report which was referred to the Reference Committee on Reports of Officers:

To the House of Delegates of the American Medical Association:

The various activities of the Association in the interest of the medical profession and of the public have been carried on in the usual successful and progressive manner. These activities will be covered by the reports of the various Councils, etc.; we here refer only to matters which pertain strictly to the business and publications of the Association.

THE JOURNAL

Following this report are tables giving details regarding the circulation of THE JOURNAL. During 1916 there were issued 3,564,522 copies of THE JOURNAL, making a weekly average of 67,255 copies. The weekly average for 1916 was 35 copies less than for 1915, although during the past year—1916—there was an actual gain of 41 over the preceding year in the number of copies sent to Fellows and subscribers. The reduction in the weekly average occured by reason of economy in exchange copies and copies sent to advertisers, etc.

As will be noticed in the financial report, there was an increase in subscription receipts during the year 1916 of nearly $20,000.

Archives of Internal Medicine

There was a financial loss of approximately $66.00 on The Archives for the year 1916 — hardly sufficient to mention, considering the character of the journal and the number of pages of reading matter included.

At the end of the year there were 2,102 names on the mailing list, including foreign exchanges, libraries, etc. This indicates a net gain of 46, as compared with 1915 — 33 of which are on the foreign list. There were 1,008 names added to the list in 1916 and 959 removed. During the year 28,447 copies were printed — 266 less than the number printed in 1915.

American Journal of Diseases of Children

There was a gain of a little over $322 on the Children's Journal in 1916.

On the first of January there were 2,372 names on the mailing list, indicating a gain of 174 for the year, 22 of which are in the foreign list. There were 1,347 names added to the list in 1916 and 1,173 removed. There were 31,164 copies printed last year — 1,407 more than in 1915.

Cooperative Medical Advertising Bureau

The Bureau is doing very satisfactorily. Two new state journals were established during the year — the Rhode Island and Nebraska — both of which have joined the Bureau. There is only one journal owned by a state society — that of Illinois — that does not conform to the standards of the Council on Pharmacy and Chemistry, and therefore does not receive the benefits of the Bureau's services.

The net contribution the Association had to make for the Bureau for the year 1916 amounted to $222.90. This Bureau was created to be of assistance to the state society journals, and we believe it has proved to be such.

Increased Cost of Paper

The principal item of expense in the publication of The Journal is that of paper. This expense is equal to one third of the combined expenses. Our paper contract is one that makes it possible for us to get the lowest rate: the amount used is large; we deal directly with the mill, thus saving middlemen's profits; we have large storage facilities, making it possible for those furnishing the paper to vary deliveries to meet the exigencies of the mill; and the terms are cash with discount.

The price of paper began to go up rapidly in the spring of last year. About June and July, book paper was almost unobtainable and commanded a price three or four times what we were paying. Our contract covered the year 1916, but on August 1 we accepted a proposition made by the mill to rescind that contract and to make a new one—a compromise contract we will call it—running from Aug. 1, 1916, to July 31, 1917, at a price based on a rate far below the prevailing price at the time. The low rate—that is, our original contract rate—prevailed for the entire year 1915, the cost of paper being approximately $116,000. In 1916 the cost of paper was approximately $134,000—an increase of about $18,000 over the preceding year. We estimate that for the present year, 1917, the paper will cost about $170,000. This means an increase in 1917 over last year of $37,000, and of $54,000 over 1915. These figures are conservative, and are based on the minimum price we may hope to get. For 1918 the contract price probably will be higher than for this year—it must be kept in mind that for seven months of this year we have the compromise rate, based on the low price of the early part of 1916.

Now what does this mean? Simply that last year our income was reduced by $17,000, and that this year the reduction will be some $54,000, solely on account of the increased cost of paper. But this is not all; other things have gone up, such as ink, rollers, wire for stitching The Journal, linotype metal and supplies generally, not to mention labor, which is steadily going up in all divisions of the printing trade.

These new conditions presented problems to your Board of Trustees that had to be met. Other publishers had to meet the same conditions; some have done so by increasing the subscription price, some by decreasing the size of their publications, some by economizing on free samples, etc., or by being satisfied with smaller profits. And we must meet them in like manner: we must either increase the annual subscription price, decrease the size of The Journal, or get along with decreased income.

Increasing the subscription price cannot be thought of; neither is it necessary. But the size of The Journal can be reduced without seriously lessening its value or its usefulness to its readers. Elsewhere in this report we refer to the large amount of extra space required to print the section papers, necessitating the addition of many pages—from 600 to 750 a year—to accommodate this enormous amount of matter. We could still further reduce the number of pages, that is, reduce the normal size, and our journal would still be so much larger than any other weekly medical journal that there would be no comparison. For instance, our journal contains nearly as much reading matter as the two New York weekly medical journals combined; and the subscription price of each of these journals is the same as that of ours.

We have economized in the way of sending out sample copies. In 1915 over 150,000 circular letters and sample copies of The Journal were sent to physicians who were neither Fellows nor subscribers; during the past year less than one third of this number of sample copies were circulated—less than 50,000, as against 150,000 the previous year.

But even with such economy, we shall find that our income will be considerably reduced; consequently we must act accordingly. Our surplus income has been used for altruistic purposes—for work carried on by the Association — for instance, by the Chemical Laboratory and the Council on Pharmacy and Chemistry, by the Council on Medical Education, and by the Council on Health and Public Instruction. Your Board of Trustees found it necessary to reduce the apportionments to be used by these various councils, but has endeavored to do this without seriously crippling the important work being done.

Publication of Section Papers

The strenuous times through which the country is passing affects all corporations as well as individuals, and we must adjust our activities to meet the new problems as they present themselves. One of these problems which has given the Board of Trustees much concern is the publication in The Journal of the large mass of material annually presented before the sections. While as a whole the papers are of a high order, some are quite indifferent and would be regarded as not acceptable if offered to The Journal direct. As a matter of fact, some manuscripts which have been submitted to The Journal for publication, and returned for cause other than lack of space, later have been read before one of the sections and endorsed for publication. One of the functions of the executive committee of each of the sections is to pass on manuscripts read before its section and to approve or disapprove them for publication. The by-law provides that "no paper shall be published as having been read before a section unless it has received the approval and the endorsement of each member of the executive committee of the section before which it was read." But the trouble is, this law has become merely a form. For instance, with one exception all the papers read in the various sections in 1915 were endorsed for publication by all three members of the executive committees; and last year all except two were approved. Naturally, this might be expected; individuals hesitate to assume the odium of disapproving a paper. In any event, the signing of the approval slips is simply a matter of form.

The number of papers, however, which can be classed as inferior, and which should be refused publication for this reason alone, is comparatively small. The more difficult problem is presented in the publication of section papers that are too technical and too special for a journal of general circulation, such as ours. This difficulty is the more pronounced because of the large and increasing number of such papers. There are not many of the section papers that are

out of place in THE JOURNAL because of being ultratechnical; the real problem is in connection with the highly special papers—for instance, those read in the Section on Ophthalmology and in that on Laryngology, Otology and Rhinology. Few of the papers presented in the latter section appeal to the general practitioner, and still fewer of those in the Section on Ophthalmology. One of the common criticisms received at THE JOURNAL OFFICE during the time the special papers are being published is that too much space is devoted to the publication of these special articles. It was for this reason—that is, to avoid criticism—that in 1912 and 1913 the papers of these sections were printed together as a supplement to THE JOURNAL. However, there was so much protest on the part of some members of the two sections that this method of publishing the papers was given up. The protests were to the effect that the supplement containing these papers would be thrown aside unread by the average reader.

Still more serious, however, than the character and quality of the papers in the various sections, is the number presented and the space required for their publication with the discussions. The publication of the papers presented at the Atlantic City session in 1914 required 1,065 pages; those presented at San Francisco in 1915 required only 815 pages (there was a small attendance at this session; two sections held no meetings, and nearly all the others had much shorter programs than usual; further, one day was given up entirely to other than section work); and those presented at Detroit last year occupied 1,025 pages. It may be of interest to note that the section papers occupy nearly as much space in THE JOURNAL as is devoted to original papers in any of the other American medical weeklies for the whole year.

The publication of such a mass of material naturally takes time. It is never possible to complete its publication within six months, and it is often the end of January before all the matter is printed. This year it was March 10. This delayed publication is unfair to those whose papers are held back; they have just cause for complaint, and they do complain. It is certainly not fair to the reader, and is an injury to THE JOURNAL to be printing papers that were read from five to eight months previously. In addition to all this is the fact that THE JOURNAL is prevented from publishing papers that are of practical and timely importance. The large circulation and its prestige make THE JOURNAL a valued and desired medium of publication. As a consequence, at all times many more acceptable papers are offered than there is room for, and when the section papers are in process of publication, this condition of affairs, of course, is worse. Hence, during these months THE JOURNAL is compelled to return excellent, practical, timely papers—papers that it should publish, and papers that often are of far more practical value to the reader than some of the section papers which are displacing them.

A still further handicap is the fact that when papers are continually returned with the hackneyed "on account of lack of space", many men get the idea that there never is any space; and many hesitate to submit a second paper when one has been returned. Still others regard the action as personal offense.

These are, in brief, the conditions that have formed a problem which your Board of Trustees has been trying to solve for many years. As may be remembered, on many occasions the board in its report to the House, has referred to this matter. Each year the board has hesitated to take any action that might appear radical, hoping that in time it would be appreciated that even for the good of our annual meetings there is too much time devoted to the reading of papers and to the discussions, and that these would be reduced either by having fewer sections or by having the sections occupy less time, which would mean that fewer papers would be read.

This year, however, conditions have developed which compel the Board of Trustees to take action. At the prevailing price of paper it is not possible, with financial safety, to publish all this material. It has been the custom during the fall and winter months, or until the publication of the section papers was completed, to add sixteen, thirty-two or sometimes forty-eight pages to THE JOURNAL each week solely to get these papers out of the way within a fairly reasonable time. This year we economized on account of the high price of paper, but even so 200 pages were added; and in spite of this, as stated above, the publication of the papers was not completed until March 10.

To continue to add extra pages with paper at its present price is financially impossible. The Board of Trustees at its meeting in February passed the following resolution:

> "That all papers read a the annual session be treated as volunteer papers and that the same be published in full in THE JOURNAL or rejected, or published in abstract, as may seem best."

It is understood that the Publication Committee and the Editor will accept no more papers than can be published within a reasonable length of time—say, by November 15; that such papers as are accepted for publication in full will appear as in the past with the discussions following; and that other approved papers will be published in abstract form with abstract of the discussions following. Those who desire to publish their papers elsewhere than in THE JOURNAL will have the privilege of doing so, as in the past. When a paper is published in abstract and not printed elsewhere in full, reprints of the complete paper will be available to those desiring a copy. All papers are put into type in full for use in the Transactions of the various sections. Reprints can therefore be made from the Transactions on those papers of which abstracts only are published in THE JOURNAL.

As a solution of the problem connected with the publication of the special papers—that is, those presented in the Section on Ophthalmology and in the Section on Laryngology, Otology and Rhinology, it was tentatively decided to establish a journal on Ophthalmology and Oto-Laryngology to be published monthly. The final decision as to this and the details were referred to a special committee to report at our meeting at this session.

Naturally, of course, such a journal would publish all the papers and discussions on these subjects that were regarded by the editors of the proposed journal as of sufficient value to publish, and if they were not of sufficient value to publish in that journal they should not be published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. If THE JOURNAL does not have to publish the papers read in these two sections, the pressure on its columns will be greatly relieved. We estimate that the publication of the papers and discussions in these two sections requires more than one sixth of the space required for the transactions of all the sections. Last year, for instance, it took ninety-six pages to publish the transactions of the Section on Ophthalmology and eighty-nine for those of the Section on Laryngology, Otology and Rhinology, or a total of 185 pages. This is nearly 20 per cent. of the total number of pages required to publish all the transactions.

Two years ago some of the leading laryngologists of the country requested the Association to publish a journal devoted to their specialty, but at that time no final action was taken. It is quite possible that later on it will be found more satisfactory to publish two journals—one devoted to ophthalmology and one to laryngology and otology. In any event, whatever is published will be of a high character and will be a credit to the specialists that are represented.

The only other organization comparable with ours is the British Medical Association. Its journal completes the publication of its section proceedings in six to eight weeks at the outside. This for two reasons: first, they do not have one-fourth the number of papers we have; and second, only comparatively few of these papers are published in full, the others appearing in abstract form. Still further, they have no stenographers to take down the discussions, each speaker writing out his own. This makes for much less, but more important, discussions. We do not think it necessary or advisable to go to the extent to which the British journal goes.

For several years the Association has enjoyed not only uninterrupted prosperity in so far as its material assets are concerned, but also continuous success in its scientific and altruistic work. In its altruistic work it has at all times uncompromisingly hewn to the line. It was inevitable that its exposures of the worthless and fraudulent preparations and devices with which the sick and credulous have been, and still are, exploited by venal interests would sooner or

later be assailed by the interests affected. While we have been threatened with suits many times, and while a number of suits have been filed against us for making these exposures, with one exception all have ended in threats.

As is well known, the Association last year had to defend itself in what proved to be one of the longest — it lasted thirteen weeks — and hardest fought cases in the annals of litigation in this country. The Association has every reason to feel that the result of this trial was satisfactory, not only from the moral standpoint, but also in its financial aspects. The unselfish and cordial spirit in which so many busy and eminent men gave freely of their time, knowledge and energy in support of a simple principle and for the public interest was most gratifying. The Trustees take this opportunity to express the thanks of the Association to each and all of these self-sacrificing men for the great service rendered. The monetary power of the interests pitted against the Association was used to the fullest advantage, and it would seem that no efforts were spared to put the Association to every expense and annoyance possible. The resulting cost of the trial is reflected in the Auditors' Report, which shows an operating loss for the year for the first time in twenty-five years. Notwithstanding this unusual expense, the Association, as is also shown by the Auditors' Report, is in an excellent financial condition; and by good management in THE JOURNAL office it was possible to take care of this expense largely out of the receipts without impairing the reserve fund. The good which was accomplished by this suit amply repays the cost, and will survive when the troubles and trials incident to it are long forgotten.

This trial demonstrated the wisdom of having a large reserve fund on which to fall back, for the existence of this fund gave courage to carry on a vigorous defense to a successful end. This leads us to suggest that the reserve fund should be still further increased. In times of adversity the absence of such a fund might badly cripple us or force us to suspend temporarily all altruistic work. Not all years are "fat" with prosperity; "lean" years are bound to come, against which provision must be made. No one can foretell the end of the critical period upon which this country has entered; but it is easy to foresee the possibility of a diminished income to the Association. It is quite possible that a large number — perhaps several thousand — of our Fellows will be called to the front for an indefinite period, during which time it is more than likely that there will be a considerable falling off in the subscriptions to THE JOURNAL. Hence it behooves us to husband our resources that there may be no interruption in our more desirable and important activities.

DEATH OF DR. JONES

The medical profession, and the Board of Trustees especially, met with a great loss in the death of Dr. Philip Mills Jones of San Francisco, which occurred, Nov. 27, 1916. He was present at the meeting of the Board of Trustees held on November 3, and was in his usual good health. Within three weeks he was dead from pneumonia. It was a singular and sad coincidence that he and his wife died of the same disease within twenty-four hours. For many years Dr. Jones had been a power for good in the profession. He had been secretary of the Medical Society of the State of California for fifteen years, and a trustee of the American Medical Association since 1908. He was always active and efficient. Organized medicine has lost an asset that it will be hard to replace. Dr. Jones had a judicial mind and the legal phase of all medical propositions at once appealed to him. He was so interested that he studied law and last year was admitted to the California Bar. He died in the midst of his activity and usefulness, and your Board of Trustees mourns the loss of a most charming companion and an unusually versatile and useful member.

All of which is respectfully submitted

W. T. COUNCILMAN, Chairman,
M. L. HARRIS, Secretary,
THOMAS MCDAVITT,
PHILIP MARVEL,
W. T. SARLES,
A. R. MITCHELL,
E. J. MCKNIGHT,
OSCAR DOWLING.

Addenda to Trustees' Report

SUBSCRIPTION DEPARTMENT

The regular weekly issue of THE JOURNAL of the American Medical Association from Jan. 1, 1916, to Dec. 31, 1916, inclusive (fifty-three issues), was as follows:

January 1	72,300	July 1	65,674
January 8	69,095	July 8	65,621
January 15	68,830	July 15	67,363
January 22	67,900	July 22	65,402
January 29	66,600	July 29	65,141
	344,725		329,201
February 5	66,232	August 5	65,376
February 12	66,402	August 12	65,207
February 19	66,234	August 19	66,088
February 26	66,816	August 26	65,369
	265,684		262,040
March 4	66,755	September 2	65,620
March 11	66,324	September 9	65,857
March 18	66,028	September 16	69,078
March 25	66,668	September 23	68,733
		September 30	68,919
	265,775		338,207
April 1	66,260	October 7	68,999
April 8	66,283	October 14	68,619
April 15	66,022	October 21	68,703
April 22	66,202	October 28	68,483
April 29	66,530		
	331,297		274,804
May 6	72,992	November 4	66,795
May 13	66,833	November 11	67,282
May 20	66,602	November 18	68,481
May 27	65,637	November 25	68,722
	272,064		271,280
June 3	65,991	December 2	68,818
June 10	66,310	December 9	69,270
June 17	65,535	December 16	70,380
June 24	65,780	December 23	70,003
		December 30	67,358
	263,616		345,829
Total			3,564,522
Weekly average			67,255

PERCENTAGE OF PHYSICIANS RECEIVING THE JOURNAL

This table gives the number of physicians (based on the fifth edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. The copies going to physicians in the United States Army, in the United States Navy, in the Public Health Service, etc., are not included. The percentages last year were based on the fourth edition of the Directory.

State	Physicians in State 5th A. M. Dir.	Number Receiving JOURNAL	Approx. per cent. 5th A. M. Dir.
Alabama	2,569	588	23
Arizona	307	208	64
Arkansas	2,637	526	20
California	5,687	2,869	50
Colorado	1,733	715	41
Connecticut	1,678	1,060	63
Delaware	261	95	37
District of Columbia	1,482	589	40
Florida	1,321	400	30
Georgia	3,421	923	27
Idaho	439	213	48
Illinois	10,648	5,965	56
Indiana	4,872	1,683	34
Iowa	3,751	1,750	44
Kansas	2,683	1,202	45
Kentucky	3,584	1,047	29
Louisiana	2,060	643	31
Maine	1,205	485	40
Maryland	2,292	1,114	49
Massachusetts	5,869	3,180	54
Michigan	4,360	2,348	54
Minnesota	2,447	1,722	70
Mississippi	2,048	376	18
Missouri	6,399	2,200	34
Montana	636	348	51
Nebraska	1,911	850	45
Nevada	154	89	58
New Hampshire	690	398	58
New Jersey	3,239	1,422	44
New Mexico	430	209	48
New York	15,670	7,277	46
North Carolina	2,102	684	33
North Dakota	586	367	63
Ohio	8,045	3,366	42
Oklahoma	2,634	924	35
Oregon	1,187	527	44
Pennsylvania	11,502	5,526	48
Rhode Island	772	484	62
South Carolina	1,399	438	31
South Dakota	676	401	60
Tennessee	3,457	1,243	36
Texas	6,240	1,996	32
Utah	465	227	50
Vermont	668	238	36
Virginia	2,547	898	35
Washington	1,695	818	48
West Virginia	1,729	749	43
Wisconsin	2,803	1,556	55
Wyoming	251	115	46

This table shows the number of Fellows and Subscribers for each year, commencing with 1900:

Year	Fellows	Subscribers
January 1, 1900	8,445	4,633
January 1, 1901	9,841	8,339
January 1, 1902	11,107	10,795
January 1, 1903	12,553	12,378
January 1, 1904	13,899	14,674
January 1, 1905	17,570	15,698
January 1, 1906	20,826	17,669
January 1, 1907	26,255	20,166
January 1, 1908	29,382	20,880
January 1, 1909	31,999	18,983
January 1, 1910	33,032	19,822
January 1, 1911	33,540	20,504
January 1, 1912	33,250	21,620
January 1, 1913	36,082	19,863
January 1, 1914	39,518	19,751
January 1, 1915	41,254	20,430
January 1, 1916	41,938	22,921
January 1, 1917	42,744	22,156

The above figures include only those Fellows of the Association who are receiving THE JOURNAL of the American Medical Association. It does not include those who hold their Fellowship as commissioned medical officers in one of the three government services, honorary Fellows, nor those Fellows who have substituted *The Archives* or the *Children's Journal* for THE JOURNAL of the American Medical Association.

During the year 1916 there were 3,079 names transferred from the subscription list to the Fellowship roll.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the year ended December 31, 1916.

ASSOCIATION RESERVE FUND

Reserve Fund as at December 31, 1915		$124,060.46
Receipts for the year ended December 31, 1916:		
Interest	5,351.89	
		$129,412.35
Disbursements for the year ended December 31, 1916:		
Transferred to General Working Fund	8,763.40	
Reserve Fund as at December 31, 1916		$120,648.95

TREASURER'S GENERAL ACCOUNT

Balance as at December 31, 1915		$ 28,308.41
Receipts for the year ended December 31, 1916:		
Interest on Certificate of Deposit	$341.66	
Interest on Bank Balances	90.05	
		431.71
		$ 28,740.12
Disbursements for the year ended December 31, 1916:		
Transferred to General Working Fund	28,736.60	
Balance as at December 31, 1916		$ 3.52

DAVIS MEMORIAL FUND

Balance as at December 31, 1915	$ 3,339.79
Interest received for the year ended December 31, 1916	100.92
Balance as at December 31, 1916	$ 3,440.71

AUDITORS' REPORT

CHICAGO, ILL., Jan. 18, 1917.

To the Board of Trustees of the
American Medical Association, Chicago, Ill.

Gentlemen:

In accordance with your instructions, we have audited the accounts of the American Medical Association for the year ended Dec. 31, 1916, and now submit our report thereon.

SURPLUS ACCOUNT

The surplus at the beginning of the year amounted to $418,027.54 and the surplus at the end of the year amounted to $382,135.69, a decrease of $35,891.85, which is accounted for as follows:

Net Loss on Operations		$ 44,655.25
Less Transfer from Reserve Fund		8,763.40
Net Decrease in Surplus		$ 35,891.85

The net decrease in surplus is spread over the assets and liabilities as follows:

Decrease in Assets:			
Property and Equipment			$ 11,504.45
Certificates of Deposit			20,000.00
Current and Working Assets			24,978.77
			$ 56,483.22
Less:			
Increase in Prepaid Expenses		$ 1,505.24	
Decrease in Liabilities:			
Accounts Payable	18,896.58		
Advance Payment on Publications	189.55		20,591.37
Net Decrease in Surplus, as above			$ 35,891.85

FINANCIAL POSITION

The financial position of the Association as at Dec. 31, 1916, is shown in the following statement:

BALANCE SHEET AS AT DECEMBER 31, 1916

ASSETS:			
Property and Equipment at Cost, less Depreciation:			
Real Estate and Buildings			$244,701.42
Machinery			36,920.30
Type and Metals			8,215.56
Furniture and Fixtures			13,021.55
Chemical Laboratory			1,724.22
Library			1,597.55
			$306,180.60
Reserve Fund Investment			120,648.95
Current and Working Assets:			
Inventory of Materials, Supplies and Work in Process		$31,219.86	
Accounts Receivable:			
Advertising	$25,048.56		
Reprints	1,610.09		
Miscellaneous	2,523.26		
Cooperative Medical Advertising Bureau	3,569.40		
Directory, 5th Edition (Estimated)	3,000.00		
		35,751.31	
Notes Receivable		324 37	
Directory, 6th Edition (Labor and Material)		5,981.04	
Cash in Bank and on Hand		7,843.08	
Office Fund		50.00	81,169.66
Liability Insurance Fund in Bank			4,017.93
Prepaid Insurance			1,579.39
Prepaid Expenses, Session 1917			154.75
Total			$513,751.28
LIABILITIES:			
Accounts Payable:			
Cooperative Medical Advertising Bureau			$ 2,684.59
Sundry			31.11
			$ 2,715.70
Advance Payment on Publications			4,233.01
Association Reserve Fund			120,648.95
Liability Insurance Reserve			4,017.93
Surplus			382,135.69
Total			$513,751.28

The balance sheet submitted, in our opinion, correctly reflects the financial position of the Association as at December 31, 1916, subject to provision for accrued interest, taxes and "Journal" subscriptions paid in advance, less subscriptions and memberships due and unpaid.

The securities representing the investment of the Association Reserve Fund were produced for our inspection and we found them in order.

We verified the cash on hand by actual count and the cash in bank by certificates obtained from the various depositories. The following is a statement of the cash balances, exclusive of the insurance cash fund:

Continental and Commercial National Bank	$ 7,318.56
First Trust and Savings Bank (Treasurer's Account)	3.52
Cash on Hand	521.00
Cash Fund	50.00
Total	$ 7,893.08

OPERATIONS

The operations of the Association for the Year ended December 31, 1916, are shown in the following statements:

INCOME AND PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED DECEMBER 31, 1916

JOURNAL:		
INCOME:		
Fellowship Dues		$ 43,797.75
Subscriptions		274,594.74
Advertising		229,175.38
Jobbing		3,870.14
Books		6,741.96

Reprints	2,638.84	
Buttons	145.70	
Miscellaneous Sales	5,839.95	
Interest	823.42	
	$567,627.88	
Expenses, Schedule "1"	415,052.71	
Net Income from "Journal"		$152,575.17
Miscellaneous Income:		
Children's Journal	$ 322.38	
Directory, 5th Edition (Estimated)	2,371.00	
Fire Insurance Recovered	243.15	2,936.53
		$155,511.70
Association Expenses, Schedule "2"	$ 71,681.36	
Less:		
Rentals	$3,480.00	
Interest on Treasurer's Account	431.71	3,911.71
	$ 67,769.65	
Miscellaneous Expenses, Schedule "3"	132,397.30	200,166.95
Net Loss on Operations		$ 44,655.25

JOURNAL EXPENSES—SCHEDULE "1"

Wages and Salaries		$152,213.61
Editorials, News and Reporting		10,902.86
Paper—Journal Stock		134,538.25
Paper—Miscellaneous		3,918.87
Electrotypes		5,504.79
Binding		212.80
Ink		4,695.69
Postage—First Class		15,234.09
Postage—Second-Class		27,772.04
Journal Commissions		10,312.87
Collection Commissions		2,723.14
Discounts		3,613.04
Express and Cartage		2,449.21
Exchange		2,113.88
Office Supplies		956.57
Telephone and Telegraph		873.99
Office Jobbing		3,038.77
Miscellaneous		5,075.70
Power		2,509.87
Light		1,037.98
Fuel		2,588.42
Factory Supplies		4,294.71
Repairs and Renewals—Machinery		3,224.76
Bad Debts written off—less Recoveries		97.44
		$399,903.35

DEPRECIATION:

Property and Equipment:	Rate	Amount	
Building "B" (New)	2½%	$4,399.30	
Machinery	15%	6,515.35	
Furniture and Fixtures	15%	1,642.21	
Factory Fixtures	15%	655.71	
Type	15%	740.85	
Metal	20%	1,004.36	
Chemical Laboratory	10%	191.58	15,149.36
Total			$415,052.71

ASSOCIATION EXPENSES—SCHEDULE "2"

Propaganda		$ 8,039.23
Association		19,403.94
Health and Public Instruction		13,017.68
Pharmacy and Chemistry and Chemical Laboratory		14,991.59
Medical Education		7,734.51
Organization		4,970.47
Therapeutic Research		612.75
Session 1916		2,438.10
Building "A" Expense:		
Depreciation, 2½%	$398.07	
Sundries	75.02	473.09
Total		$ 71,681.36

MISCELLANEOUS EXPENSES—SCHEDULE "3"

Insurance and Taxes	$ 5,730.92
Legal and Investigation Expense	124,772.21
Building Maintenance	1,604.75
Archives	66.52
Cooperative Medical Advertising Bureau	222.90
Total	$132,397.30

The audit embraced an exhaustive test of the various sources of income and the verification of the cash disbursements with proper vouchers on file. Included in the income for the period is an amount of $2,371.00 representing the profit from the sale of the Directory, 5th edition. This profit is arrived at after an arbitrary value of $3,000.00 has been placed on the accounts due from this source and still uncollected. This amount would appear to be conservative.

We have pleasure in reporting that we found the accounting records to have been maintained in the usual good order, and that every facility was afforded us for the proper conduct of the audit.

Yours truly,
MARWICK, MITCHELL, PEAT & Co.,
Chartered Accountants.

Report of the Judicial Council

Dr. Alexander Lambert, New York, Chairman, read the report of the Judicial Council which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

At the annual session held last year in Detroit, the House of Delegates added to the power vested in the Judicial Council an appellate jurisdiction in intrastate controversies, with the definite direction, however, that such appellate jurisdiction is limited to questions of law and procedure but not of fact. At the time this action was taken, the delegates from Kentucky and from Mississippi publicly requested that the official minutes should record that, acting under direction of their respective state associations, the delegates from these states voted against according appellate jurisdiction to the Judicial Council. The minutes of the Association contain this record.

Since the Detroit meeting, the subject has again been brought to the attention of the Judicial Council through correspondence between the secretary of the Louisiana State Medical Society and the secretary of the American Medical Association, and the minutes of the House of Delegates of the Kentucky State Medical Association as published in the official journal of that association.

In its report of last year in which the Judicial Council asked the attention of the House of Delegates to the question of vesting this Council with appellate jurisdiction, a review was given of just what had previously been done by the Judicial Council and the House of Delegates in the consideration of according appellate jurisdiction to the Council. That report of the Council definitely stated that when the question had first been presented to the House of Delegates in 1914, there was no qualification of the appellate powers suggested for the Judicial Council, so that had the suggestion then made been adopted, the Judicial might have been required to have considered matters of fact, as well as questions of law and procedure. The question of vesting the Judicial Council with appellate jurisdiction was at that time laid on the table for reference to the several constituent state associations. In the discussion and correspondence which this question elicited, the Judicial Council itself appreciated that it was unwise for the Association to vest the Council with appellate jurisdiction which should cover questions of fact. It was further seen that the majority of state associations were in accord with the suggestions that the Judicial Council be given authority to adjudge an appeal on a question arising in an intrastate controversy, provided this appeal was regarding a question of law or procedure and that questions of fact be confined to the courts of the county and state organizations.

Acting on this information at Detroit last year the Judicial Council again presented to the House of Delegates the recommendation that appellate jurisdiction limited as above suggested to questions of law and procedure but not of fact, be accorded to the Judicial Council and the following paragraph was added to Section 4, Chapter 7 of the By-Laws of the Association:

> "In all cases which arise (a) between a constituent association and one or more of its component societies; (b) between component societies of the same constituent association; (c) between a member or members and the component society to which said member or members belong, or (d) between members of different component societies of the same constituent association, the Judicial Council of the American Medical Association shall have appellate jurisdiction in questions of law and procedure, but not of fact."

It was to register their opposition to the House of Delegates investing the Judicial Council with this appellate jurisdiction that the delegates from Kentucky and from Mississippi officially recorded their objection and concerning which the correspondence took place between the secretary of the Louisiana State Medical Society and the secretary of the American Medical Association.

The Judicial Council is convinced that this opposition is based on a misunderstanding of the powers granted to the Judicial Council. The action taken by the House of Delegates does not in any way increase the original jurisdiction of the Council in matters which come to that body primarily and directly without going through any other committee, body or court of the American Medical Association and its component branches. The appellate power tends only to increase the authority of the Judicial Council in requiring fair play and that justice shall be accorded throughout the branches of the Association, down to and including the individual members thereof. The Judicial Council recalls that the delegate from Kentucky, in his remarks preceding the request for an official minute of the position taken by the delegation from that state, cited instances in his own state where, in the heat and anger of personal discussion, prominent members of the profession had been unjustly disciplined because of the personal animosity of the majority vote which was manifestly taken under conditions which did not record the temperate judgment of the organization.

The appellate jurisdiction with which the Judicial Council has been vested will prevent a like failure of justice toward individuals, or toward component societies of a constituent association, or even toward the constituent associations themselves when, in the heated ardor of discussion, a proper and necessary orderly procedure is disregarded and when the contestants fail to accord fair play and to grant to the minority a full privilege of presenting their side of the controvery.

The appellate power vested in the Judicial Council merely established an impartial judiciary, authorized to pass on questions of law and procedure, but not to review the facts on which the cause is based. That is, the Judicial Council simply judges whether or not the previous courts which have tried the cause have given to both parties to the controversy a square deal in an open fight. There is no new power vested in the Judicial Council and there is no desire on the part of any member of the Council that there shall be. There is no intention to assume any power by which the Council can go down into any constituent state association or component society thereof and interfere in any way with the judgment of these societies concerning their membership when such judgment on the part of these branches of the organization is in accordance with the provisions of the constitution and by-laws of these constituent and component organizations. There is no provision for an appeal to the Judicial Council by any one outside the organization. This privilege of appeal is confined to those who are members or who were members of the organization at the beginning of the controversy which is appealed to the Judicial Council.

At the Detroit session, the House of Delegates directed the Judicial Council to investigate the status of the constituent association for Wyoming, and to assist in reviving the activities of that state association or arrange for a new organization in that state. This question was taken up through correspondence with the last reported officers of the Wyoming State Medical Society, as well as the officers of the component district organizations. Considerable interest in this question was manifested, especially on the part of officers of certain of the component societies and through the cooperation of those interested, a general meeting of the physicians practicing in Wyoming was held at Douglas on May 9.

The Judicial Council takes pleasure in reporting that it has been advised that the Wyoming State Medical Society was reorganized under the name of the State Medical Society of Wyoming. The Council recommends that the present organization, the State Medical Society of Wyoming, be recognized as the constituent association of the American Medical Association for the state of Wyoming.

Respectfully submitted.

ALEXANDER LAMBERT, Chairman,
RANDOLPH WINSLOW,
A. B. COOKE,
JAMES E. MOORE,
HERBERT A. BLACK,
ALEXANDER R. CRAIG, Secretary.

Report of Council on Health and Public Instruction

Dr. Frank Billings, Chicago, temporary chairman, read the report of the Council on Health and Public Instruction which was referred to the Reference Committee on Legislation and Political Action.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

The work of the Council during the last year has been necessarily curtailed on account of the limited appropriation due to financial conditions and the increased cost of publishing THE JOURNAL, making necessary the abandonment for the time being of the program of investigation, education and legislation which the Council has followed for the past four years and which was discussed in detail in the reports for 1914, 1915 and 1916. It is hoped that this work can be taken up and carried forward as soon as financial conditions justify the necessary expenditure on the part of the Association.

During the past year, the Council has necessarily confined its efforts to the production of educational material which could be supplied to state boards of health, educational and philanthropic bodies, women's clubs and other similar organizations at a price sufficient to cover the cost of production. The Council report last year showed that from June 1, 1915, to May 16, 1916, the Council had printed and distributed 1,133,500 pamphlets, of which 750,000 were "Minimum Health Requirements for Rural Schools," printed through the cooperation of the Elizabeth McCormick Memorial Fund, the remaining 383,500 pamphlets being miscellaneous educational reprints. During the past year the Council has nearly doubled its output as compared with the preceding year, as Table 1 will show.

In connection with Baby Week the first week of May, about 82 sets of these charts were sold for educational purposes. As this is the only set of such material on the market, there promises to be a steady demand for these charts.

The fact that the Council last year with an appropriation of $15,000 was able to expend $18,097.51 net expenditures, while only $9,666.45 was charged against the Council's appropriation, shows that it is possible to make the educational activities of the Council partially, if not entirely, self-supporting.

Particular attention should be called to the series of seven pamphlets on health insurance prepared by the Special Committee on Health Insurance for the education of members of the organization. The pamphlets are as follows:

Pamphlet I. Workmen's Compensation Laws, from the Report of the Judicial Council of the American Medical Association for 1915.

Pamphlet II. Social Insurance, the Report of the Special Committee of the American Medical Association for 1916.

Pamphlet III. Health Insurance in Relation to the Public Dispensary, by Dr. I. M. Rubinow, New York.

Pamphlet IV. Health Insurance in Relation to Public Health, by Dr. I. M. Rubinow, New York.

Pamphlet V. Social Insurance, by Dr. I. M. Rubinow, New York.

Pamphlet VI. Medical Organization Under Health Insurance, by Dr. Alexander Lambert, New York.

Pamphlet VII. Statistics Regarding the Medical Profession, Compiled by the Committee on Social Insurance.

SPEAKERS' BUREAU

As indicated in the report of the Council for last year, the Speakers' Bureau has been reorganized and put on a different basis, the plan now being followed of requiring local organizations desiring speakers to pay the actual expenses of the speaker incurred in filling the appointment. A revised list of speakers was compiled last summer and fall embracing 255 speakers from forty-five states and the District of Columbia. Fifteen thousand copies of the announcement were distributed to medical societies, women's clubs, state superintendents of education, principals of normal schools, university and college presidents, summer school directors, etc. The Speakers' Bureau now confines its activities to bringing together local organizations and speakers and arranging details. The only expense involved is that of publishing and distributing each year a revised list of speakers.

TABLE 1.—NUMBER AND CHARACTER OF PAMPHLETS PRINTED AND DISTRIBUTED, MAY 16, 1916, TO MAY 1, 1917

Defense of Research, Pamphlet IX. "The Fruits of Medical Research with the Aid of Anesthesia and Asepticism"	1,000
Defense of Research, Pamphlet XVIII. "Obstetrics and Animal Experimentation"	1,000
Conservation of Vision, Pamphlet I. "Schoolchildren's Eyes"	1,000
Conservation of Vision, Pamphlet II. "Industrial and Household Accidents to the Eye"	1,000
Conservation of Vision, Pamphlet IV. "The Relation of Illumination to Visual Efficiency"	1,000
Conservation of Vision, Pamphlet X. "Care of the Eyes"	1,000
Conservation of Vision, Pamphlet XI. "Infant Blindness, or Ophthalmia Neonatorum"	1,000
Conservation of Vision, Pamphlet XIV. "Visual Requirements of Transportation Employees"	1,000
Conservation of Vision, Pamphlet XV. "Ocular Hygiene in Schools"	2,000
Conservation of Vision, Pamphlet XVIII. "Preparations for the Oncoming of Blindness"	1,000
Conservation of Vision, Pamphlet XIX. "What to Do for Blind Children"	1,000
Conservation of Vision, Pamphlet XX. "Blindness from Wood Alcohol"	1,000
Prevention of Cancer, Pamphlet I. "What Every One Should Know About Cancer"	1,000
Prevention of Cancer, Pamphlet V. "Cancer of the Breast"	1,000
Prevention of Cancer, Pamphlet IX. "What Every One Should Know About Cancer of the Stomach"	1,000
Sex Hygiene. "Life Problems"	1,000
Public Health. "Baby Welfare"	5,200
Public Health. "Hookworm"	1,200
Public Health. "House-Fly"	5,300
Public Health. "Measles"	8,300
Public Health. "Pure Water"	1,000
Public Health. "Scarlet Fever"	10,000
Public Health. "Smallpox"	8,200
Public Health. "Tuberculosis"	4,200
Public Health. "Typhoid Fever"	3,200
"What You Should Know About Tuberculosis"	203,100
"Save the Babies"	302,500
"Summer Care of the Baby"	67,000
"Baby Health Conferences"	5,000
Social Insurance, Pamphlet I. "Workmen's Compensation Laws"	1,000
Social Insurance, Pamphlet II. "Social Insurance, the Report of the Special Committee of the American Medical Association for 1916"	2,000
Social Insurance, Pamphlet III. "Health Insurance in Relation to the Public Dispensary"	3,000
Social Insurance, Pamphlet IV. "Health Insurance in Relation to Public Health"	2,000
Social Insurance, Pamphlet V. "Social Insurance"	1,000
Social Insurance, Pamphlet VI. "Medical Organization Under Health Insurance"	1,000
Social Insurance, Pamphlet VII. "Statistics Regarding the Medical Profession, Compiled by the Committee on Social Insurance"	1,000
"Health Essentials for Rural School Children"	55,000
"Our Progress in Medicine"	200
"Public Health Measures in Relation to Venereal Diseases"	3,000
"An Outline for a Study Course on Public Health Prepared for the Use of Women's Clubs"	12,000
"Speakers' Announcement"	15,000
Total	737,400
Score Cards	40,000
Record Sheets	5,000
Anthropometric Tables	5,000
Total	50,000
Grand total	787,400

In addition, a series of exhibit charts on baby welfare have been printed as follows:

Baby Welfare Chart No. I. Birth Registration	1,000
Baby Welfare Chart No. II. Care Before Birth	1,000
Baby Welfare Chart No. III. Nursing the Baby	1,000
Baby Welfare Chart No. IV. What Mother's Milk Did for this Baby	1,000
Baby Welfare Chart No. V. Colds and Pneumonia	1,000
Baby Welfare Chart No. VI. One Death in Five	1,000
Baby Welfare Chart No. VII. Give Us Our Rights	1,000
Baby Welfare Chart No. VIII. Don'ts for Mothers	1,000
Baby Welfare Chart No. IX. Don'ts for Mothers	1,000
Baby Welfare Chart No. X. This Baby Is Happy and Thrives	1,000
Baby Welfare Chart No. XI. This Baby Frets and Is Uncomfortable	1,000
Baby Welfare Chart No. XII. The Difference	1,000
Baby Welfare Chart No. XIII. One of Baby's Worst Enemies	1,000
Baby Welfare Chart No. XIV. Three Things Are Necessary	1,000
Baby Welfare Chart No. XV. Every Day in the Life of This Baby	1,000
Total	15,000

CONFERENCE ON CHILD WELFARE

In accordance with the instructions of the Council, the secretary sent out a call for a conference at the headquarters of the Association, Wednesday, Oct. 18, 1916, at which were invited the executive officers of all national organizations interested in child welfare. Those present included:

United States Public Health Service, Dr. W. H. Frost.

Children's Bureau, Miss Julia Lathrop and Dr. Grace L. Meigs.

Association for the Study and Prevention of Infant Mortality, Miss Harriet L. Leete, Mr. Albert Cross, Dr. S. H. Hamill, Dr. Philip Van Ingen and Miss Gertrude B. Knipp.

American Public Health Association, Dr. W. A. Evans and Dr. Lyman A. Jones.

Elizabeth McCormick Memorial Fund, Mrs. Dunlap Smith and Mr. Sherman C. Kingsley.

General Federation of Women's Clubs, Mrs. F. D. Everett.

American Hospital Association, Dr. John A. Hornsby.

Council on Health and Public Instruction of the American Medical Association, Dr. Frank Billings, Dr. H. M. Bracken, Dr. Lenna L. Meanes, Dr. Velura E. Powell and Dr. Frederick R. Green.

The purpose of the conference was to bring together and coordinate the work being done in the public health field by the various organizations interested in child welfare, in the hope of developing a common program that could be adopted by all the organizations interested. The three propositions put before the conference were:

1. Are there any factors that are of fundamental importance in the development of a program on child welfare, and if so, what are they?

2. Can a plan of campaign be outlined by which the activities of those interested can be united in securing these essentials? If so, what should such a program be?

3. If such a program can be outlined, what part will each organization take in carrying it out?

After lengthy discussion of these questions, the conference appointed a committee on coordination and program to formulate a plan for cooperation between the various organizations interested. The following committee was appointed: Miss Julia Lathrop, Mr. Sherman C. Kingsley, Dr. Philip Van Ingen, Dr. J. W. Kerr, Dr. Lenna L. Meanes and Dr. Frederick R. Green. This committee has been in correspondence since the conference, and will hold a meeting for further consideration of this subject during the time of the New York session.

CHILD WELFARE POSTERS

One of the most important developments of this conference was the practical cooperation of the General Federation of Women's Clubs, the American Association for the Study and Prevention of Infant Mortality, the federal Children's Bureau and the Council on Health and Public Instruction of the American Medical Association in preparing suitable educational material for use during Baby Week, which was observed this year the first week in May. Through the cooperation of the National Association for the Study and Prevention of Infant Mortality and the federal Children's Bureau, a series of fifteen educational posters was prepared, five by the bureau and ten by the Association. These were printed for the Council on the American Medical Association press, furnishing a set of educational charts which have proved extremely valuable, as, at the time that these were prepared, there was no suitable material obtainable for this purpose. In addition to supplying these charts, pamphlets, score cards, record sheets and other material have been printed and furnished in large quantities to the various organizations interested in educating the public in child welfare.

EDUCATIONAL CHARTS ON SCHOOL HYGIENE

The Joint Committee on Health Problems in Education, representing the American Medical Association and the National Education Association, has prepared a series of fifty-five charts suitable for use in exhibits, normal schools, state conferences on education and other occasions, and covering almost every phase of school hygiene. Reduced copies of these charts have been printed in pamphlet form and distributed in a small edition. The charts themselves will be reproduced and made available for educational or philanthropic organizations or institutions desiring material of this sort.

It becomes more and more evident that the real function of the Council is not so much the direct education of the public through its own efforts, such a task being far too great for the resources at our command, but rather the production of authoritative material and the giving of its approval to educational material and methods which can be carried on by other organizations and through various agencies.

COMMUNICATION FROM THE NATIONAL W. C. T. U.

At the Detroit session, the following letter was presented by the secretary of the Association to the House of Delegates, and was by that body referred to the Council on Health and Public Instruction:

To the House of Delegates of the American Medical Association, Detroit, Michigan.

Dear Sirs:—In view of the increasing desire on the part of the nations of the world for relief from the evil effects of alcoholic liquors on society, and in view of the fact that all the warring nations of Europe have found that liquor drinking must be curbed because of its interference with health, efficiency and safety, we, representing 400,000 women, members of the National Women's Christian Temperance Union, respectfully request that your honorable body give expression at this annual meeting of the American Medical Association to such a warning against alcoholic liquors as shall strengthen the hands of boards of health and temperance organizations now combating the liquor evil.

One of the chief causes of the alcohol habit is the ignorance of the mass of the people concerning the real nature of alcohol. They have been taught that alcoholic liquors give health and strength, that they are tonic and remedial. The brewing and whisky trades advertise that their products are foods and tonics and aids to digestion, and that they are endorsed and recommended by physicians the world over. The medical profession owes it to itself and to the public to offset this dangerous and misleading advertising by a statement of the truth.

The medical society of Russia at its meeting in 1915 issued a notable document against alcohol, a copy of which is appended for the information of any of your honorable body who may not have seen it. Your petitioners hope for as strong and helpful an expression from the great American Medical Association as that emanating from your Russian confrères.

Yours sincerely,
ANNA A. GORDON, President.
MARTHA M. ALLEN, Supt. Dept. of Medical Temperance.

The Council has given careful consideration to this communication, and will present to the House of Delegates in connection with its report resolutions for its consideration.

MIDWINTER CONFERENCE

The regular Midwinter Conference was held, Feb. 5 and 6, 1917, in conjunction with the Council on Medical Education, the Federation of State Examining and Licensing Boards and the Association of American Medical Colleges. The second day of the conference was devoted to a discussion of public health instruction in medical colleges in the morning and the state regulation of the practice of medicine in the afternoon. The following program was presented:

STATE HEALTH INSTRUCTION IN MEDICAL COLLEGES, MORNING SESSION, 10 O'CLOCK, FLORENTINE ROOM, CONGRESS HOTEL

Opening of the Conference, Dr. Frank Billings, Chairman of the Council on Health and Public Instruction, Chicago.

"Public Health Training in Medical Colleges," Dr. George E. Vincent, Minneapolis, President, University of Minnesota, and President-Elect, Rockefeller Foundation.

"Public Health Instruction in Medical Schools," Dr. Milton J. Rosenau, Boston, Professor of Preventive Medicine and Hygiene, Harvard Medical School.

Discussion opened by: Dr. Victor C. Vaughan, Ann Arbor, Mich., Dean of the University of Michigan Medical School. Dr. S. J. Crumbine, Topeka, Secretary, Kansas State Board of Health, and Dean of the University of Kansas, School of Medicine.

STATE REGULATION OF THE PRACTICE OF MEDICINE, AFTERNOON SESSION, 2 O'CLOCK, FLORENTINE ROOM, CONGRESS HOTEL

"The State Regulation of the Practice of Medicine as an Executive Problem," Hon. James M. Cox, Columbus, Governor of Ohio.

Discussion opened by: Dr. C. St. Clair Drake, Springfield, Secretary of the Illinois State Board of Health. Dr. David A. Strickler, Denver, Secretary Colorado State Board of Medical Examiners. Dr. William P. Best, Indianapolis, Secretary of the National Eclectic Medical Association.

SPECIAL ACTIVITIES

Owing to the fact that the annual session this year is held in New York and that much of the public interest is unavoidably diverted by the war and kindred topics, it did not seem advisable to undertake the task of furnishing speakers on public health for the New York churches for the Sunday preceding the New York session. Neither did it seem advisable to undertake the holding of a special meeting on public health open to the general public. It is hoped that when conditions have returned to a more normal state, these functions of the Council can be resumed.

OFFICE WORK

From May 16, 1916, to May 1, 1917, the secretary has received 5,031 letters and sent 7,733 letters. Requests for information and the sources from which they have come are indicated in Table 2.

TABLE 2.—SOURCES OF REQUESTS FOR INFORMATION

Source	Number
Attorneys	5
Boards of education	4
Boards and departments of health	64
Clubs	84
Federal departments	19
Hospitals	15
Libraries	85
Life insurance companies	6
Medical societies	14
Ministers	13
Nurses	70
Physicians	467
Publications	35
Universities, colleges, high schools, etc.	109
Y. M. C. and Y. W. C. associations	7
Miscellaneous	1,129
Total	2,126

SUBCOMMITTEES

The reports of the various subcommittees are appended herewith. The members of these committees have labored faithfully and enthusiastically to advance the special lines of work assigned to them, and the results of their labors are herewith submitted for the careful consideration of the House of Delegates and its reference committees.

Respectfully submitted.

FRANK BILLINGS, Chairman,
WALTER C. CANNON,
WATSON S. RANKIN,
HENRY M. BRACKEN,
MILTON BOARD,
FREDERICK R. GREEN, Secretary.

REPORTS OF SUBCOMMITTEES OF THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

REPORT OF COMMITTEE ON SOCIAL INSURANCE*

To the Council on Health and Public Instruction:

Your Committee on Social Insurance has published during the past year a study of the statistics of the medical profession of the United States. There has further been compiled by Dr. Rubinow, the executive secretary, a review of all the compensation laws against accidents in the thirty-four states of the Union and also a study of the dispensary question in New York City, being a type of the free medical services given in the large cities of the United States.

In the past two years the committee has reviewed the subject of compensation against accident in the United States and abroad showing, in a short review, the other fields of social insurance as developed in foreign countries.

HEALTH INSURANCE

Last year the committee concentrated its report on health insurance in the various foreign countries and the conditions in the United States which today are tending toward such laws or showing the beginning of these ideas in principle in the United States. Since last June two state commissions — those of California and Massachusetts — have investigated the subject of health insurance and have reported favorably on it. After reviewing the systems of social insurance in foreign countries and considering, after public hearings, the question of the advisability of compulsory health insurance in the state of California, and after taking into consideration the condition of the wage earners of the state and their ability to take care of themselves against the hazard of sickness, the commission states that as a result of these findings and after investigation of the conditions throughout the United States, it has arrived at the conclusion that legislative provision for a state-wide system of compulsory health insurance for wage-workers and other persons of small incomes would offer a very powerful remedy for the problem of sickness and dependency in the state of California. In selecting health insurance as the particular branch of social

* Regarding Invalidity, Old Age and Unemployment Insurance, and a General Summary Concerning Social Insurance.

insurance best adapted for earliest action, the commission was guided by the following considerations:

Health insurance appears logically to be the next step in development after accident compensation. It offers the least actuarial and organizational difficulties as compared with other more complicated branches of social insurance which require provision of substantial reserves. While the grave character of the problem of unemployment cannot be denied, no system of unemployment insurance in California would appear practicable until further measures are taken to reduce the amount of unemployment. Moreover, unemployment insurance is a comparatively new institution with a very limited amount of experience available at present. Old age insurance presents such serious actuarial and financial problems that the commission does not feel in a position to make any recommendation concerning it at this time. Further study of the problem, especially as to the comparative merits of the methods of compulsory insurance and straight old age pensions, would be required. It is claimed, and with some justice, that in both the field of old age and unemployment insurance national action may be necessary; while the problem of dependency due to sickness is largely a local problem amenable to state action.

The commission recommends the following proposed constitutional amendment:

It is hereby declared to be the policy of the State of California to make special provision for the health and welfare of those classes of persons, and their dependents, whose incomes in the determination of the legislature are not sufficient to meet the hazards of sickness. The legislature may establish a health insurance system, applicable to any or all such persons, and for the financial support of such system may provide for contributions, either voluntary or compulsory, from such persons, from employers, and from the State by appropriations. The legislature may confer upon any commission or court, now or hereafter created, such power and authority as the legislature may deem requisite to carry out the provisions of this section. The provisions of this section shall not be controlled or limited by any other provision of this constitution, except the provisions of Article IV thereof, relating to the passage and approval of acts by the legislature and to the referendum thereof.

The Massachusetts Special Commission on Social Insurance, in its report, states:

The undersigned members of the Commission believed that as soon as there has been adequate consideration of the details of legislation the commonwealth should adopt a general system of health insurance for wage-earners supported by forced contributions from employers, employees and the State and that such legislation is likely to prove of the greatest value in relieving distress and promoting general welfare. We, therefore, submit a statement for the purpose of indicating briefly the need of health insurance and some of the principles which, in our opinion, should be adopted in any health insurance plan.

After submitting these details, the committee ends its report by saying, "We are satisfied, however, that some plan for health insurance should be adopted as an important early step in the interest of social welfare."

During the past winter there have been introduced into the legislatures of fourteen states a definite health insurance bill; that is, in the states of Arizona, Connecticut, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Utah and Wisconsin. This bill was approximately the tentative draft that was reported by your Social Insurance Committee last June. It differs, however, very essentially in that the medical organization has been more thoroughly worked out in detail. This medical organization was published, in January, in The Journal of the American Medical Association.

In considering any compensation at all for accidents or in considering health insurance, there is usually a limit put on the length of time for which a patient can receive care under these laws. In the laws for compensation for injuries from accidents the length of time for which surgical care is given varies greatly, in some states being unlimited, in others only seven or fourteen days. There must always remain a certain percentage of patients who are permanently totally disabled or who are permanently partially disabled. What in this country is termed "partial disability," "permanent partial disability" or "permanent total disability" is, in foreign countries, grouped together under the term of invalidity, and it is insurance against this varying degree of permanent disability that the invalidity insurance has been undertaken. There are two different conceptions of the term "invalidity." In England where at the end of twenty-six weeks' sickness or injury continues, preventing the insured from following his daily occupation, the invalidity insurance pays him half the amount of his regular weekly stipend of cash benefits, giving him 5s. ($1.25) as long as his disability lasts, whether temporary or permanent. The German method is that the sickness and accident are grouped together under one fund for thirteen weeks, and the early weeks of accidents are cared for under the sickness fund. After thirteen weeks, however, the injured by accident are separated from those sick with disease, and the injured are cared for under the compensation law while the sick continue under the sickness insurance for, as a rule, twenty-six weeks. If at the end of this time the patient has not fully recovered so as to be back at work, he then is transferred to the invalidity institutes. These care for him until he has recovered or until he is given a definite invalidity pension.

GERMAN REGULATIONS

The German conception of total permanent disability differs from that of the other continental countries. Article V of the German Invalidity Insurance Law specifies "that a state of invalidity is present when the physical or mental condition of the insured person is such that he is no longer able to earn one-third of that amount which, with due regard to his training and education, persons who are similarly situated and are not incapacitated physically or mentally are customarily able to earn in the same region by their labor."[1] In the rest of the continent invalidity, when it is considered, means that the person is totally incapacitated from work. It is readily seen that the invalidity insurance begins at whatever age a person may be incapacitated by accident or disease at the one end, and at the other end, runs into the permanent incapacity of old age. We shall see later that in the majority of instances old age is considered to be present when a man has reached 70, although a man may obtain an old age pension in some countries at an earlier age.

In considering invalidity in its various degrees, one easily appreciates the fact that in accidents permanent partial disability is of much greater frequency than permanent total disability. According to Rubinow's standard accident tables, it is said there may be expected out of 100,000 accidents 133 cases of permanent total disability and 4,742 permanent partial disabilities. If we take the German standard of total disability as being that which gives a reduction of 66⅔ per

TABLE 1.—SPECIAL TREATMENT PROVIDED DURING FIRST THIRTEEN WEEKS OF DISABILITY

Year	Number of Accident Associations	Cases Treated						Cases in Which Treatment Resulted		Expenditures for Special Treatment	
		Fractures of Bones	Injuries to Eyes	All Other Injuries	Total	In Institutions	Not in Institutions	Favorably	Unfavorably	Total	Reimbursed by Sick Funds
1904	90	2,451	715	7,823	10,989	4,897	6,092	9,916	1,026	$173,148	26,234
1905	93	2,565	706	7,979	11,250	4,971	6,279	10,261	954	184,387	27,195
1906	91	2,627	701	7,706	11,034	5,043	5,991	10,148	860	186,166	30,832
1907	95	2,811	710	7,850	11,371	5,687	5,684	10,481	862	198,483	34,280
1908	91	3,275	741	8,553	12,569	6,439	6,130	11,701	852	217,777	35,803

1. Commissioner of Labor, 24th Annual Report, 1909, p. 1365.

cent. and over of the earning capacity, there will be 711 cases of permanent total disability. The author further says that under the effect of disease, rather than injury, coupled with the effect of advancing old age, the number of these latter cases may be still more numerous; nor is the mortality among these partially disabled persons as high as among those totally disabled.

TABLE 2.—GERMAN ACCIDENTS TO INSURED PERSONS
Results of Injury 1886-1908

Year	Average Number of Persons Insured	Number of Persons Compensated for the First Time				
		Accidents Resulting in				
		Death	Permanent Disability		Temporary Disability of Over 13 Weeks	Total
			Complete	Partial		
1886	3,473,435	2,422	1,548	3,780	1,973	9,723
1887	3,861,560	2,956	2,827	8,126	2,061	15,970
1888	4,320,663	2,990	1,899	10.044	3,755	18,988
1889	4,742,548	3,457	2,357	12,998	3,958	22,770
1890	4,926,672	3,686	1,896	16,399	5,040	27,021
1891	5,093,412	3,716	1,604	17,790	5,881	28,991
1892	5,078,132	3,382	1,531	18,472	6,061	29,446
1893	5,168,973	3,680	1,397	20,174	6,775	32,026
1894	5,243,965	3,549	887	20,560	8,743	33,739
1895	5,409,218	3,757	818	19,837	10,376	34,788
1896	5,734,680	4,152	618	20,860	15,039	39,669
1897	6,042,618	4,381	680	21,836	16,004	42,901
1898	6,316,834	4,749	568	22,940	17,873	46,130
1899	6,658,571	4,897	610	24,435	20,458	50.400
1900	6,928,894	5,226	616	25,388	21,674	52,904
1901	6,884,076	5,121	625	26,734	24,292	56,772
1902	7,100,537	4,705	644	27,340	25,938	58,627
1903	7,466,484	4,854	642	28,071	28,411	61,978
1904	7,849,120	5,176	629	29,540	31,407	66,752
1905	8,195,732	5,325	583	29,949	33,837	69,694
1906	8,625,500	5,569	587	30,667	35,847	72,670
1907	9,018,367	6,223	586	30,787	39,121	76,717
1908	8,917,772	6,070	582	29,525	39,653	75,830

AUSTRIAN STATISTICS

It is interesting to study the Austrian statistics on the question of invalidity due to injuries by accident. The greatest proportion of accidents are due to building and construction, being 23.8 per cent. of the total. Next in order are those due to accidents from machinery. In 95,269 cases of accidents, studied in detail according to industries, kind of injury and according to age of those injured, it is shown that 87,810 of these were men and 7,459 were women. There were killed 3,712 men and 159 women, making a total of 3,871 and 4.1 per cent. of all accidents, 4.2 per cent. for men and 2.1 per cent. for women. In addition, 50,530 men and 3,957 women suffered temporary disability, that is, 57.2 per cent. of all accidents, and 33,568 men and 3,343 women suffered some degree of permanent disability, that is, 38.7 per cent. of all accidents. Permanent total disability occurred in 1,104 accidents—980 men and 124 women. Permanent disability was suffered by 4,098 persons—3,623 men and 475 women—to from 66 to 83 per cent. of their earning powers, that is, from the Gunn standard. There were 5,202 accidents which caused total invalidity, that is, 5.6 per cent. of all accidents.

It is further noticeable that in children under 16 years of age the total permanent disability occurred in 2 per cent. of the accidents. From 16 to 20 years this occurred in 1.9 per cent. There was then a steady increase in the percentage as age increased, rising steadily to those over 60 years of age where the permanent disability occurred in 6.2 per cent. of all accidents. This same factor is shown in the temporary disability for under 16; 67.8 per cent. of all accidents were temporary disabilities and the temporary disability percentage falls steadily until over 60 years of age it is in but 40.1 per cent. of all accidents. The reverse percentage, of course, is shown in those suffering from some form of permanent disability, 32.2 per cent. of the accidents occurring in the group under 16 years of age and rising steadily until after 60 years it reaches 53.8 per cent. In comparison by sexes the accidents show that among women permanent disability is more frequent than among men, for 38.2 per cent. of the accidents to men show permanent disability and 44.8 per cent. to women. Temporary disability occurred in 57.6 per cent. of the accidents to the men and 53.1 per cent. to the women. As has already been quoted above, the fatal accidents among women were but half the percentage of those to men, owing undoubtedly to the fact of the exposure of men to the greater risks. These are shown in mass in Table 3.

INVALIDITY IN GERMANY

Invalidity due to sickness is best studied in the invalidity insurance in Germany.[2] Invalidity and old age insurance are compulsory in Germany for all persons whose income does not exceed 2,000 marks, or $276 a year. These persons are practically all those gainfully employed in the population of the empire over 16 years of age. It exempts certain per-

2. Commissioner of Labor, 24th Annual Report.

TABLE 3.—AUSTRIAN ACCIDENTS, BY AGE GROUPS AND SEX, SHOWING AMOUNT OF DISABILITY, 1897-1901

Age Group and Sex	Accidents Resulting in												
	Temporary Disability		Permanent Disability								Death		Total Accidents
			Compensated by the Following per Cent. of Wages										
			5 and under	6 to 11	12 to 19	20 to 29	30 to 39	40 to 50	60	Total			
			Percentage Loss of Earning Power										
	Number	Per Cent. of All Accidents	8 and under	9 to 18	19 to 32	33 to 48	49 to 65	66 to 83	Total Loss of Earning Power	Total	Per Cent. of All Accidents	Number	Per Cent. of All Accidents	
Under 16 years	2,463	67.8	130	355	200	151	86	152	22	1,096	30.2	74	2.0	3,633
16 to 20 years	8,866	67.4	457	1,362	758	551	291	443	76	3,938	30.2	318	2.4	13,062
21 to 30 years	14,741	62.1	1,017	2,712	1,592	1,237	683	778	179	8,198	34.6	784	3.3	23,723
31 to 40 years	12,415	56.8	871	2,846	1,648	1,235	766	885	241	8,492	38.8	953	4.4	21,860
41 to 50 years	8,901	52.0	676	2,399	1,405	1,164	734	779	218	7,375	43.0	852	5.0	17,128
51 to 60 years	5,213	47.4	359	1,466	1,085	890	550	639	207	5,196	47.2	591	5.4	11,000
Over 60 years	1,948	40.1	119	567	438	532	377	422	161	2,616	53.8	299	6.1	4,863
Total	54,487	57.2	3,629	11,707	7,126	5,760	3,487	4,098	1,104	36,911	38.7	3,871	4.1	95,269
Males	50,530	57.6	3,358	10,704	6,464	5,282	3,157	3,623	980	33,568	38.2	3,712	4.2	87,810
Females	3,957	53.1	271	1,003	662	478	330	475	124	3,343	44.8	159	2.1	7,459
Distribution of Accidents Causing Permanent Disability. Per Cent. of Total													
Under 16 years			11.9	32.4	18.2	13.8	7.8	13.9	2.0	100.0				
16 to 20 years			11.6	34.6	19.2	14.0	7.4	11.3	1.9	100.0				
21 to 30 years			12.4	33.1	19.4	15.1	8.3	9.5	2.2	100.0				
31 to 40 years			10.3	33.5	19.4	14.6	9.0	10.4	2.8	100.0				
41 to 50 years			9.2	32.5	19.0	15.8	9.9	10.6	3.0	100.0				
51 to 60 years			6.9	28.2	20.9	17.1	10.6	12.3	4.0	100.0				
Over 60 years			4.6	21.7	16.7	20.3	14.4	16.1	6.2	100.0				

The two columns in permanent disability of loss of earning power of 66 to 83 per cent. and total loss correspond to total disability or invalidity under the German classification.

sons from the insurance whose compensation consists of maintenance only and certain officials of the empire, and there are certain other exceptions. These people to become entitled to the insurance must have paid the regular dues for a certain period of time designated as the waiting time. For the invalidity pensions the waiting time is 200 weeks, provided that during this time at least 100 weekly contributions have been paid, otherwise the waiting time is 500 weeks. For old age pensions the waiting time is 1,200 weeks of contributions. Time spent in military duty in peace or war or time lost from one's occupation because of sickness, properly attested, is credited as part of the waiting time though no contributions may be paid. There may come under the invalidity and old age pension laws certain persons on the voluntary insurance basis. These are administrative officials, foremen and technical officials, employees in commercial establishments, excepting apprentices, teachers and instructors and ships' officers whose incomes are more than $476 a year and not exceeding $714. There may also come under this voluntary insurance, regardless of the amount of their income, persons engaged in business on their own account and heads of establishments who do not regularly employ more than two wage-workers who are subject to the compulsory insurance, as well as persons engaged in domestic or homeworking industries; also persons whose only compensation for their work is free maintenance or persons who have been exempt from the compulsory insurance because of the temporary nature of their employment. In case of voluntary insurance, benefits for invalidity are granted only after the insured person has paid 100 weekly contributions. The benefits are provided for three types of disability; invalidity or permanent disability, sickness or temporary disability, and old age, regardless of any disability, affecting the insured person's earning power. The invalidity pensions are paid to those persons regardless of their age who become disabled through age, sickness or other cause to such an extent that they suffer a permanent loss of earning capacity greater than one third of their earning ability. The sick pensions are the temporary pensions paid those persons who are sick longer than the twenty-six weeks covered by sickness insurance.

TABLE 4.—NUMBER OF PERSONS ON PENSION ROLLS OF INVALIDITY INSTITUTES

Year	Current Pensions at the Close of the Year			Number of Pensions Granted Each Year		
	Invalidity Pensions	Sick Pensions	Old Age Pensions	Invalidity Pensions	Sick Pensions	Old Age Pensions
1900	405,335	5,118	188,472	124,588	6,463	19,790
1901	486,915	8,700	179,450	129,234	7,391	14,759
1902	574,842	12,145	168,550	141,481	8,695	12,816
1903	663,140	14,186	156,620	150,209	8,977	12,374
1904	734,955	16,985	145,466	142,296	10,517	12,069
1905	780,761	20.140	134,100	124,111	11,838	10,716
1906	814,575	22.097	125,603	111.885	12,569	10,739
1907	841,992	20,079	116,887	112,184	11,537	10,769
1908	868,086	19,087	108,637	117,224	12,209	10,986*
1909	893,585	18,502	102,362	115,264*	12,716*	11,003*

* W. H. Dawson "Social Insurance in Germany."

TABLE 5.—ESTIMATED NUMBER OF PERSONS INSURED AGAINST INVALIDITY AND OLD AGE COMPARED WITH POPULATION OF EMPIRE

Year	Population of Empire			Estimated No. of Persons Insured
	Male	Female	Total	
1900	27,574,000	28,472,000	56,046,000	13,015,100
1901	27,985,000	28,886,000	56,871,000	13,196,000
1902	28,416,000	29,330,000	57,746,000	13,380,000
1903	28,824,000	29,752,000	58,576,000	13,567,200
1904	29,225,000	30,166,000	59,391,000	13,756,400
1905	29,721,000	30,593,000	60,341.000	13,948, 00
1906	30,149,000	31,028,000	61,177,000	14,142,700
1907	30,640,000	31,443,000	62,083,000	14.958,118
1908	31,084,000	31,898,000	62,982,000	15,226,000

An invalidity pension is not paid if the claimant has brought the invalidity on himself. If, on the other hand, the invalidity was sustained during the commission of a crime or of a deliberate offense so pronounced by a court of law, the whole or part of his pension may be allowed to his family, if it is living within the empire and dependent on the insured for support. When an insured person reaches 70 years of age and is entitled to an old age pension, he may also at this age be receiving an invalidity pension and be entitled to one. That pension, either invalidity or old age, which is the greater in amount, must be given to the insured at this age. He is entitled to but one. When incapacity is occasioned by an accident, a claim to the invalidity pension is only justified in so far as such pension would exceed the pension due under the accident insurance law.

Under certain circumstances the law formerly required the return to the insured workman of one half the dues paid in to secure the rights under invalidity and old age insurance. Since the introduction of survivor pensions these refunds of contributions according to Dawson have been discontinued. The invalidity insurance is administered by invalidity insurance institutes. These institutes are corporations possessing all the rights and duties of legal persons. Besides the Board of Governors there is a supervisory committee which contains representatives of the employers and employees who serve without pay, and the law also permits the addition of several other persons on the board, such as physicians, insurance experts, and similar persons, whose specialty may be of use in the administration of the institute. There are also special invalidity institutes of the miners, railroads and seamen. These were permitted because these workers already possessed certain types of invalidity insurance when the general invalidity law was passed. The dues of the invalidity insurance are paid by means of stamps which are purchased from an agency of the institute and then pasted on the receipt or membership cards. Each invalidity institute publishes its own stamps which must be used by the persons insured in it. Each insured person is responsible for obtaining his receipt card and responsible for bringing it each week to have the proper stamps affixed. Any failure to obtain a card by an insured person is punished by a fine. The employer is held responsible for the pasting on of the correct amount of stamps, both for the share of the insured person and for his own share. The dues paid must cover the same time as the wage payment, except that if the employee begins a week of service the invalidity insurance week begins on Monday and ends on Sunday, the dues for that entire week must be paid by the employer even if the service continues for only part of a day. Failure on the part of the employer to comply with the requirement means the imposition of a fine. If the insured person loses his right to a pension by negligence of the employer, the employer is liable to a suit for damages. In fact, employers have been required by courts to pay the entire cost of pensions, the right to which was lost through their failure to obey the law. Cash payments are used in certain funds to which the miners and most of the state railway employees belong and both stamps and cash are employed in the marine insurance funds. When the receipt card of the insured is filled with stamps, it must be returned to the local agency and a new card procured. The insured person is required to preserve the certificates covering periods of illness and of military service, and forfeits his rights to include such periods in his waiting time if he cannot produce these certificates at the time his benefits under the law are determined. The number of persons included under the law in 1909 was 15,444,300, 69 per cent. being men and 31 per cent. women. Some 600,000 persons were voluntarily insured.

ADMINISTRATION OF LAW

The bodies which administer the law have two main sources of income—contributions by the insured workmen and their employers in equal amounts and the yearly addition to every pension from the imperial treasury. Both the invalidity and old age pensions are based on the amount of dues paid in and on a basis of wage classes. The wage classes are five in number; viz.: wage class I, annual earnings $83.80 and under; wage class II. $83.80 to $130.90; wage class III, $130.90 to $202.30; wage class IV, $202.30 to $273.70; wage

class V, over $273.70. The law requires the wages or earnings of the insured person to be computed as follows:

In certain of the sick funds 300 times the wage rate adopted by these funds as the basis of collecting their dues; or the wages shall be assumed to be an amount fixed by the local administrative authorities with due regard to the actual average earnings of the insured; or, for seamen, the average earnings shall be specified by the imperial chancellor according to the navigation law; among miners the rate is 300 times the wages as estimated by the board of directors of the fund. For all other persons, unless the administrative authorities fix a higher rate for special occupations, the rate shall be 300 times the average rate paid in that locality for unskilled labor. Instructors, teachers, etc., belong to the fourth class, unless a higher rate is shown to have been received. An insured person may have himself rated in a higher wage class by paying higher dues, but the employer in such case may not be required to pay a higher amount of dues.

All pensions are composed of two amounts—first, the variable amount provided by the invalidity institute and, second, a fixed amount provided by the imperial government. The amount provided by the institute consists of two parts, a basic amount and a supplementary amount. For the old age pensions the amount provided by the institute consists of the basic amount only. It is, therefore, a higher basic amount than that of the invalidity pension. For invalidity and sickness pensions the basic amount varies for the various wage classes as follows: wage class I, $14.28; wage class II, $16.66; wage class III, $19.04; wage class IV, $21.42; wage class V, $23.80. In computing the basic amount of the pensions 500 contributory weeks are always used. If 500 weeks of dues have not been paid, then the number of weeks lacking may be calculated according to wage class I. If more than 500 weeks of dues have not been paid, then the 500 weeks averaging the highest wage payments paid are those used. If the 500 weeks consist of different wage classes, then an average must be taken. After the basic amount of the pension has been computed, the amount is increased by a system of supplementary amounts to determine the number of weeks for which dues have been paid. For each week a supplementary amount must be used: for wage class I, 0.7 of a cent; for wage class II, 4.1; for wage class III, 1.9; for wage class IV, 2.4, and for wage class V, 2.9 cents. The pension, therefore, must consist of the basic sum plus the supplementary increase, plus the imperial subsidy. For further details of the complicated computations necessary, the reader is referred to the twenty-fourth annual report of the commissioner of labor, page 1371.

A further opportunity (according to W. H. Dawson in Social Insurance in Germany) is offered to insured persons supplementing their old age and invalidity pensions by an amount of 25 cents at convenient times. For every supplementary contribution of 25 cents so made, the insurer will, on his claim to pension maturing, receive the sum of one-half cent for every year that has elapsed since the contribution was made. If the supplementary pension should not exceed $15, the beneficiary may require his payment in lump sum payment.

Of the 2,471,265 pensions granted up to Dec. 31, 1910, 75.4 per cent. were granted on account of invalidity, 20 per cent. on account of old age, 4.6 per cent. on account of sickness ending, in most cases, in permanent disablement. On Jan. 1, 1911, of the 1,034,000 pensions in force, 718,760 were for invalidity, 98,335 for old age and 19,965 were provisional sickness pensions. The following table shows the invalidity pensions granted in 1910 according to ages:

TABLE 6

Age	Number of Pensions	Age	Number of Pensions
20 to 24	3,154	50 to 54	10,810
25 to 29	5,262	55 to 59	14,180
30 to 34	5,430	60 to 64	21,468
35 to 39	5,591	65 to 69	21,087
40 to 44	6,182	70 and over	13,866
45 to 49	7,725		
			114,755

SOURCE OF INCOME

As has already been said, the main source of income of the invalidity insurance in Germany is the contribution from the employers and insured workmen in practically equal amounts. As a matter of fact, with a certain number of workmen voluntarily insured there is a slight increase in favor of the amount paid in by the workmen. In 1908 the funds obtained from interest on their large reserves amounted to about 18 per cent. of the total receipts for that year. The rate of interest obtained by the reserve fund was but 0.0357 per cent. About 17.7 per cent. of the total was put in by the government in its definite stated amount for each pension given. The rest of the funds were practically all contributions. The contributions in 1908 amounted to $68,000,000, the subsidy of the imperial government to $12,000,000, and interest and other receipts to a little more than $12,000,000. Against these receipts that year were charged off $43,000,000 for benefits, about $4,500,000 for administration and other purposes, leaving reserve funds at the end of the year of $354,500,000. The accompanying tables give the income and expenditures more in detail. The whole cost of administration of this huge insurance scheme in 1908 amounted to 9.4 per cent. of the expenditures.

TABLE 7.—SUMMARY OF FINANCIAL OPERATIONS OF INVALIDITY INSURANCE SYSTEM, 1900 TO 1908

Year	Contributions from Employers and Insured Persons, Each Contributing This Amount	Subsidies of Imperial Government	Interest and All Other	Total Receipts	Expenditures			Reserve Funds
					For Benefits*	For Administration and Other Purposes	Total*	
1900	$15,323,679	$7,321,301	$6,554,103	$44,522,762	$22,069,565	$2,676,061	$24,745,626	$201,290,654
1901	16,042,807	8,061,235	7,340,131	47,486,980	22,054,589	2,582,446	27,637,035	221,140,599
1902	16,539,308	9,008,227	8,054,310	50,141,153	28,658,559	2,843,541	31,502,100	239,779,652
1903	17,406,906	9,961,426	8,708,542	53,483,780	32,166,494	3,038,059	35,204,553	258,058,879
1904	18,336,448	10,775,581	9,314,649	56,763,126	35,308,681	3,336,822	38,645,503	276,176,501
1905	19,193,729	11,269,499	9,917,274	59,574,231	37,656,362	3,559,803	41,216,165	294,534,568
1906	20,245,014	11,604,311	10,580,769	62,675,108	39,517,317	3,883,259	43,400,576	313,809,100
1907	21,258,538	11,809,718	11,311,705	65,638,499	41,148,133	4,131,366	45,279,499	334,168,101
1908	21,946,264	12,024,197	12,123,209	68,039,934	43,191,472	4,489,236	47,680,708	354,527,326

* Including the Imperial subsidies.

COST OF INVALIDITY PENSIONS

In calculating the cost of invalidity pensions it is of great importance to know how many individuals of those granted pensions for tuberculosis or sickness or invalidity from any cause are liable to drop out each year. The following table shows the German experience from 1891 to 1899, and the rates given are based on 444,654 cases of invalidity pensions granted in the above years, inclusive. Seventy per cent. of these were men and 30 per cent. women. The number of these pensioners ceasing to receive pensions during the period was 210,482, of which approximately 95 per cent. were due to death, 4 per cent. to recovery and 1 per cent. to other causes.

Following is the discussion of this table in the twenty-fourth annual report of the Commissioner of Labor, from whence it is obtained:

The general tendency shown by the table may be summed up by stating that, except for the three highest ages, the probability of ceasing to draw a pension—of ceasing to be an invalid either through recovery or death—is much greater in the younger ages than in the older.

The proportion of demissions is quite large in the younger ages; at the ages of 20 and 25 approximately one-half of the invalids drop out in the first year; of those in middle age, e. g., 45 and 50, approximately one-fourth drop out in the first year while of those in the ages of 70 and 75, approximately one-eighth drop out in the first year. Of those who are in the second year of the receipt of pensions, in the ages of 20 and 25, approximately one-fourth drop out during that year, in the ages 40 and 45 about 15 per cent. of the second year pensioners drop out in that year, while in the ages 70 and 75 from 10 to 12 per cent. of the second year pensioners drop out in that year. The cause of the high proportion of demissions in the younger ages is stated to be due to the fact that the invalids of the younger ages suffer principally from severe diseases, many of which are likely to end fatally; pulmonary tuberculosis, which is responsible for a large proportion of the cases of invalidity in the younger ages, frequently causes death in a short time. The cases of invalidity in the higher ages include many instances in which there is a gradual deterioration of the physique of the pensioner; these cases usually suffer from sickness of various kinds, in which there is loss of earning power, but their death rate is perhaps not much in excess of the average rate of a standard population.

Considerable difference exists between the rates for the sexes; as a rule the proportion of females dropped from the pension rolls is much smaller than the proportion of males.

The data relating to the proportion of persons ceasing to receive pensions, whose invalidity was caused by pulmonary tuberculosis, show approximately the same tendencies as the data for all cases. The ratio of tuberculous pensioners who drop out is greater for the younger than for the older ages; in the ages 20 to 24 years the proportion of males who drop out in the first year after the pension has been granted is about 80 per cent. and decreases steadily with increasing age, and even in the age 65 to 69 the number of tuberculous pensioners who drop out in the first year after the granting of the pension is only about 39 per cent. The same ratios are found in the case of the females. In general it may also be said that the probability of ceasing to draw a pension decreases with length of time the pensioner has been on the roll; for the males of the age 20 to 24 it is probable that 80 per cent. will drop out in the first year they have been drawing pensions, while of those who have been drawing pensions for nine years only 8 per cent. are likely to drop out.

Data relating to the probability of old-age pensioners ceasing to receive pensions have been compiled for 316,484 persons granted pensions during the years 1891 to 1897; up to the end of the year 1890 about 51 per cent. of this number had dropped out, of whom 72 per cent. were males and 28 per cent. females. The males are therefore more strongly represented among the demissions than among the admissions. The ratio of demissions per 100 pensions granted was 52 males and 48 females. Of the 160,892 demissions 132,446, or about 94 per cent., were due to the death of the pensioner, and 7,791, or about 5 per cent., to the substitution of a higher invalidity pension for the old-age pension, while less than one-half of 1 per cent. was due to miscellaneous causes.

INVESTMENT OF RESERVE FUND

The kind of investments which it is permitted the reserve funds to place are of interest because of certain activities which these investments permit. The following table shows the kind of social betterment endeavors in which these funds are invested and the amounts so invested for 1900-1908:

	1900	1902	1904	1906	1908
(a) Building of workmen's dwellings, homes for workmen, etc.	$18,594,756	$24,620,678	$31,699,579	$41,085,381	$56,975,921
(b) Aids to agriculeulture, sueh as land mortgages, braneh railroads, road improvements, stoek raising, betterments, etc.	13,078,127	16,060,184	17,481,798	18,801,397	22,810,931
(c) Building of hospitals, convalescent institutes, sanatoriums, homes for the blind, etc., building of slaughterhouses, waterworks, sewers, etc.	12,888,763	30,407,727	42,436,354	58,437,691	80,930,900
(b) Building of institutions for use of the invalidity insurance, such as hospitals, sanatoriums, tuberculosis institutes, etc.	2,772,316	5,807,971	7,858,999	9,768,923	12,788,145
Total	$47,283,962	$76,896,560	$99,476,730	$128,093,392	$173,505,897

In 1908 almost half of the investments for that year were invested in building of hospitals, convalescent institutes and sanatoriums, water works, sewers, etc., and one-third of the investments of that year were in the building of workmen's dwellings.

It is thus seen that Germany has used its enormous insurance reserves to attack the tuberculosis problem, both from the sanatorium and the hospital point of view, as well as from the housing of the people at large. They have acted in a logical manner, realizing that the spread of tuberculosis was in a great measure in ratio to the overcrowding of the workmen's homes, and they have endeavored, once the disease has broken out in an individual, to give him the best and most approved modern treatment, determined to bring back the patient to as great a point of economic efficiency as is possible.

PREVENTIVE MEDICINE PROMOTED

Thus it is seen that putting these insurance funds out at a low rate of interest they are turned back into the development of hygiene and preventive medicine of the empire at large. These funds are used in many ways for the same purposes that hospitals and sanatoriums supported by cities and states are used in this country, as well as public funds here appro-

TABLE 8

Age When Pension Was Granted	Per Cent. of Persons Ceasing to Receive Pensions During Each Specified Year After Pension Was Granted										
	1st Year	2d Year	3d Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year	11th Year	12th Year
Males												
20	60.00	35.00	21.30	14.65	10.60	8.00	6.50	5.40	4.70	4.14	3.80	3.68
25	53.70	31.30	19.10	13.20	9.75	7.65	6.27	5.40	4.74	4.24	3.94	3.83
30	47.90	27.80	17.10	11.95	9.14	7.37	6.12	5.40	4.84	4.40	4.13	4.05
35	42.40	24.55	15.15	10.85	8.60	7.15	6.09	5.45	4.99	4.60	4.37	4.34
40	36.95	21.50	13.45	10.00	8.17	7.00	6.09	5.55	5.14	4.80	4.68	4.75
45	31.70	18.50	11.95	9.25	7.89	6.90	6.18	5.65	5.29	5.05	5.17	5.32
50	26.60	15.55	10.50	8.62	7.64	6.90	6.31	5.90	5.70	5.90	6.10	6.30
55	21.65	12.90	9.45	8.13	7.39	6.92	6.50	6.55	6.80	7.10	7.45	7.85
60	17.20	11.10	9.01	8.05	7.60	7.45	7.85	8.25	8.70	9.15	9.60	10.10
65	14.30	10.40	9.21	8.74	9.15	9.60	10.10	10.60	11.15	11.75	12.40	13.10
70	13.10	10.80	10.65	11.15	11.75	12.40	13.10	13.85	14.65	15.50	16.40	17.40
75	13.35	13.10	13.85	14.65	15.50	16.40	17.40	18.50	19.70	21.00	22.40	23.90
80	16.40	17.40	18.50	19.70	21.00	22.40	23.90	25.50	27.20	29.00	30.90	32.90
Females												
20	53.10	22.10	12.60	8.70	6.95	5.60	4.55	3.82	3.32	2.95	2.74	2.68
25	37.70	17.60	10.30	7.10	5.80	4.75	4.00	3.41	3.10	2.85	2.72	2.69
30	27.00	14.00	8.40	6.00	4.80	4.00	3.50	3.14	2.91	2.75	2.71	2.70
35	21.30	11.35	6.90	5.00	4.00	3.50	3.18	2.92	2.79	2.70	2.71	2.73
40	17.30	9.50	5.86	4.40	3.78	3.39	3.10	2.86	2.80	2.79	2.83	2.89
45	14.25	8.20	5.24	4.18	3.70	3.36	3.16	3.03	3.03	3.11	3.19	3.29
50	11.70	7.26	4.92	4.10	3.72	3.45	3.35	3.38	3.50	3.62	3.76	3.92
55	9.70	6.48	4.79	4.15	3.85	3.76	3.92	4.10	4.30	4.50	4.75	5.00
60	8.00	6.05	4.95	4.50	4.50	4.75	5.00	5.30	5.60	6.00	6.45	6.05
65	7.38	6.17	5.60	5.65	6.00	6.45	6.95	7.50	8.10	8.75	9.45	10.20
70	7.35	7.20	7.50	8.10	8.75	9.45	10.20	11.00	11.85	12.80	13.80	14.90
75	9.30	10.20	11.00	11.85	12.80	13.80	14.90	16.10	17.40	18.80	20.30	21.80
80	13.80	14.90	16.10	17.40	18.80	20.30	21.80	23.40	25.10	26.90	28.80	30.80

priated for city and state departments of health. They are used to finance public improvements, and yet bring back into the insurance scheme again a definite revenue to meet the obligations of the pensions, and for further reinvestment in public works. In this manner Germany has used these funds to finance a great crusade against certain sicknesses, such as tuberculosis. In fact, it is through the funds of the invalidity insurance that Germany's tuberculosis crusade has in the main been supported.

In the cities of Germany, in 1880, the death rate from tuberculosis of the lungs per 10,000 of the population was 34.6 per cent. This has decreased until in 1909 it was 17.9 per cent. In American cities, at the same time, in 1880, the death rate from tuberculosis of the lungs was 32.1 per cent. and has diminished in 1909 to 17.5 per cent. Tuberculosis of the lungs is responsible for 15 per cent. of the total disability annuities granted to males and 9.5 per cent. of those granted to females under the German invalidity insurance. This is better emphasized by quoting from the statistics of Frederick L. Hoffman, in a bulletin of the United States Bureau of Labor, on the "Care of Tuberculous Wage Earners in Germany, 1912." In 1896-1899 the proportion of annuities paid to males on account of tuberculosis of the lungs, at the ages of 20 to 24 was 54.9 per cent.; from 25 to 29, 50.9; from 30 to 34, 33.9; from 35 to 39, 36.7. The proportion for females was from 20 to 24, 42.6 per cent.; from 25 to 29, 24.3; from 30 to 34, 25.8; from 35 to 39, 20.3.

In 1895 the invalidity insurance institutes possessed one sanatorium. By 1909 there were thirty-seven in full activity, and in 1911 there were ninety-nine, and these, as has been said above, were built mainly out of the funds provided at low rates of interest from the invalidity reserves. Thirty-eight of these sanatoria were actually owned and supported by these institutes.

TUBERCULOSIS

It is interesting to see that the standard of results of the treatment of tuberculosis in Germany is reckoned on the economic results obtained, judging from the ability of the wage earner treated to perform at least one-third of his former work and to earn at least one-third of his former wages. If this is obtained, it is reckoned that the patient has been restored to his earning capacity, unless he is otherwise stated as being restored to his full earning capacity. Hoffman quotes Bielefeldt[3] as stating that of 100 tuberculous male annuitants in the experience of German invalidity insurance institutions, at the ages of 25 to 29, there survived at the end of one year only seventeen, and after four years only four, so that in all probability the maximum duration of the disease in moderately advanced cases entitling the insured to a disability annuity would be less than five years. The results obtained, therefore, as shown by the special study of the earning capacity after five years of the patients treated in the sanatoria is of great interest.

In judging of tuberculosis statistics one must understand standards on which various stages of the disease are judged. As far as these German statistics are concerned, the Turban-Gerhardt standard has been taken; that is, the first stage of the disease is when the disease is of slight severity limited to small areas of one lobe, that, for instance, in case of infection of both apices, does not extend beyond the spine of the scapula and the clavicle or the affection of one apex frontal, beyond the second rib. The second stage is when the disease is of slight severity, more extensive than stage one, but affecting at most the volume of one lobe or, severe disease, extending at most to the volume of one-half lobe. The third stage is of cases extending beyond stage two and all such with considerable cavities. By disease of slight severity is to be understood disseminated foci manifested by slight dulness, unclear, rough or weak vesicular, vesicobronchial or bronchovesicular breathing and fine and medium râles; by severe disease, compact infiltration recognized by great dulness, very weak bronchovesicular or bronchial indefinite breathing with or without râles, considerable cavities to be recognized by tympanitic sound, amphoric or cavernous breathing, and extensive, coarse, consonating râles come under stage three. Pleuritic dulness if only of a few centimeters' extent is to be left out of account; if of considerable extent it should be specifically mentioned under tuberculous complications. The stage of disease is to be indicated for each side separately. The case as a whole is to be classified according to the more diseased side. For example, if the right side is in the second stage and the left side the first stage, the patient must be considered in the second stage.

In 1912, it is stated by Hoffman, there were calculated to be from 1,000,000 to 1,300,000 tuberculous patients treated in Germany. In choosing those to be treated in sanatoria, it is, of course, necessary to choose the ones who it is believed will be the most benefited and to turn the hopeless ones to the hospitals. An endeavor is made to obtain as many so-called incipient cases as possible. From 1896 to 1901 there were admitted in the first Turban stage of the disease 4,657 males and 1,043 females. In the second Turban stage 3,202 males and 877 females. Designated as between stages one and two, there were 2,984 males and 875 females. In the third Turban stage there were 2,363 males and 502 females, and between the second and third stages designated there were 1,745 males and 469 females. As far as could be ascertained, the intensity of the disease was not in proportion to the length of time since it had been first recognized. About 11 per cent. of the men and 9.6 per cent. of the women had previously had treatment in sanatoria. The following table is the duration of treatment of these patients:

Duration of Treatment	Males		Females	
	Number of Cases	Per Cent.	Number of Cases	Per Cent.
6 to 8 weeks	1,501	9.5	307	7.7
8 to 10 weeks	1,760	11.1	352	8.8
10 to 12 weeks	3,442	21.8	751	18.8
12 to 14 weeks	4,877	30.9	1,540	38.5
14 to 16 weeks	1,307	8.3	312	7.8
16 to 20 weeks	1,593	10.1	390	9.8
20 to 26 weeks	794	5.0	230	5.8
Over 26 weeks	528	3.3	116	2.9
Total	15,802	100.0	3,998	100.0

It is evident from this table that about one-third of the patients underwent treatment of from twelve to fourteen weeks, and more than half the patients were treated from ten to fourteen weeks. The average duration of treatment was 89.2 days for males and 94.4 for females. Certainly not a long stay if one would expect to have permanent cure and permanent arrest of the disease; 45.3 per cent. of the male patients and 30 per cent. of the female patients showed tubercle bacilli in their sputum during treatment; 29.8 per cent. of the males and 22.5 per cent. of the females still retained this bacteriologic evidence of the disease in their expectoration on discharge; 6.7 per cent. of the males and 29.5 per cent. of the females were absolutely free from any expectoration during their entire stay in the sanatoria. It is evident, therefore, that the average length of time that the patients were kept in these sanatoria was not sufficient to prevent many of them becoming a public menace on their discharge, for, according to the statistics, only 15.5 per cent. of the men who showed bacilli in their sputum on admission, and 7.5 per cent. of the women had ceased to show these bacteriologic evidences of disease on their discharge.

A medical summary of the results from 1896 to 1901 is given by Hoffman as follows:

> The average duration of treatment of 15,869 male and of 4,008 female patients was 89.2 and 94.4 days, respectively.
>
> The patients were almost exclusively of the wage-earning element of the nation, or 99.4 per cent. in the case of males and 85.1 per cent. in the case of females.
>
> The cost of treatment was in most cases provided for by the invalidity insurance institutions, or other institutions and funds established to carry out the German compulsory insurance laws. Of the male patients, 86.2 per cent., and of the female patients, 79.2 per cent., were provided for at the expense of compulsory social insurance institutions.
>
> Of the male patients 44.6 per cent. were of the age period 20 to 29 years, and of the female patients 57.8 per cent. Of the male patients 30.1 per cent., and of the female patients 17.6 per cent., were of the age period 30 to 39 years. The large majority therefore were admitted

3. Bull. U. S. Bureau of Labor, Care of Tuberculous Wage Earners in Germany, 1912.

for treatment at a period of life when the economic and social value of health is a matter of most serious concern to the individual and to the State.

Over one-half of the patients—that is, 54.4 per cent. of the males and 54.6 per cent. of the females—were admitted to treatment in the same year in which the symptoms of the disease were first recognized.

The general condition of the patients on admission was good in the case of 32.9 per cent. of the male and 28.2 per cent. of the female patients. It was medium in the case of 36.8 per cent. of the male and 31.7 per cent. of the female patients; and, finally, it was bad in the case of 30.2 per cent. of the male patients and of 40.1 per cent. of the female patients. The general condition was improved during treatment in the case of 57.5 per cent. of the male and 59 per cent. of the female patients.

The sputum of patients was ascertained with certainty to contain the tubercle bacillus in the case of 45.3 per cent. of the male patients and of 30 per cent. of the female patients. Of this group of patients, separately considered, 34.4 per cent. of the males and 25 per cent. of the females were free from tubercle bacillus on discharge.

The seriousness of the disease, or the degree of lung impairment, as determined by the Turban stage of the disease, was as follows:

Of the male patients, 31.3 per cent., and of the female patients 28.4 per cent., were in stage I of the disease, and 19.9 per cent. of the males and 22.9 per cent. of the females were in stage I-II of the disease. Of the patients in stage II of the disease, the proportion of males was 21.3 per cent. and of the females 23.1 per cent., and in stage II-III, 11.7 per cent. and 12.5 per cent., respectively. The proportion of patients in stage III, or the far-advanced stage of the disease, was 15.8 per cent. for males and 13.2 per cent. for females.

Only one lung was affected in the case of 25 per cent. of the male and 19.7 per cent. of the female patients. Of these, 62.6 per cent. and 63.1 per cent., respectively, had the right lung affected, and 37.4 per cent. and 36.9 per cent., respectively, had the left lung affected.

A cure, from a medical point of view, was obtained in the case of 12.7 per cent. of the male and 15.3 per cent. of the female patients. A material improvement, including the cured cases, was obtained in the case of 50 per cent. of the male and 48.9 per cent. of the female patients. A relative improvement was secured in the case of 34.2 per cent. of the male and 26.8 per cent. of the female patients, and 10.3 per cent. and 17 per cent., respectively, of the patients remained unchanged. In the case of 5.1 per cent. of the male and 7.1 per cent. of the female patients the condition on discharge was worse than on admission, but the percentage of deaths during the period of treatment was only 0.4 per cent. for male patients and only 0.2 for female patients.

An economic result, with entire restoration of earning capacity, was obtained in the case of 76.9 per cent. of the male and 73.7 per cent. of the female patients, but in addition thereto 13.4 per cent. of the males and 12 per cent. of the females had their earning capacity partially restored to them, while only 9.3 per cent. of the male patients and only 14 per cent. of the female patients were unsuccessfully treated from an economic point of view.

During the year 1912 the Imperial Board of Health published a supplementary report on the results of sanatorium treatment for the period 1902 to 1904, which confirms in all essentials the experience data for 1896 to 1901. The results of this supplementary investigation are briefly summarized, as follows:

The statistical investigation includes 34,071 male and 12,632 female patients treated and cared for on account of tuberculosis of the lungs, with an average duration of treatment for males of 86.6 days and for females of 95.8 days.

The cost of treatment was provided for by social insurance institutions in the case of male patients to the extent of 85.4 per cent. and of female patients to the extent of 85.4 per cent. and of female patients to the extent of 75.7 per cent.

Of the male patients 44.3 per cent. and of the female patients 59.3 per cent. were of the age period 20 to 29 years, and of the male patients 31.8 per cent. and of the female patients 18.8 per cent. were of the age period 30 to 39 years.

A parental history of tuberculosis was ascertained in the case of 25.2 per cent. of the male patients and of 36.7 per cent. of the female patients. Tuberculosis among brothers and sisters was ascertained in the case of 19.6 per cent. of the male patients and of 24.4 per cent. of the female patients. In addition thereto, in the case of 2.6 per cent. of the male patients and of 2.9 per cent. of the female patients, respectively, the wife or the husband was ascertained to be tuberculous. The proportion of families with tuberculous children was only 0.5 per cent. in the case of male patients and only 0.4 per cent. in the case of female patients.

About two-thirds of the patients, or 61.9 per cent. for males and 64.7 per cent. for females, entered the sanatorium during the year in which the disease first became apparent.

The general condition of patients on admission was apparently good in the case of 23.1 per cent. of the males and of 20.7 per cent. of the females. The condition was average in the case of 49.5 per cent. of the males and of 42.6 per cent. of the females, and the condition was bad in the case of 27.4 per cent. of the males and of 36.8 per cent. of the females. An improvement in the general condition during the period of institutional treatment took place in the case of 64.2 per cent. of the male and of 66.1 per cent. of the female patients.

The bacilli of tuberculosis was bacteriologically ascertained to be present in the case of 35.1 per cent. of the male patients and of 21.8 per cent. of the female patients. As a result of treatment 33.4 per cent. of the male patients and 29.4 per cent. of the female patients were free from bacillary evidences on discharge.

Of the male patients on admission 37.3 per cent. were in the first Turban stage of the disease, 46.2 per cent. in the second, and 16.5 per cent. in the third. Of the female patients 51 per cent. were in the first Turban stage, 37.4 per cent. in the second, and 11.6 per cent. in the third. In the case of 23.3 per cent. of the male patients and of 24.8 per cent. of the female patients only one lung was affected with the disease on admission. The right lung only was affected in the case of 67.5 per cent. of the male patients and of 65.7 per cent. of the female patients.

A complete cure was obtained on discharge in the case of 4.5 per cent. of the male patients and of 6.7 per cent. of the female patients. An improvement in the condition of the lungs was secured in the case of 86.7 per cent. of the male patients and of 81.7 per cent of the female patients, and of these, in the case of 27 per cent. and 23.1 per cent., respectively, the improvement was so decided that there was a change to a more favorable Turban stage of the disease. In only 6.3 per cent. of the male patients and in only 8.8 per cent. of the female patients was there no change in the condition of the lungs during treatment. The proportion of deaths during treatment was only 0.3 per cent. for male patients and only 0.2 per cent. for female patients.

A complete economic result—that is, restored wage-earning capacity—was obtained in the case of 53.9 per cent. of the male patients and of 60 per cent. of the female patients. But, in addition thereto, in the case of 28.6 per cent. and of 24.2 per cent., respectively, a fairly satisfactory economic result was secured—that is, restored wage-earning capacity of limited extent for a reasonable period of time.

The comparative statistical facts for the investigations of 1896 to 1901 and 1902 to 1904 are conveniently summarized below:

The preceding tables show the percentage of those who received full treatment who were discharged with restored earning capacity and who retained their earning capacity at

COMPARATIVE RESULTS OF TREATMENT FOR TUBERCULOSIS IN GERMAN PUBLIC SANATORIUMS

	1896 to 1901		1902 to 1904	
	Males	Females	Males	Females
Number of patients	15,769	4,008	34,071	12,632
Average duration of treatment.....days	89.2	94.4	86.6	95.8
Ages on admission:				
Under 20 years.....per cent.	10.5	20.4	8.5	16.6
20 to 29 years.....per cent.	44.0	57.8	44.3	59.3
30 to 39 years.....per cent.	30.1	17.6	31.8	18.8
40 years and over.....per cent.	15.4	4.4	15.4	5.3
Tuberculous parents .....per cent.	26.4	36.7	25.2	36.7
Tuberculous brothers and sisters..per cent.	16.5	21.2	19.6	24.4
Previous duration of disease less than one year.....per cent.	54.4	54.6	61.9	64.7
Previous sanatorium treatment of at least six weeks.....per cent.	9.8	8.2	16.9	12.3
Good nutrition on admission.....per cent.	17.9	18.0	19.1	18.9
Average nutrition on admission..per cent.	48.9	44.6	51.2	50.5
Poor nutrition on admission.....per cent.	33.2	37.5	29.7	30.6
Gain in weight.....per cent.	93.6	92.3	95.9	94.1
Average increase in weight.....pounds	13.0	11.5	14.6	12.8
Physical condition on admission:				
Good .....per cent.	32.9	28.2	23.1	20 7
Average .....per cent.	36.8	31.7	49.5	42.6
Poor .....per cent.	30.2	40.1	27.4	36.8
Physical condition during treatment:				
Improved .....per cent.	57.5	59.0	64.2	66.1
Unchanged .....per cent.	40.1	38.4	34.0	32.4
Worse .....per cent.	2.4	2.6	1.8	1.5
Cough and expectoration on admission .....per cent.	91.1	65.7	92.0	65.0
Cough only .....per cent.	4.5	18.5	3.3	17.6
No cough and expectoration on discharge .....per cent.	22.8*	26.2*	26.3*	32.7*
Bacillary diagnosis positive on admission .....per cent.	45.3	30.0	35.1	21.3
Bacillary diagnosis negative on discharge .....per cent.	34.4†	25.0†	33.4†	29.4†
Fever on admission.....per cent.	13.8	19.4	14.5	14.9
No fever on discharge.....per cent.	68.6‡	63.3‡	71.9‡	57.3‡
Night sweats on admission.....per cent.	29.8	27.3	25.4	18.3
No night sweats on discharge....per cent.	90.7§	85.2§	91.7§	85.8§
Turban stage on admission:				
First .....per cent.	31.3	28.4	37.3	51.0
Second .....per cent.	52.9	58.4	46.2	37.4
Third .....per cent.	15.8	13.2	16.5	11.6
One lung affected.....per cent.	25.0	19.7	23.3	25.8
Condition of lungs on discharge:				
Improved .....per cent.	84.2	75.7	91.2	88.4
Stationary .....per cent.	10.3	17.0	6.3	8.8
Worse .....per cent.	5.1	7.1	2.2	2.6
Deaths .....per cent.	0.4	0.2	0.3	0.2

* Of those having cough and expectoration on admission.
† Of those showing positive bacillary diagnosis on admission.
‡ Of those having fever on admission.
§ Of those having night sweats on admission.

the end of specified years subsequent to their discharge from 1897 to 1905.

The increasing improvement of per cent. of living and active from 1897 to 1905 is very striking. It is also seen from these tables that the percentage of the results to women is better than to the men, probably due to the less severe labor to which they are subjected and also to the

diminished amount of alcoholic excesses in which they are apt to indulge.

The total cost of treatment and care for all causes for the period of 1897 to 1899 was $35,989,774. Of this sum $23,739,340 was paid out for the treatment of tuberculosis, which was 66 per cent. of the expenditures on account of all diseases, including tuberculosis. Of the total number of male patients treated 48.7 per cent. were on account of pulmonary tuberculosis and 36.5 per cent. of the female patients were treated for the same disease.

Since 1897 the number of persons treated and cared for in special institutions owned or controlled by the state invalidity insurance institutions has increased nearly tenfold. In 1909, 42.4 per cent. of all persons treated and cared for were treated for pulmonary tuberculosis, and of these 98.4 per cent. received full systematic and largely indoor or special institutional treatment. Experience has shown that only by such treatment can the required economic results be obtained. Hoffman further states that the considerable financial expenditures on this account are justified by the fact that pulmonary tuberculosis, according to the investigations of 1896 to 1899, held the third position as the primary cause of invalidity among the men and the second position among the women insured with the German state invalidity insurance institutions. Ten years later, between the years 1905-1909, 97,392 males were treated for pulmonary tuberculosis and 43,542 females in whom the disability was removed or arrested. This was at an expense of $13,500,000 and represented 81.8 per cent. of the men and 84.3 per cent. of the women treated. During the same period 21,624 men and 8,116 women were unsuccessfully treated and the tuberculous lesions not arrested nor the disability removed. This was at an expense of $4,100,000 and represented 18.2 per cent. of the men and 15.7 per cent. of the women. The average duration of those in whom the disease was removed or arrested was seventy-six days for men and eighty-four days for women, at an average expense of $101.09 for men and $84 for women. Those in whom the disease was not removed remained under treatment on an average of forty-seven days for men and fifty-five days for women and at an average expense of $61.02 for men and $55.14 for women. The economic results are further shown by taking the year 1905, in which 81.3 per cent. of the men and 83.2 per cent. of the women treated for pulmonary tuberculosis were discharged with restored earning capacity, and at the end of five years, that is, at the end of 1909, 44 per cent. of the men and 52 per cent. of the women still retained their earning capacity. This is all the more striking since we are justified in assuming from the German statistics that without such systematic and effective treatment the large majority of patients would have died from the disease within two years from the date of attack. These patients who still at the end of five years

NUMBER AND PER CENT. OF PATIENTS RECEIVING FULL TREATMENT WHO WERE DISCHARGED WITH RESTORED EARNING CAPACITY AND WHO RETAINED THEIR EARNING CAPACITY AT END OF SPECIFIED YEARS SUBSEQUENT TO DISCHARGE, BY SEX, 1897 TO 1905

Number of Males

Year of Discharge	Discharged with Restored Earning Power	Retaining Earning Power at end of year												
		1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
1897	1,760	1,542	1,032	703	705	633								
1898	2,812	.....	2,529	1,488	1,355	1,157	1,043							
1899	4,476	.....	.....	3,854	2,719	2,235	1,919	1,738						
1900	6,117	.....	.....	.....	5,434	3,905	3,185	2,867	2,299					
1901	8,272	.....	.....	.....	.....	7,390	5,476	4,591	3,766	3,069				
1902	9,437	.....	.....	.....	.....	.....	8,574	6,601	5,547	5,190	4,665			
1903	11,763	.....	.....	.....	.....	.....	.....	10,807	8,396	7,396	6,555	6,152		
1904	13,341	.....	.....	.....	.....	.....	.....	.....	11,847	9,926	8,547	7,820	7,216	
1905	15,516	.....	.....	.....	.....	.....	.....	.....	.....	13,904	11,348	9,786	8,683	7,871
		Per Cent. of Males[1]												
1897	67.7	61	42	29	28	25								
1898	73.9	..	67	44	37	31	28							
1899	74.2	..	..	67	48	39	33	30						
1900	72.5	..	..	..	66	48	40	35	30					
1901	76.5	..	..	..	..	70	53	45	38	32				
1902	77.4	..	..	..	..	..	72	57	48	44	40			
1903	78.8	..	..	..	..	..	..	73	59	51	46	43		
1904	78.7	..	..	..	..	..	..	..	73	61	53	48	44	
1905	81.3	..	..	..	..	..	..	..	..	76	63	54	48	44
		Number of Females												
1897	497	465	348	231	252	225								
1898	811	.....	751	464	441	409	399							
1899	1,220	.....	.....	1,082	801	690	636	589						
1900	1,920	.....	.....	.....	1,735	1,308	1,167	1,010	848					
1901	2,977	.....	.....	.....	.....	2,645	2,173	1,822	1,546	1,245				
1902	3,448	.....	.....	.....	.....	.....	3,184	2,537	2,121	2,048	1,894			
1903	4,284	.....	.....	.....	.....	.....	.....	3,892	3,171	2,854	2,629	2,519		
1904	5,293	.....	.....	.....	.....	.....	.....	.....	4,692	4,072	3,654	3,475	3,196	
1905	6,272	.....	.....	.....	.....	.....	.....	.....	.....	5,581	4,749	4,285	3,831	3,608
		Per Cent. of Females[1]												
1897	67.5	64	50	35	36	32								
1898	73.5	..	69	49	43	39	38							
1899	73.2	..	..	67	51	43	40	37						
1900	72.4	..	..	..	67	52	46	40	35					
1901	77.4	..	..	..	..	72	60	51	45	39				
1902	80.1	..	..	..	..	..	76	62	54	50	47			
1903	82.2	..	..	..	..	..	..	77	64	57	53	50		
1904	81.2	..	..	..	..	..	..	..	76	66	59	55	51	
1905	83.2	..	..	..	..	..	..	..	..	78	67	60	55	52

1. In calculating the percentages of those receiving full treatment who retained their earning power to the end of the specified periods after discharge, cases lost sight of, that is, uncontrolled cases, have been deducted from the numbers representing persons receiving full treatment.

retain their earning capacity sufficient at least to provide in part for their own support are of the greatest economic value to the state even though the cost of treatment may be somewhat larger than the direct financial gain to the insurance institutions on account of diminished payments in the form of disability annuities. Hoffman concludes that "neither in the official reports nor in the general literature of the subject is there anywhere sufficient statistical or other evidence to prove conclusively that the efforts made to bring about restored carning capacity of invalid members have paid a full return on the money invested in special institutions and the annual disbursements in behalf of patients and their immediate dependcnts. In course of time no doubt such proof will be forthcoming and considering that the entire plan of compulsory social insurance rests primarily, not on financial but on general considerations of public welfare, it is self-evident that the efficacy and value of the system cannot be tested solely by reference to the annual balance sheets of the institutions individually considered, or cven on the basis of their aggregate experience." It seems thus evident whether from the economic viewpoint or from that of hygiene and sanitation and the general health and welfare of the race that the enormous funds necessary successfully to combat tuberculosis are justified and usefully employed.

It is with difficulty, in considering any scheme of invalidity, that one can separate it from the inevitable invalidism brought on by the approach of physiologic old age. This

EXPENDITURES FOR TREATMENT AND CARE OF INVALID MEMBERS OF GERMAN STATE INVALIDITY INSURANCE INSTITUTIONS DURING 1909, BY SEX

Expenditures on Account of	Amount	Per Cent.
Tuberculosis of the lungs, full treatment:		
Males	$2,816,610	48.75
Females	1,063,652	18.41
Tuberculosis, temporary or partial treatment:		
Males	2,720	0.05
Females	1,322	0.02
All other diseases, full treatment:		
Males	1,098,034	19.00
Females	612,943	10.61
All other diseases, temporary or partial treat.:		
Males	97,384	1.69
Females	84,923	1.47
Total on account of tuberculosis	$3,884,304	67.23
Total on account of other causes and diseases	1,893,284	32.77
Total expenditures for all causes	$5,777,588	100.00

comes sooner to some men than to others, and the actual number of years that have passed over the heads of men do not designate an even failure of their mental or bodily vigor. To some the invalidity comes early and to others it does not arrive until late. But the circumstances of overwork, of overtime, of the hard unending lives of toil that men in huge industrial nations undergo bring on an earlier deterioration from old age than the three score years and ten that our fathers knew when, as agricultural patriarchs, they still were able to dominate their families and be recognized as the head of the gatherings of their children and their grandchildren.

Old Age Insurance

The methods of social insurance by which ample provision is made for old age are diverse, and again we come to the voluntary insurance, state subsidies, compulsory insurance and, casting insurance methods aside, direct pensions given by the state without contributions from the beneficiaries. As in all forms of social insurance, the voluntary contributions have never been successful in building up a scheme which has adequately attained the object for which it was formulated. Youth is not willing to accept the idea that it must give up its present pleasures that it may be cared for years hence in an old age that it may never reach. Many of the countries, such as France and Belgium, have had to give up their voluntary systems and turn to subsidized and compulsory methods. The Scandinavian countries have done the same. Germany, as we have already seen, has used both subsidy and compulsion. Other countries, such as Great Britain, have cast aside all idea of insurance or the group principle of protection, which is the insurance system itself, and given an out and out old age pension. After considering it again and again for over fifty years, the English came to the conclusion that the simplest method was to use the ability of the state, through taxation, to obtain its funds and that the workman was worthy of his hire, as he had faithfully given his labor and the results of his labor through his life to the state and the community, and that as a reward of his labors he deserved his pension. This is the most common point of view in establishment funds and in countries where social insurance is not highly developed, as in the United States.

The old age problem of today is not that of our ancestors when the country was on an agricultural basis. In the majority of instances today the question is one of an industrial basis and the problems of the family have greatly altered. The obligation of parents to children has remained, but the obligation of the struggling, underpaid child endeavoring to build a family of his own or her own and also sustain the unproductive parent who, through old age, has ceased to bring in any economic asset and has become really an economic burden to the family, is a vastly different problem. We not infrequently see the best years of vigorous youth sacrificed to the care of the parents, and while we honor it and admit it as a high type of filial duty and filial self-sacrifice among those on whom the pinch of poverty does not come or does not come excessively, when the economic situation of the family is such that necessity demands that each member shall bring in his quota of revenue to keep the family together, then sad as it is, we must realize that for the good of the state and the community the vigorous young wage earners should be relieved of the burdens that unremunerative old age put on them. "The problem here is that of poverty caused by inability to find employment, because the productive power has waned and waned not temporarily but forever."[4] Preventive medicine and sanitation have increased the average length of life, and although because of a high infant mortality it is said that the average length of life is but thirty-five years and that the average wage earner must not expect to reach old age and therefore need not make any provision or look for any provision to be made for him, this does not put the problem fairly or truthfully. The American Experience Tables of Mortality, compiled fifty years ago, understate the improved expectations of life today and yet these tables show that of all men who have reached the age of 30 nearly three fifths may expect to reach the age of 65, at which time they may expect to have eleven more years of life, and of the same men at 30 nearly one half survive at 75 and are still justified in the hope that there is an even chance for eight and one-half years longer existence. The American Fraternal Orders show that ten to fifteen years of life over 65 is practically a certainty to more than one half the wage earners. The American statistics show that in 1880 the number of persons 65 years old and older constituted 3.5 per cent. of the population; in 1890, 3.9 per cent.; in 1904, 4.2 per cent., and in 1910, 4.3 per cent. Considering it from an occupational standpoint, the number of persons over 65 years of age per thousand of men over 15 years of age has increased from 54 in 1880 to 60 in 1890 and 63 in 1910; but among males gainfully employed over 15 years of age persons of 65 years and over, constituted only 50 per thousand in 1890 and 47 per thousand in 1900. The number of old men, therefore, has been increasing in this country, while the proportion gainfully employed has been decreasing. It is further shown that in some employment, such as agriculture, old age does not make so much difference and 6.1 per cent. of the men employed were over 65 years of age; in the professions 5.5 per cent.; in manufacturing and mechanical pursuits only 3.5 per cent., and in trades only 3 per cent. As men grow old, moreover, they are shifted to more unskilled occupation, as is shown by the fact that among unskilled labor the percentage of males over 65 is 12 per cent. and among railroad employees 5 per cent.

4. Rubinow, I. M.: "Social Insurance."

MASSACHUSETTS COMMISSION

The Massachusetts Commission on Old Age Pensions found that the average age at which the wage earning power was lost in the case of those wholly incapacitated, was 68 years; the age at which the earning power was impaired, in the case of those partially incapacitated, was 64. These averages are based on returns for 870 and 822 cases, respectively. The average ages of loss or impairment of earning power as given indicate that the normal pensionable age, falling between the limits of 64 and 68, is not far from 65.

The census of 1910 showed that there were 6,216,674 persons over 60 years of age in the United States, as shown in the following table:

60 to 64 years	2,267,150
65 to 69 years	1,679,503
70 to 74 years	1,113,728
75 to 79 years	667,302
80 to 84 years	321,754
85 to 89 years	122,818
90 to 94 years	33,473
95 to 99 years	7,391
100 and over	3,555
	6,216,674

Squier states that there were approximately 1,250,000 former wage earners who have reached the age of 65 years in want and are now supported by charity, public or private, and are calculated by him on the investigation made by the Massachusetts Commission, as shown in the accompanying table:

DEPENDENT POPULATION SIXTY-FIVE YEARS AND OVER

	In Massachusetts (Determined by the Mass. Commission)	In the United States (Estimated by Mr. L. W. Squier)
In correctional institutions	556	15,180
In insane asylums and hospitals	1,961	53,544
In almshouses	3,480	95,128
In benevolent homes	2,598	71,024
By public outdoor relief	3,075	83,996
By private outdoor relief	2,312	63,112
By United States pensions	27,230	744,188
	41,212	1,123,172

The Massachusetts Commission[5] further found that of the aged poor studied, 22.9 per cent. were able bodied, 61.6 per cent. were wholly incapacitated and 15.5 per cent. were partially so. It further found that their physical condition was defective through being aged and infirm in 26.9 per cent., through chronic diseases in 32.4 per cent., through so-called rheumatism in 23.1 per cent., and 13.3 per cent. were crippled and deformed. There were 3.8 per cent. incapacitated through blindness, and the insane, epileptic and feeble-minded totaled 6.3 per cent.

PROBLEMS OF THE PRESENT AND THE FUTURE

In considering any insurance scheme for the help of old age there are two situations which must be faced: one is, what is to be done in the immediate present with those already old and already poor and those who, in a few years, must face the destitution of poverty and old age combined? This is an entirely separate question from that of what are we going to do in the future when the vigorous youth of today will reach the period of their declining power and ability to go on with their economic self-support. Old age insurance, even though compulsory and universal, even though combined with invalidity, as in France and Germany, had to face these two problems and make provisions for the present in the early days of their laws by practical old age pensions and instituted old age compulsory insurance for the future. Old age pensions may continue either on the sliding scale of England or the outright definite scale of France, providing for both present and future at one time.

When the British Act of 1908 granted pensions to those of 70 years of age, it was expected that 386,000 persons would be entitled to this pension. During the first year of the application of the Act the applications rose to 667,000 so that in their population of 44,000,000 nine per thousand were over 70 years of age and had an income of less than $2 per week, and this in addition to some 414,000 paupers in poor houses and other public institutions. As the total number of persons over 70 years was approximately 1,250,000, it shows that nearly 1,080,000—or 86 per cent.—of the men and women of that age needed relief. In Germany, in 1891, the first year of granting old age pensions and invalidity pensions, the number of pensions for old age were 132,926, while the invalidity pensions were thirty-one. In 1892 the invalidity pensions were 17,784 and the old age pensions 42,128. In ten years, in 1902, the old age pensions had dropped to 12,816 and remained at just below this level, while the invalidity pensions had risen to 141,481. Thus in the beginning the old age pensions were 11.5 per thousand insured. In 1908 there were but 1.3 per thousand insured, which is probably the normal yearly average for Germany. Squier places the old age situation thus:

> It is notable that, after the age of 60 has been reached, the transition from non-dependence to dependence is an easy stage—property gone, friends passed away or removed, relatives become few, ambition collapsed, only a few short years left to life, with death a final and welcome end to it all—such conclusions inevitably sweep the wage-earner from the class of hopeful, independent citizens into that of the helpless poor.[6]

Let us take up then, in detail, what the various countries abroad have done to meet this situation.

OLD AGE PENSIONS IN GERMANY

Beginning with Germany, the old age pensions of Germany are provided for from the same funds as the invalidity insurance of which we have just spoken. In 1908 there were some 166,000 old age pensions in force. The pensions are calculated on a similar basis to that of the invalidity pensions and based on the same five classes of wages at the regular sum of $11.90 annually from the government for each pension. The insured must, however, have paid his dues for 1,200 weeks and the dues thus paid, if in different wage classes, must be averaged in computing the pension. If he has been sick or in military service, the weeks in which he has not paid dues shall be counted as part of his 1,200 weeks of service. During the transition period, from the time the law was enacted until the first twelve hundred weeks should be up—that is, until the year 1914—it was provided that old age pensions should be paid to those insured persons who had paid more than 400 weeks of dues, and the figure 400 was used in the computation instead of 1,200. In 1909 the weekly contributions of the employers and employees were increased slightly. In wage class I, from 3.3 to 3.8; in class II, from 4.8 to 5.7; in class III, from 5.7 to 7.1; in class IV, from 7.1 to 9; and in class V, from 8.6 to 10.9. This was due to the introduction of the widow and orphan insurance which provided "adequate provision for dependent survivors in case of the death of the insured."

The German system, therefore, is practically a compulsory contributory old age insurance in which, with the stated amount of a subsidy and with the entire management of the administration by the state, the expenses of the insurance are borne pretty nearly equally between state and employer and employee.

OLD AGE PENSIONS IN AUSTRIA

Other countries have taken up, not the universal compulsory old age and invalidity insurance such as Germany, but the compulsory insurance—either old age or invalidity—for special classes or special industries. In Austria, miners' provident funds have existed since 1280, but the first uniform regulation of the funds was in 1854 when the mine owners were forced to create special societies for their employees, providing benefits in case of sickness, accident or invalidity, whether from old age or other causes. In 1889 this law was finally amended so that each society must have two funds separately administered, one fund for the payment of sick and funeral benefits and another fund for pensions to members invalided through sickness, accident or old age, as well as the widows and orphans of deceased members. The bene-

5. Report of the Massachusetts Commission on Old Age Pensions, Annuities and Insurance.

6. Squier, L. W.: "Old Age Dependency in the United States," p. 28.

fits under the sick and funeral benefit funds must not be less than those paid by the general laws for similar benefits. The pension for permanent total disability, whether caused by invalidity, sickness, old age, or industrial accident, must not be less than $40.60 for men and $20.30 for women members. Pensions are granted only for total disability. There are no pensions for permanent partial disability. Widows were to receive an annuity payable until remarriage or death, or at least one-third the pensions due the husbands. One sixth annuity is paid to each legitimate child up to the completion of the fourteenth year or, if both parents were dead, this pension was one third of what the deceased father was receiving or which he could have claimed had he been permanently invalided, but the total sum received by the widow and orphans could not surpass three fourths of the entire pension of the deceased member. The employers and the employees provided equal contributions to this fund, except in the case of the employees receiving over $500 a year when they must bear the whole expense themselves. Both the pension and the sickness funds must accumulate reserve funds in manner regulated by law.

In 1906 Austria[7] also passed a law providing against invalidity and old age and granting pensions to widows and orphans of office employees and clerks and other salaried employees. This law has been in operation only since 1909. All office employees between the ages of 18 and 25 whose annual earnings are between $120 and $600 are obliged to insure. The insurance is given for this amount only and the few whose wages fall below $120 are classed with the workingman proper for whom other invalidity laws were being planned.

A waiting period of 120 contributory months is fixed for the invalidity pensions, as well as for pensions to widows and orphans. For the old age pensions the waiting period is 480 contributory months. The invalidity pensions are composed of two parts: the first, known as a basic sum, varies with the class of insured from $36 in class I to $180 in class VI. The second sum, considered a bonus, begins with the end of the waiting period and varies with the class to which the insured belongs during the period between the close of the waiting time and the period of invalidity. The old age pension is of the same nature and is paid on reaching the limiting age, at the end of the longer waiting period, without the necessity for showing incapacity. Widows receive one half the pension the husband would have enjoyed. Orphans receive one third in case of death of one parent and two thirds in case of death of both parents. But the sum of all pensions must not exceed the maximum for the man himself. Should the total pension be twice as great as the basic sum for which the deceased was entitled, after paying for 120 months, the amount may be settled by one payment. If death ensues during the waiting period, the widows and orphans receive a settlement instead of the pension. The four lower classes of employees pay one third the premium, employers paying two thirds. The upper two classes, the employer and employee each pay half. Employees whose income is more than $1,440 pay the entire premium themselves. Premiums are on the capitalized value plan—that is, sufficient contributions are collected to set up a capitalized value for each annuity at the date it becomes a liability, and average from $1.20 to $6 monthly, depending on the class. The only state contribution is that of $20,000 a year for management expenses. Administration is in the hands of the central pension office at Vienna and the general representative of employees and employers in equal proportions, the chairman being appointed by the state.

OLD AGE INSURANCE IN FRANCE

France has a special compulsory old age insurance for mining, sea faring and railroading. The insurance of seamen against old age invalidity is one of the oldest examples of compulsory old age insurance in France. With the exception of a few months during the French Revolution, it has been in continuous operation since 1673. The final modification into the present law dates from 1908. The registered French seaman is entitled to a pension after 300 months' service, when he reaches the age of 50 years. If he becomes so disabled that he cannot serve on board a vessel, he can be pensioned before reaching this age. A commission determines his disability. Seamen serving on the high sea in high sea navigation or fishing must pay 5 per cent. of their wages toward this fund. Certain classes of seamen in costwise trade and fishing pay fixed monthly dues which serve as a limit for the dues of the same grade who contribute 5 per cent. of their wages. Ship owners are required to pay an amount equal to three fifths of the amount paid by their employees; proprietors employing foreign seamen are taxed 8 per cent. of the wages of such seamen or three fifths more than the fixed contribution paid by certain classes of seamen. Registered seamen who navigate their own boats are exempt from the proprietor's contributions, likewise their widows and orphans under 16 years of age, if they own a boat.

These pensions are graded according to the class, from first class masters through subordinate officers in vessels of the fisheries and piloting service down to ordinary sailors. A partial pension is granted to registered seamen who have served at least 180 months, of which at least 100 months were spent on board of commercial or fishing vessels, who, in the opinion of the commission, have become incapacitated for sea duty. This pension is calculated on the rate of $\frac{1}{300}$ of the minimum rate for each month of service of the full pension, plus the supplementary allowance of $11.58 per annum. The widow receives a pension if the husband was drawing a pension at the time of his death and if the marriage took place two years before the seaman had become entitled to a pension, or if the marriage took place two years before he ceased his sea service and has already served 300 months. A childless widow must be at least 40 years of age before being entitled to a pension. If she has children, her age is not considered. If she is divorced, she has no right to a pension. Remarriage forfeits the widow's pension, if the second husband is drawing a pension. If the second husband dies or is divorced, the widow's former rights are revived. Widows in need receive an annual pension of $19.30, even if not receiving pensions and not divorced if their husbands died at sea or after fifteen years of service, even if these had elapsed before the promulgation of the present law. Widows receive, in addition, a supplementary payment of 77.2 cents per month for each child under 13 years of age. If the deceased seaman leaves children of another marriage, or illegitimate children, they are entitled to a portion of the widow's portion, not exceeding in the aggregate one half the regular allowance. If the seaman leaves no widow or if the widow dies or is disqualified, the children under the age of 16 receive the widow's pension, even if there is but one child. As soon as one of a number of children reaches the age of 16 his share is distributed among those remaining under that age. The pensions granted are quite high compared with other pensions in France. They vary between $69.48 and $115.80, and for widows between $46.32 and $61.76. The seamen funds also help support seamen's homes, hospitals, schools, etc. It has paid large sums of money into the general state treasury from its funds and again has received large subsidies from the state.

Another group of workmen protected by compulsory old age insurance in France is that of the miners. All workers and salaried employees of mines, regardless of sex, are subject to the law. This includes underground workers and workers in industrial operations which, according to the law, are dependent on mining operations, and workers in establishments affiliated with mining establishments. Employees engaged in clerical work, office work or occupations directly connected with the mine are subject to the obligation to insure. The cost of this insurance is divided equally by the employer and the workman. The amount of the pension obtained from the payment of these two parties is increased by an annual subsidy from the state and the National Retirement Fund acts as a central body administering the insurance. The amount of the pension also depends on the amount of contributions paid in. The old age pension in this case begins at 55 years of age. Because of invalidity, the right

7. Frankel and Dawson: "Workingman's Insurance in Europe."

to a pension may begin at an earlier age. Under the rules of the National Old Age Retirement Fund the pensions are computed on the system of alienated capital. That is, there is no payment back to his heirs on the death of the pensioner. But the law permits the insured person to have his own share of the payments accorded to him on the reserve capital payment—that is, the amount of contributions of the employee can, at his option, be paid back to his heirs on his death.

These old age pensions to miners are calculated on the hypothesis that they begin at the ages of 13, 14 or 15 years, are regularly paid, and on a basis of earnings of the higher grade of workmen for 36 years, the employee paying 4 per cent. of his wages previous to marriage and 3 per cent. after marriage. A hypothetical average for the married workman at the age of 55 is $73.40. A hypothetical single worker paying 4 per cent. of his earnings would average about $90.34. On Dec. 31, 1897, there were 313 establishments subject to the law in which 164,776 persons were insured in the National Old Age Retirement Fund. It often happens that workmen leave the mine to obtain employment in a factory or for other reasons leave no address and in 1902 there were over 50,000 accounts to which no claim was made.

The railroad pension funds were made compulsory for all large railroad systems Jan. 1, 1911. This covers nearly 300,000 persons with their wives and children. The law is limited to the larger railroad systems, about six systems in all, and provides for half salary after twenty-five years of service and attaining an age varying between 50 and 60 years, according to the class of service, reduced invalidity pensions after fifteen years of service and even without any length of service qualifications if invalidity is due to the service, and half pensions to widows and orphans, contributed by employees equal to 5 per cent. of their earnings and the rest contributed by the railroads. If an employee leaves the service, after fifteen years of membership, for any reason except his invalidity, he is entitled to a pension maturing at the same time at which it would mature if he had remained in the service, but computed according to the actual length of service—that is, with a reduction of 2 per cent. of the average salary for each year of membership below 25. If an employee separates from the service before fifteen years of membership in the fund or service, he is not entitled to any pension but may claim the repayment of the deductions from his own salary, with interest accrued. If, however, these deductions have been used for deposits in the National Old Age Retirement Fund or in the National Death Insurance Fund, then the employee must receive his deposit book or his policy instead of a cash payment. This amount is doubled in case of an employee who is adjudged an invalid, either by the administration of the railroad or by the Retirement Commission, because of illness, injuries, or infirmities which did not result from service, if he must retire before fifteen years of service. If an employee dies after having been granted a pension, his widow is entitled to half that pension for life, and if there be no widow, the orphans under 18 years of age receive that pension. If the employee dies while still in service, the widow or orphans receive half of the pension to which the deceased employee was entitled on the day of his death, calculating on his length of membership and his age. The widow loses her right for pension in case of divorce or separation due exclusively to her fault, and the marriage must have taken place at least three years before the separation from the service. If death was due to an accident while in service, the above requirement of duration of marriage is waived, or if at the time of separation there was a child born of that marriage.

The actual amount contributed by the employees of the railroads is equal to 12 or 15 per cent. of the total revenues. The railroad's share is 50 to 55 per cent. and the remainder is from interest on funds and miscellaneous sources.

A general compulsory old age insurance law passed in France, in 1910, endeavored to embrace the entire uninsured field of employment. It, however, makes two forms of insurance—the compulsory and the optional. Under the compulsory system are included employees, of both sexes, in all fields of industry, in commerce, in liberal professions, agriculture, domestic employees, state employees not covered by the provisions of the civil or military pensions, and employees of departments and communes. The exceptions, however, are employees whose individual earnings exceed 3,000 francs—that is, $579—or if the insured person's earnings exceed that amount his name is taken off the roster of the insured, although he does not thereby lose any of the rights acquired hitherto. There are also excepted the employees of state railroads, miners, and seamen, as has been described above; employees of the secondary railroad companies of general importance, of local railways and tramways are also excepted, if the provisions of these systems are not less favorable than those of the new law. Also existing old age pension systems for the benefit of state employees not subject to the general civil and military pensions may be preserved and similar systems created. This is also true of the departmental and communal employees. This law, therefore, of 1910 endeavored to protect all employees that had not hitherto been covered.

The optional system of this law is extended to share tenants of agricultural land, cash tenants, independent farmers, artisans and small employers of labor, thus including agriculture and the lower middle classes. It is also extended to employees whose annual earnings were over $579 and not over $965 and to wives and widows of persons insured, either by obligation or voluntarily, under the law. The compulsory contributions and the optional contributions of the insured and the compulsory contributions of the employers and subsidies from the state form the revenue for this insurance. The amounts contributed by insured employees are $1.74 a year for the adult male and $1.16 for the adult female and 87 cents for minors under 18 years of age. If the employee can prove that he is already a member of the Mutual Benefit Society or of a Provident Society paying old age benefits, or that he has purchased or contracted for the erection of a dwelling for himself and family or for the purchase of a small piece of landed property, then he is allowed by this law to continue to apply his personal contributions under this law to the same object without in any way disqualifying him from obtaining the employer's share of such subsidy. The employer must pay an equal amount as the employee, and this, of course, must be borne exclusively by the employer. Foreign workmen residing in France are included under this law, but the contributions of the employers are not accorded to them unless by international agreement similar privileges are granted to French workmen in each country. In absence of such treaty, employers' contributions are paid into the reserve fund. The subsidy granted by the state is a life annuity, beginning, normally, at the age of 65 and amounting to $11.58 a year. The waiting time for the insured is at least thirty years. If the number of payments is less than thirty but over fifteen, the government subsidy is computed at the rate of 1½ francs, or 29 cents, for each paid up year. The two years compulsory military service are counted in as paid up insurance. This old age insurance is assumed to be on the alienated capital plan—that is, without requiring the reimbursement of premiums paid in case of death. The insured, however, have the option to change this to the reserve capital plan in so far as his own contributions are concerned—that is, these shall be paid to his heirs in case of his death, but this does not apply to the contributions of the employers.

NORMAL AGE OF RETIREMENT

The normal age of retirement is 65 years, which is five years earlier than the German or English standard and a reduction of five years from the former French compulsory law.

In calculating the actual value of the pension, it naturally depends on the age, sex and other actuarial considerations except the definite subsidy of the state fixed by law. The law permits the existence of many different insurance institutions and there may be considerable difference between the results obtained as between one fund and another. All this, however, is under the approval of the Minister of Labor and the Minister of Finance, which probably prevents too great

a variation of individual pensions. This law definitely prescribes that the charges for the cost of administration shall not be loaded on the computed rate. These are met by special contribution from the reserve fund amounting to 19 cents per each insured person and 5 per cent. of the sums collected by the various old age insurance agencies to cover the collection and transmission of the funds. If this is insufficient, a special appropriation in the budget to the Minister of Labor must be made. This amounts to an additional subsidy from the government to the system of old age insurance. At any time between the ages of 55 and 65 an insured person may demand a liquidation of his pension, but its amount is correspondingly reduced and a corresponding reduction is also made in the amount of the state subsidy. The law further provides that when the pension which is to mature at the normal age of 65 exceeds $34.74, or 180 francs, the insured person may at any time, after a successful medical examination, obtain the cash value of the additional pension, provided he is to use it for one of the following purposes: life insurance or the purchase of land or a home.

The invalidity insurance of the Act occurs under the possibility of anticipatory liquidation of the pension—that is, to persons suffering from total and permanent disability due either to grave injuries or other invalidity, without fault of their own, if they are not covered by the provisions of the accident law, immediate liquidation of their pensions is possible no matter what their ages. They are also entitled to a special invalidity subsidy, the actual amount of which is not finally settled by law. Only the maximum limits are stated in the Acts. The state subsidy shall not in these cases exceed $11.58 per annum nor shall it increase the pension more than three times the amount liquidated on actuarial principles nor make it more than $69.48 per annum, including this subsidy.

DEATH BENEFITS

The death benefit under this law is paid in the following manner and only in case of death, before the liquidation of the pension, not in case of the death of the pensioner. If the widow survives without children under 16 she is entitled to receive $9.65 a month for three months. If one child under 16 survives, $9.65 is paid for four months; if two children under 16 survive, the same monthly benefit is paid for five months; and if three or more children survive, the same amount is paid for six months. The death benefit thus varies between $28.90 and $57.90.

ADMINISTRATION OF OLD AGE PROTECTION

The situation, of course, had to be faced that a certain number of persons would be beyond the age that would enable them to pay the full number of years' contributions before they came to 65 years of age. That is, for all those who were 35 years of age or over when the law went into effect, the requirement of 30 annual payments before they had earned the state subsidy of $11.38 was waived. Only as many annual payments are required as the number of years lapsing from the time the law went into effect until the pension is due. It was required, however, to show proof that for at least three years before the law went into effect these persons had belonged to the class of persons covered by the law.

To persons over 45 years of age at the time the law went into effect, the above privilege was not thought sufficient as they had only twenty years or less in which to caluculate the basis of their pension. Therefore, in these cases, the subsidy of the state was increased. That is, at 45 years instead of $11.58, $11.97 was granted and with steadily increasing amount for each year, until at 64 years the subsidy was 100 francs instead of 60, or $19.30 instead of $11.58. All persons over 70 years of age had been cared for by the Compulsory Old Age Relief Act of 1905, leaving only those persons between 65 and 69 between the two systems of 1905 and 1910. These, by special provision, had the benefits of the law of 1905 extended to them but limited to one half the normal relief under this law, the maximum relief for these cases being put at $19.30 a year.

The duty of collecting the contributions of employees under the law is placed on the employer. The employees are provided with annual stamp cards and the employer must, on each day, paste sufficient stamps representing the combined value of his own and the employees' contributions. The insured person is permitted to paste stamps representing optional contributions. Under the voluntary insurance of this law the persons here insured belong to the classes having no employers and therefore they do not receive the benefits of the employers' contributions, the pensions being made up, therefore, by their own contributions and the state subsidy. An exception, however, is made in the case of share tenants in which case the proprietor of the land is required to contribute an equal amount. There is a certain latitude in the amount allowed in the voluntary contributions for cash tenants, independent farmers, artisans and small employers; the payments must not be less than $1.74 nor more than $3.47 a year. For share tenants the annual payment must not be less than $1.16 a year and an amount equal to their contribution, but not exceeding $1.74 a year, must be paid by the proprietor. The state subsidy is computed differently than under the compulsory form of insurance. Instead of a definite pension after maturity being given, an annual increase to the account of the individual is provided for which must equal one third of the payments made, to be paid in in the form of alienated capital. The same limit of $11.58 is provided, however, and after the pension values of all increases made by the state amount to that sum, further subsides are not granted. During the transition period, persons voluntarily insured must be over 40 years old to enjoy the special privileges.

Independent farmers, artisans and small employers over 40 years of age at the time the law goes into effect are to receive supplemental subsides which shall be equal to the pension purchasable by annual payments of $1.74. As a rule, in compulsory insurance, when the payments expected cannot be paid in full, the subsidy is correspondingly increased. According to a complicated provision, the voluntarily insured of the farmers, artisans and small employers, who are 40 years old or more when the law went into effect, belonging thus to the transitory period, by paying 38 francs a year, or $3.48, which equals the amount the workmen have to their credit, including their own and their employers' contributions, may thus obtain the benefits of the special schedule of subsidies as given above, as beginning at 45 years and increasing steadily up to 65 years of age. It is possible in this law to change from the compulsory to the voluntary class and the subsidy to which the person is entitled may be increased by his voluntary insurance, although not above the limit established by the compulsory form.

Luxemburg has an old age insurance which follows closely on the German plan. Roumania, Sweden and the Netherlands are the other countries in Europe which have attempted to solve the old age problem by the compulsory method in recent years, although in 1885 Italy had an old age insurance scheme in railroading, and Russia in 1888, protected the railroad employees by the same method. The other countries of Europe have endeavored to solve the old age problem by, first, voluntary subsidized methods of insurance which, in France and Belgium, were administered through a national bank with a state guarantee. In both countries this brought about an abundant protection of the thrifty middle class of small incomes and some of the best paid working classes, but it did not by any means cover the distress of the workers who really needed the most protection. They could not be induced by voluntary contributions to store up from their meager pay enough to sustain their old age. Even among those that endeavored to do so, many ceased to contribute after a certain length of time and even those who continued, only enough was contributed to make certain to acquire the state subsidies. It seems that the workmen are forced to reduce the amount of the old age pension in order to protect the health of their families in every day life, and even those that acquire pensions, they are found to be distressingly small in amount. These facts remain true even though, as in the case of Belgium, the insurance was

more and more heavily subsidized by the state. The failure, therefore, of the voluntary subsidized plan of insurance, both in Belgium and France, led France, in 1905, to give the compulsory old age insurance equivalent to certain outdoor relief to persons 70 years old, and five years later to have the general compulsory old age insurance as has been described.

Voluntary old age insurance and its results and possibilities are best seen in France and Belgium. In France this idea has been under consideration since the first Republican Assembly, in 1794, passed a decree creating a system of investments and insurance against old age and sickness. This, however, did not continue long. It was not until 1850 that the Old Age Retirement Fund was finally passed. This fund was designed to offer an opportunity to all working people to save some of their earnings and to enjoy the full benefit of the principal and interest in the form of old age pensions. The capital of the fund is described as consisting of voluntary deposits of 5 francs—that is, 96.5 cents—or multiples thereof, made by persons over three years of age and continued until death or retirement. The amount and frequency of these deposits, within certain limits, were left entirely to the option of the depositor. The age of retirement was fixed at from 50 to 60 years, according to the option of the depositor, earlier retirement being permitted in cases of disability.

Choice between two kinds of insurance was given. One was on the alienated capital plan of an annuity when he reached the age of retirement, but no other claim on the amount deposited. The other was the reserve capital plan by which the insured not only received the annuity but his heirs, in case of death, received the amount actually deposited, without interest. This fund was open to all and therefore attracted a large proportion of persons who were not of the working classes. There was no limit placed on the amount of deposits that could be made in any one year. The interest rate on which the pensions were calculated was 5 per cent. and the miximum pension for which deposits could be made was $115.80. This was an excellent opportunity for many small trades people and small capitalists to make a profitable investment, and for the first two years of its existence the fund was flooded with deposits of this character. Two years later the rate of interest was reduced to 4.5 per cent. and the amount of deposit to $386 within one year to the credit of any one individual. Finally, ten years later, the annual deposits were increased to $772 and the maximum purchasable pension to $289.50. It was finally realized that while the operations of the funds were considerable, they appealed mainly to government employees, railroad employees and small property holders and that it did not appeal to the wage earners, for neither the minimum deposit of 96.5 cents nor the maximum of $772 was in harmony with their interests. In 1886 the minimum deposit was reduced to 19.3 cents and saving cards were introduced, which made very small deposits possible by means of postage stamps. The maximum amount to be deposited in one year was reduced from $772 to $193, and the maximum pension was reduced to $231.60. The legal rate of interest necessary to pay was changed to 4 per cent. and finally down to 3.5 per cent.

The Act of 1886 also provided for subsidies in case the pensions liquidated before the age of 50 because of old age or infirmities leading to invalidity, but this remained a dead letter practically until 1891 and even then the appropriations of that year amounted to only $7,720 for this purpose. It was not, however, until 1895 that a fund was formed from the sale of the crown jewels that these invalidity subsides actually acquired importance. These new subsidies to old age pensions were not confined only to the depositors of the National Old Age Retirement Fund, but were extended to members of mutual benefit societies or other voluntary associations granting retirement pensions. The subsidies under this law are granted only to persons who do not have any income exceeding $69.48 and who have been contributing either to the National Retirement Fund or any other organization granting old age pensions for twenty-five years, not necessarily consecutively. During the transitory period, which expired in 1905, this period of twenty-five years was reduced pro rata and the retiring age was settled at 65. This National Old Age Retirement Fund also possesses the function of receiving from employers of labor or from their insurers lump sum payments of capital sufficient to provide for payment of pensions due employees or their dependents on account of industrial accidents, as provided in the Workmen's Compensation Law of 1898. Deposits may be made in favor of any person over 3 years of age living in France, whether citizen or foreigner. Minors under 16 years of age require authorization by the father, mother or guardian or, in their absence or in case of their prevention, by a justice of the peace. Married women may make deposits without consent of their husbands and regardless of the terms of the marriage contract. Payments made before marriage remain to the credit of the person who made them. All deposits made during marriage by either party are credited to both husband and wife, each receiving half, even when one of the parties has entered on the enjoyment of a pension. Neither party can deprive the other of this benefit nor renounce the share of the deposit in favor of the other. Deposits made by intermediaries must state specifically whether the capital should be alienated or reserved. When the first payment is made by a depositor, this depositor must declare whether the capital is to be alienated or reserved. In any case all moneys revert to the retirement fund if unclaimed within thirty years after the death of the depositor or if there are no legal heirs. Future deposits may also be changed from alienation to reserve, or vice versa. Moreover, if a depositor has contracted for reserve capital insurance, he may at any time alienate any or part of such capital in order to augment his pension. A third party who deposits money as reserve capital to constitute a pension for another must indicate whether or not the beneficiary shall have the privilege of alienating such capital in order to increase his pension. A person entitled to an old age pension to begin before he is 65 years of age may, in the three months preceding the payment of the pension payments, postpone the time of beginning in order to increase the pension, not, however, beyond the legal maximum limit. The annual pension which any one person may receive can not be less than 38.6 cents nor greater than $261.60. In case of injury or illness completely disabling the person from earning a living, the pension may be liquidated before the age of 50 and the amount of the pension is correspondingly reduced. Such premature pensions may be augmented by an amount to be fixed by a superior commission, in no case, however, to exceed $69.48. The following table shows the amounts of annual pension payable for deposit of $100 by age of depositor and plan of insurance:

AMOUNT OF ANNUAL PENSION PAYABLE FOR THE DEPOSIT OF $100 WITH THE NATIONAL OLD-AGE RETIREMENT FUND, BY AGE OF DEPOSITOR AND PLAN OF INSURANCE

Age of Depositor	Amount of Annual Pension Payable for the Deposit of $100							
	Alienated-Capital Plan				Reserved-Capital Plan			
	Age at Which Pension Begins				Age at Which Pension Begins			
	50 Years	55 Years	60 Years	65 Years	50 Years	55 Years	60 Years	65 Years
4 years	$51.22	$74.66	$114.77	$190.32	$41.15	$59.98	$92.21	$152.91
5 years	47.15	68.73	105.66	175.22	37.72	54.99	84.53	140.17
10 years	38.95	56.77	87.27	144.72	30.25	44.09	67.79	112.41
15 years	32.15	46.86	72.05	119.47	24.07	35.08	53.93	89.43
20 years	26.18	38.16	58.66	97.27	18.99	27.68	42.56	70.58
25 years	21.16	30.84	47.41	78.62	14.88	21.69	33.35	55.30
30 years	17.15	24.99	38.42	63.71	11.55	16.84	25.89	42.93
35 years	13.89	20.24	31.12	51.61	8.86	12.91	19.85	32.91
40 years	11.22	16.35	25.13	41.67	6.68	9.73	14.96	24.80
45 years	9.00	13.11	20.16	33.42	4.92	7.17	11.02	18.28
50 years	7.13	10.40	15.98	26.50	3.52	5.12	7.88	13.06
55 years	.....	8.05	12.37	20.51	.....	3.52	5.41	8.97
60 years	.....	.....	9.31	15.43	.....	.....	3.53	5.85
65 years	.....	.....	.....	11.13	.....	.....	.....	3.53

ILLUSTRATIONS

The following illustrations show the practical operation of the old age pension fund:

A depositor, aged 35 years, contributing $100 as alienated capital, would receive at the age of 60 years an annual pension of $31.12. If at the age of 40 years he again contributes $100 his pension at the age of 60 years would be $25.13 for that contribution which, added to the other amount, would make a total annual pension on account of the two payments of $56.25.

If a depositor contributed at the age of 35 years $100 as reserved capital he would receive at the age of 60 years an annual pension of $19.85 and on his death his heirs would receive $100.

From 1851 to 1898 practically 60 per cent. of deposits were made by men and 40 per cent. by women. For the entire period of 1851 to 1911 there were practically 40,900,000 deposits made under the alienated capital plan and 35,300,000 under the reserve capital plan. The statistics of the fund further show that only about 3 per cent. of the entire funds deposited were made by individuals, 97 per cent. being made by the collective funds of mutual benefit associations and savings societies of all sorts—that is, the collective deposits. As is pointed out in the report of the Industrial Commission of Wisconsin, this National Old Age Retirement Fund of France offers insurance at less than cost, collects premiums in a manner and in amounts most convenient to wage workers, allows a wide range of choice as to policy and date of maturity and makes use of all existing agencies for collective or old age insurance. Nevertheless, from 1851 to 1883 only 640,000 persons opened accounts in the funds, an average of 19,000 a year out of a population of 35,000,000. Of these depositors only one half, that is, 52.6 per cent., were wage earners. Of these wage earners one half were railway employees, insured by the railway management without volition of their own. In thirty-three years barely 160,000 workmen were voluntarily insured. In 1911, after sixty years of operation, despite a government subsidy, only 3 per cent. of the wage earners of France had voluntarily availed themselves of the fund, and while the number of pensions in force from 1895 to 1911 gradually rose, the average amount of pensions fell from $34.48 in 1891 to $25.09 in 1911. It is still true that in spite of the government subsidies, one half the pensions are under $10 and nearly 87.4 per cent. are under $40 per year. Thus the voluntary old age insurance of France shows that voluntarily the workmen will not or cannot insure. Certain it is, they do not, and the vast majority of those that do insure are insured under other mutual aid societies as collective depositors, that is, practically under an involuntary compulsion. In Belgium, before the war, voluntary old age insurance succeeded about the same as in France. The general savings and retirement fund date practically from the same year—1851—and are based on the same general plan. After forty years' operation the total number of accounts in the fund was about 10,000. A liberal subsidy was offered in 1890 and the number of insured then rose in 1899 to 169,000. In 1900 the subsidy was increased to 60 per cent. of the deposit, made up to a total of $2.90 a year, which practically amounts to 40 cents on every dollar of premium, and under this stimulus about 1,500,000 were insured. The failure adequately to provide for old age in Belgium by any voluntary scheme even under heavy subsidies was so discouraging that just previous to the outbreak of the present war Belgium was about to inaugurate a system of compulsory insurance.

THE CANADIAN LAW

Another voluntary state insurance is that of Canada, passed in 1908.[8] This law provides that the minister of trade and commerce may make contracts with any person domiciled in Canada for the sale of the immediate or deferred annuity depending on a single life or partly depending on a single life and partly, for a term of years or dependent on the joint continuance of two lives. The minimum amount of annuity is $50 and the maximum $600. No annuity is to be paid prior to the age of 55 years. Various kinds of annuities are offered, mainly in two groups, the reserve capital and the alienated capital plans. In the reserve capital, in the event of the death of the purchaser before the first payment of the annuity falls due, the total amount which has been put in, with 3 per cent. compound interest, is refunded to the heirs. Under the alienated capital plan there is no return to the heirs in the event of death before annuity is due, and the payment is correspondingly much larger. In each group there are three forms of payment: the weekly payment, the yearly payment and the single payment. Premiums may be paid to the department direct or to the postmaster or any money order office, and the postmaster is allowed a commission of one third of 1 per cent. of all amounts paid in. An annuity may be purchased by or for any person between the ages of 5 and 85 years and no annuity may be paid before the annuitant reaches the age of 55. The rights of the annuitant are not saleable or transferable except to the extent that a purchaser may have a portion of his annuity, not exceeding one half, payable to his wife. Organizers and lecturers have been employed to advertise the scheme and to bring it to the general attention of the working people and their employers. It is said that so far it appears to have met with moderate success.

So far we have considered in old age relief those forms in which the workman helps in some manner toward the contribution either by contributing directly part of the funds under compulsion or voluntarily investing in investments which will surely bring him a pension in his old age, or voluntarily purchasing an annuity, as in Canada. In all these schemes, besides the voluntary contribution of the worker, the state has duly contributed its part, not with any idea of pauperization of the workman, not as a matter of poor fund relief to the pauper or of care to the indigent and crippled sick, as expenses of state and city hospitals may be considered, but as a willingness to give help to those who are willing to help themselves and as a reward for labor done. It has been considered justifiable subsidies of some form, either as direct sums, as in Germany or France, or as subsidies as in Belgium and some portions of the French law, or as a direct increased gift by paying for the administration of invalidity and old age schemes. Whether it was regarded as a reward or as an endeavor of the state to relieve itself of its responsibilities for the care of the indigent poor, it has been considered a justifiable expenditure of the state.

These schemes so far considered, moreover, also have some form of the insurance principle in them of paying small premiums over a long period which placed at compound interest produce, at a certain time, a much increased return, or that the small amounts paid in by many members of a large group may furnish at any time a relatively large amount which the needy person could not obtain by his own single efforts. In private life it has been universally considered as a just and fair reward for labor done that without any contribution on the part of the worker he should have, at the end of his years of work, a pension toward which he has not at all contributed. He has given faithful service and helped produce wealth by his work and can therefore accept the reward of a pension in his old age. Oddly enough, the same citizens in the country who willingly give this in private establishment funds, condemn the same plan when universally applied to the state and condemn the practice that a state should give to the citizens who, on reaching old age, are unable further to support themselves and who, through the years of their earning power, have been unable to store up from their daily needs any amount, however, small, to tide them over their years of unproductive, wornout old age. State pensions have been always looked on as too paternalistic and too socialistic to be advisable.

Of course we have seen even in those countries where insurance schemes have been put in operation the transition stage between the beginning of the operation of the law and the final fulfilment when all are equally working under the law and all the youths have grown up to pay the full number of their contributing years. There must be a transition period in which those already aged, when the law goes into effect, must practically receive some old age pension or some form of it when they reach their years of industrial uselessness. Therefore, the immediate problem of any insurance scheme

8. Massachusetts Commission on Old Age Pensions.

must be some form of old age pension. Many countries have frankly met the issue and deemed it wiser to recognize that a straight out and out old age pension ties up less funds, for the funds necessary are, each year, easily obtained by taxation and that really in the end it simplifies what is often a very complicated problem. There is no transitional stage between the passing and the fulfilment of an insurance law. Although it took fifty years or more for these ideas to be realized in Great Britain, even in that democratic state the old age pension law was passed in 1908. In 1891 Denmark also passed such a law and New Zealand in 1898. The Australian colonies of Victoria and New South Wales, and finally the combined Australian commonwealth, also accepted the ideas of old age pensions. These English colonies have accepted it even more generously than their mother country. New Zealand and New South Wales state that "Whereas, it is equitable that deserving persons who during the term of life have helped to bear the public burden of the commonwealth by the payment of taxes and by opening up its resources by their labor and skill, should receive from the colony pensions in their old age." Victoria, following New South Wales a year later, makes the declaration that "Whereas, it is the duty of the state to make provision for its aged and helpless poor," etc., and the commonwealth of Australia passed the act on the recommendation of the commission that the old age pensions should be granted as a right, not as a charity. Thus it has been starting from the time that the pensions were really considered as a relief of the poor they have finally come to be considered as a reward for labor done and that a man is entitled to support without being classed as a pauper, without losing his rights as a citizen, and without losing right of caste which poor relief carries with it. There is no question that this was the point of view taken in Denmark when that country passed its pension law for its old age relief, for the official title of the Danish law reads, "Law concerning old age support for the worthy poor aside from poor relief."

DENMARK

The old age pensions of Denmark are practically a scheme of outdoor relief for the deserving aged poor and the pensionable age is 60 years and persons over 60 years of age at the time the law went into effect were not disqualified on account of having previously received poor relief, provided that relief began after the sixtieth year. The amount of relief is not definitely fixed. The local authorities have the power to decide the nature and amount of the assistance to be given in each case, the law simply stating that the relief must be sufficient for the support of the person relieved and for his family, and for their treatment in case of sickness.

The relief may be given in money or in kind, that is, it may consist of a free admission into a suitable asylum or other establishment intended for that purpose, or, in the city of Copenhagen, it is generally given in the form of money. But in the country, where the recipients are more often known personally to the authorities, it is usually given in the form of fuel, food or rent. The amount given in cash usually amounts to a minimum of $12.50 and a maximum of $50 a year. The expenses are borne equally by the communes and the state, the state treasury reimbursing the communes one half of the total amount paid out by them at the end of each year. It was noticeable up to 1908 that the number of recipients of the old age relief had increased rapidly at the rate of 4 to 5 per cent. annually, while the population had only grown at the rate of 0.5 to 1 per cent. and the expenditure had risen in even greater proportion. When the old age relief system was established, it was expected the cost of poor relief would decrease if not proportionately to the advance of old age relief. These expectations were realized for a few years, but since 1896, that is, five years after the system was established, the amount for poor relief has steadily increased. Whether this is from increased numbers or increased care is not stated. This old age relief is not given indiscriminately, but there are numerous conditions of eligibility. An applicant must be of good character, not having done anything generally counted dishonorable; he must be unable to provide the necessities of life; his poverty must not be due to his own fault; he must have ten years' fixed residence; he must not have faced sentence for begging or vagrancy and must not have received poor relief.

GREAT BRITAIN

In Great Britain, after fifty years discussion, it was finally decided to grant payment of weekly pensions not exceeding $1.25 to persons over 70 years of age, except wastrels, lunatics, paupers and criminals, whose income from all sources does not exceed $157.50 a year. The rate of pension per week is as follows: Those whose incomes do not exceed $105 receive 5s; those exceeding $105 and not exeeding $115.12 received 4s; those who exceed $115.12 and do not exceed $131.25 receive 3s; those who do exceed $131.25 but do not exceed $143.37 receive 2s; those who do exceed $143.37 but do not exceed $157.50 receive 1s. Those who receive over $157.50, as stated above, receive no pension.

Besides being 70 years old and a British subject, there are other qualifications which are definitely stated in the law. One thing that is definitely stated is that a person of 60 years and upward who has been convicted under an inebriate act may not necessarily be disqualified. But the court may decree such a person disqualified for a period not exceeding ten years. It is a noticeable thing in England that the total number of pensioners under this act, in 1911, exceeded the calculations by about 270,000 and the expeditures were about $10,000,000 more than the original calculations. The great difficulty of accuracy of calculations seems to have been due to the inability to determine, according to law, the thrift and income and age tests. The following table gives the total number of pensioners in England and the value of the pension each year. A sudden increase in 1910 and 1911 is due to a

	Number	Value in Terms per Annum
1908–1909	647,494	$40,375,553
1909–1910	699,352	43,882,332
1910–1911	907,461	57,447,234
1911–1912	942,160	59,907,588
1912–1913	967,921	61,575,306

lapse on Dec. 31, 1910, of the principal poor law relief disqualification. In these numbers in 1913, 37.5 per cent. were men and 62.5 per cent. were women. This proportion is most marked in the urban areas. In Ireland the ratio is 42.3 per cent. men and 57.7 per cent. women, and in London the proportation was 30.7 and 69.3 per cent., respectively. Another disproportion is shown in England and Wales. Men form 48.3 per cent. of the total population and women 51.7 per cent. In the population over seventy men are 41.4 per cent. and women 58.6 per cent. The sex ratio among the pensioners over 70 is men 36.7 per cent. and women 63.3 per cent. Women seem to survive longer than men but many are widows and are left unprovided for. In the English colonies the New Zealand age limit is 65 years and the maximum pension is 10s, or $2.50, a week. There are certain definite restrictions and each pension is granted for twelve months and a new application must be made for renewal. The pensioner must apply at the local postoffice personally where the pension is payable monthly. The effect of the Pension Act on the poor relief has reduced somewhat the amount spent on outdoor relief, but the expediture on indoor relief has increased considerably, so that the sum total is an increase. In New South Wales they followed closely the New Zealand system. They granted $130.00 à year. The Australian system which superseded the separate system of New South Wales, Victoria, Queesland, etc., provides for the grant of pension not to exceed the sum of $130 at the age of 65 to persons whose incomes from all sources do not exceed $260 per annum. It is also provided that women may receive an old age pension, by proclamation of the governor-general, at the age of 60 years. Certain aliens and other disqualifications are mentioned. Pensions may be withdrawn at the discretion of the registrar from persons who misspend their income, or otherwise show themselves unfit for the further enjoyment

of a pension. In case a pensioner becomes an inmate of an insane asylum or a benevolent home, the pension is suspended during the time he remains in the institution. If a pensioner leaves Australia permanently, the pension is forfeited.

There is a special section of the Act making provision for invalidity pensions. This, however, does not become effective until so ordered by proclamation, and the disqualifications and requirements for the receipt of the invalidity pension are similar to those laid down for old age pension. To obtain such a pension, claim must be made to the registrar in the district. It is then referred to a magistrate who can recommend to accept or reject the claim, and after this the registrar refers it to the deputy commissioner of the district who may or may not grant the pension.

It is a noticeable feature that in all voluntary or compulsory insurance schemes for the care of old age and invalidity, mention has also been made of an endeavor to provide for the widow and orphans of the insured, if his death takes place earlier than is expected in the natural calculations of life. This insurance of widows and orphans runs very noticeably through the establishment funds and through the private schemes in this country. In the old age insurance, already described in France and Germany, the details providing for widows and orphans and the percentage of the pensions which they have received have been given in full for the sake of bringing out this feature. Rubinow draws attention to the fact that from the beginning consideration of the necessity of surviving dependents was shown in both France and Germany in the discussion of their old age protection. When the old age insurance bill in Germany, in 1887-1888, was under discussion, substantial provision for the widow and orphan did not seem feasible, but a provision was made which returned to the widow and orphans the contributions made by the workman if he died before receiving a pension. In France, during the twenty years before the old age law of 1910 was adopted, life insurance for those surviving was always seriously taken into consideration, in fact some schemes proposed making it a matter of choice whether old age pension or life insurance should be taken. This is further shown in the plan adopted in which there was finally put an option between alienated and reserve capital plans. That is, as has been already shown, while the alienated capital gave the bigger pension the reserve capital gave a measure of insurance to the surviving widow and orphans and the possibility that even in the deposit made under alienated plan, even when once this plan was chosen, all future deposits could be designed either as alienated or reserved. In the French old age insurance it is further permitted that death benefits shall be paid to the survivors, according to the size of the family. These are not large; they vary between $29 and $59 and are payable in monthly instalments of 50 francs, or $9.50, and the number of instalments vary from three to six. To Germany, however, belongs the credit of having, in 1911, brought out the only real national system of widows' and orphans' pensions. This, as all other insurance in Germany, is compulsory. This insurance was brought about by increasing the contribution of the employer and employees in the old age and invalidity insurance rates. That is, in the five classes, the lowest total increase was one-half cent and in the highest 2.8 cents, and as half of this contribution falls to the employer, the workman paid for obtaining the widow and orphan pension from one fourth of a cent to 1.5 cents more a week than he had already done. The increase amounts in the lowest class I to one-half cent; class II, 0.9 of a cent; class III, 1.9 cents; class IV, 2.5 cents, and class V, 2.8 cents. This did not seem to be too great a burden for the results obtained.

The amount of the widows' and orphans' pensions[9] depends on the amount of the invalidity pensions which the deceased was receiving or would have been receiving at the time. The widow receives 30 per cent. of that pension. Orphans' pensions are given to children under 15 only, and for the first surviving child 15 per cent. is given but only 2.5 per cent. to the other children. In addition, the widow is entitled to an annual subsidy of $12.50 from the state treasury and each child $6.25. While these pensions are not large, they compare favorably with the rate of the invalidity pensions, as the average invalidity pension amounts to about $40, the widow's pensions to about half this sum, and the family's pension to about as much as the whole pension, that is, with a normal family of three children. Of course, such small pensions as these do not solve the problem of the widows and orphans and, like most all of the amounts given above, they prevent starvation but are not enough to live on. We shall go into a fuller discussion of this in considering the relation of the social insurance laws to the reduction of poverty and the reduction of the poor funds—that is, in considering their social results and their relation to poverty.

9. Rubinow, I. M.: "Social Insurance."

UNITED STATES

In the United States there has grown up quite an extensive series of pensions to widows and orphans given under the name "Mothers' Pensions." Illinois, in 1911, was the first state to pass such an act. Missouri also followed that same year; California and Colorado in 1912, and in 1913, Idaho, Iowa, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington and Wisconsin followed suit. New York a year or two later also passed a mothers' pension act. Besides these states, two municipalities, those of Milwaukee and St. Louis, have established similar systems independently of state action. The two foreign countries which have passed these mothers' pensions are New Zealand and Denmark, in which the pensions are granted to widows only in each case on account of their children. In many of the American acts children are included whose fathers may be alive but disabled or whose fathers may have abandoned them, but the main mass of the pension in all the acts goes to the widow, as it should. These acts are an endeavor to keep the family together, with the mother herself at home with the children and not place them as wards on the state. Evidence, therefore, is required not only that the family is in need, but that it also is worthy of preservation. When these conditions are properly certified to proper officers, the allowances may be granted in some states by the courts, as in Illinois; by special committees in others, as in Pennsylvania. The amounts in most states are fairly liberal: $15 for one child, $7 for each additional child under 16 in Illinois; $12 for one child, $20 for two and $5 for each additional child in Pennsylvania. In Denmark the amounts paid to widows out of public funds, without drawing on the Poor Law, for the purpose of maintaining and educating their children, are about $27 for each child under 2 years, about $20 for each child from 2 to 12 years, and about $16.60 for each child from 13 to 14 years old. These mothers' pensions are still further removed from the insurance idea than the old age pensions, for the old age pension is given mechanically when the person arrives at a certain degree of invalidity due to old age or to a certain definite number of years of life, but in the case of mothers' pensions there is connected with it the necessity of investigation and certification of moral worth which brings it as a connecting link really between life insurance for the death of the worker on the one hand and public relief funds on the other.

No study of social insurance is complete without consideration of unemployment and the methods taken in Germany and other countries to diminish it, and the national attempt in England not only to diminish it, but also to provide against its result by an unemployment insurance. It is impossible to understand the effect of these various laws of social insurance unless we appreciate their relations to unemployment, and it is impossible to grasp the industrial situation without a realization of what unemployment is and what it means to the wage earner. To the majority of people unemployment among wage earners is looked on as the occurrence of a misfortune or a hard luck accident for which, in all probability, the wage earner is more or less responsible and to blame. While this may be true in certain instances, unemployment in the great mass of instances is a fault of industry, not of the individual. The responsibility is industrial, not personal. Unemployment is a normal recurrent condition of

a large percentage of wage earners. By unemployment is meant involuntary lack of work. Nearing defines it as involuntary idleness during ordinary work time.

In considering unemployment here we will rule out the consideration of that form of disability due to sickness, accidents or old age and consider simply the lack of work of the able-bodied when they are able and anxious to perform their daily task and earn their living thereby. Uncertainty of employment is a never ceasing dread which haunts all wage earners. Nearing, in his study of wages, claims that 20 per cent. must be deducted from the yearly total of wage earners for unemployment. Others claim that at least one fourth must be so deducted. It is only in the highest skilled trades with the strongest labor unions that wages have been raised sufficiently to tide over these periods of lack of work. In[10] the United States about 10 per cent. belong to the unions; in Great Britain about 17 per cent., and in Germany about 18 per cent. Not a large percentage of the wage earners are protected by a sufficiently high wage to enable them to stand without suffering, without the danger of changing poverty into absolute destitution, even the average amount of unemployment in the ordinary busy year of good times. When hard times come and the percentage of unemployment is high and the period of unemployment is long drawn out, destitution overtakes many hard working, honest wage earners eager for the opportunity to earn their living. Of course, insurance against unemployment will not cure, nor does it pretend to cure, the causes which bring unemployment. It can, however, as all insurance does, protect in a certain measure the individual against the calamity when it occurs, for by our definition of insurance previously given in these reports, insurance is a scheme by which a large group of men by giving a relatively small contribution protect themselves against a given calamity by receiving, when that calamity comes, sufficient to tide them over its effects, all of the group realizing that the calamity must come to some and no one knows to whom it will come in any given year.

At the hearings before the Committee on Labor of the House of Representatives, Sixty-Fourth Congress, 1916, Miss Poyntz showed that unemployment is a problem of greater proportions in America than in other countries, and yet this country is the last one to study it or to take measures to control it. When the need is great and the demand for something to be done to relieve the effect of unemployment, large charitable endeavors are instituted and some form of public works considered by which the stress may be relieved. As soon, however, as industrial conditions improve, everything is dropped and nothing further is done until either the next season brings with it its regular quota of unemployment or some cyclic occurrence of hard times again occurs forcing a repetition of the same charitable endeavors to solve a problem which the community should have been prepared to deal with for many years back. It is said that the time is past when the problem of unemployment could be disposed of either by ignoring it, as was the practice until recent years in America, or by attributing it to mere laziness and inefficiency. The causes of unemployment are social and inherent in the present method of industrial organization. The problem is one due to industrial phenomena and is not a personal problem and any remedies to be of value must be industrial and not personal. The unemployed are not the unemployable paupers. The unemployed are the whole working classes, the whole industrial army. The essential characteristic of the modern workingman's life is insecurity. Modern factory production is subject to constant fluctuations, often incalculable, often severe, always productive of unemployment for the workers. The workingman is the victim of the situation. When the factory shuts down, the manufacturer takes care of the machinery, shelters it, oils it and protects it, but nothing is systematically done to protect the living machinery by which the products of the factory are produced. This portion is turned out of doors to fare as best it may. If there be an industrial crisis, there are no openings in other factories or in other industries and no work to be had. Unemployment is due to the incapacity of industry to absorb the whole supply of labor at any given time; there is always some unemployment in prosperous years. Under tremendous stress of good times, such as during the past year, the amount of unemployment is reduced to a very unusual minimum, but during the bad years of depression it rises to appalling proportions. The permanent excess of supply over demand in the labor market is caused largely by the constant fluctuation of industry making it necessary to have reserves on which to call. Hundreds of thousands more of workers are needed in good years than in bad years to operate our industries and many more are needed in the busy season than in the slack season. Besides, in almost every business, there will be special calls for workers to be taken on for a few weeks and large reserves are needed for these casual demands. To the reserves required for these three types of fluctuations in industry—periodic or irregular, seasonal and casual—must be added the surplus produced because of, first the inefficient handling of these reserves and the lack of means of transferring workers smoothly and rapidly from job to job; second, the temporary displacement of workers by new machinery; third, the lack of adaptability due to old age or mental or physical weakness; fourth, the lack of industrial training either in youth or in adult life; fifth, the overspecialization which confines the chances of employment to small subdivisions of industry and particular operations. There is thus, at all times and all seasons, a fringe of workers in reserve standing around each industry and often each separate business in wait for the chance of a demand for their particular kind of labor.

NUMBERS EMPLOYED IN ALL INDUSTRIES
(Average number employed, 575,103—100%)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
1908	83.6	82.7	81.9	80.5	80.0	80.5	80.0	81.3	85.4	88.1	88.4	87.9	83.5
1909	98.4	99.5	103.3	100.0	100.0	100.0	99.5	101.0	103.2	104.6	105.0	106.3	101.4
1910	101.5	102.6	102.6	101.8	100.9	98.6	96.6	97.8	98.5	100.0	101.4	101.6	100.2
1911	101.4	104 0	102.9	102.0	100.2	98.8	98.0	99.3	101.3	103.0	104.0	104.1	101.3
1912	103.0	102.6	104.7	104.1	104.9	105.2	103.9	104.1	106.5	108.3	109.8	110.0	105.6
1913	109.1	109.5	109.7	108.0	106.0	105.0	102.8	104.6	106.5	107.5	108.1	108.0	107.1
Aver.	99.5	99.6	100.8	99.4	98.6	97.9	96.9	98.0	100.3	102.0	102.8	103.0	100.0

In every industry there is a seasonal fluctuation. Every factory has a period of depression and a period of excessive output during the year. There is constantly extensive seasonal unemployment and this is responsible for a great deal of the general lowering of the standard of living and for the uncertainty of the tenure in the workingman's job. This seasonal rhythm between rush and idleness lies deep in the organization of industry in this country due to social habits, individual tastes and often directly due to the seasons of the year and the variation of the weather itself. The weather really is more fundamentally a factor than is generally realized, for it interacts with the economic and social environment to such an extent that in many industries the causes of irregularity seem purely economic and social. In others, the weather plays the predominant rôle and affects production directly, especially in the open air industries, such as building, ship building, agriculture, brick making, quarrying, and outdoor unskilled work of all kinds. In other industries, weather affects the consumption of the product rather than the production, and the demand becomes purely seasonal. For instance, the muddy weather of winter and early spring causes an enormous consumption of rubber shoes and the variation of a few inches of rainfall in a season will affect sales very materially. It is said that an unusually cool summer recently spoiled the market for low shoes and brought about enormous sales at ruinous prices. Heavy weight and light weight clothing, the difference between the felt and the straw hat industries, are good examples of those affected by purely seasonal conditions. The social season is no less important than the weather in its influence on industry. Christmas, Easter and the summer vacation are as conspicuous mile stones in industrial as in social life. They affect profoundly the buying habits of the consumer which, in turn,

10. Hearings before Committee on Labor, 64th Congress, 1916, p. 157.

determine the current of industry and employment. The Christmas season calls out the consuming energy of the public—the general curve of employment stands highest at this point. Business and social habits, purely customary in nature, are often responsible for seasonal irregularities. This is particularly well seen among the publishing houses of school books and in the habit of laying in stock at certain times of the year. Publishers estimate that the average bookseller does 70 per cent. of his business in the last two months of the year.

Besides the seasonal variation, there come great cyclic depressions in trade and industry which are often world wide in their extent. These come in periods of seven or eight or twelve years apart and the reasons for these are much in dispute. Pigou,[11] in discussing it, lays stress on the cyclic influence from the variability of the harvests. Good harvests bring confidence and continue a sense of prosperity and poor harvests the reverse. In good times, when industry is active, the manufacturers are making good profits and reinvesting these by enlarging their industries, and bankers are willing to lend money and companies are formed with expansion of bonds and stocks. As long as the confidence lasts, all will be well, and abundant harvests keep up this confidence, production flourishes, consumption is generally increased through good times the world over, and unemployment is at a minimum. But whether it be due to a poor harvest or whether it be due to some other cause that begins to produce lack of confidence, credit is immediately contracted, a period of retrenchment begins. Hard times cause a diminished production and consumption and there is produced a large mass of unemployment. The situation is thus produced that during this period of depression factories are standing idle and people who want to work cannot and other people need things which are not being manufactured, and we are faced with the absurdity that factories must suspend work when there are on the one hand people who want to work to produce articles of commerce and, on the other hand, people who need these articles; but the former cannot work and the latter cannot buy. The people need more clothes and the garment makers want to make them; farmers want to sell their produce and yet people in the larger cities are starving for want of food; shoe factories are standing idle when workmen are unemployed and children are going barefoot. When capital loses its timidity and confidence in credit is restored, times improve, and again the cycle goes on from good to bad. The preceding table and curve of numbers employed in the principal industries in Massachusetts show both the seasonal variation and the variation from bad times to good.

The table of New York reports on employment in selected trade unions shows both seasonal and cyclic variations even better and shows, also, the high percentage in hard times, such as in 1908:[12]

Years	Month	Number of Unions Reporting	Aggregate Membership Reporting	Idle at End of Month	
				Aggregate Number	Per Cent.
1901	December	188	97,270	18,593	19.1
1902	January	187	96,173	20,115	20.9
	February	187	97,126	18,148	18.7
	March	187	96,888	16,738	17.3
	April	187	98,740	15,099	15.3
	May	187	97,148	13,591	14.0
	June	187	98,020	14,247	14.5
	July	187	101,223	15,836	15.6
	August	185	101,281	7,148	7.1
	September	185	98,349	6,166	6.3
	October	185	97,951	10,966	11.2
	November	185	98,063	13,985	14.3
	December	185	99,063	22,036	22.2
1903	January	185	102,414	20,955	20.5
	February	184	101,226	18,066	17.8
	March	184	100,540	17,699	17.6
	April	184	98,574	17,071	17.3
	May	184	100,134	20,210	20.2
	June	184	100,484	23,215	23.1
	July	184	105,202	18,759	17.8
	August	184	104,445	16,101	15.4
	September	184	105,952	9,956	9.4
	October	184	101,159	11,802	11.7
	November	184	100,200	16,395	16.4
	December	184	100,879	23,301	23.1
1904	January	184	100,602	26,004	25.8
	February	182	104,074	22,460	21.6
	March	181	103,681	28,124	27.1
	April	182	95,501	16,198	17.0
	May	182	96,187	15,262	15.9
	June	180	96,476	13,263	13.7
	July	176	96,824	14,317	14.8
	August	189	96,772	13,231	13.7
	September	198	99,652	12,001	12.0
	October	199	98,167	10,620	10.8
	November	199	95,938	10,644	11.1
	December	199	96,075	18,847	19.6
1905	January	199	97,345	21,886	22.5
	February	198	96,641	18,748	19.4
	March	196	97,151	18,618	19.2
	April	193	91,913	10,825	11.8
	May	193	92,649	7,687	8.3
	June	191	93,729	8,557	9.1
	July	192	92,916	7,417	8.0
	August	192	93,860	6,789	7.2
	September	192	94,836	5,636	5.9
	October	192	91,088	5,079	5.6
	November	192	91,521	5,576	6.1
	December	192	91,767	10,223	11.1
1906	January	191	84,539	12,682	15.0
	February	190	85,155	13,031	15.3
	March	192	85,956	9,952	11.6
	April	192	90,352	6,583	7.3
	May	192	91,163	6,364	7.0
	June	192	92,100	5,801	6.3
	July	195	94,571	7,229	7.6
	August	195	94,220	5,462	5.8
	September	195	94,280	5,959	6.3
	October	195	92,062	6,383	6.9
	November	195	93,049	7,052	7.6
	December	195	93,318	14,352	15.4
1907	January	191	92,371	20,007	21.5
	February	191	92,797	18,653	20.1
	March	191	93,242	17,018	18.3
	April	191	94,402	9,563	10.1
	May	191	94,755	9,955	10.5
	June	191	95,840	7,809	8.1
	July	194	100,965	8,585	8.5
	August	193	100,025	12,135	12.1
	September	193	98,224	12,089	12.3
	October	194	99,121	18,296	18.5
	November	194	98,068	21,596	22.0
	December	194	97,732	31,917	32.7
1908	January	192	96,727	35,684	36.9
	February	192	95,696	35,924	37.5
	March	192	94,542	35,436	37.5
	April	192	94,148	31,956	33.9
	May	192	93,532	30,152	32.2
	June	192	92,814	28,013	30.2
	July	193	92,112	24,693	26.8
	August	193	90,872	22,389	24.6
	September	193	90,708	22,315	24.6
	October	193	89,275	20,631	23.1
	November	193	89,426	19,232	21.5
	December	193	88,746	24,879	28.0
1909	January	192	88,604	25,964	29.3
	February	192	89,396	23,727	26.5
	March	192	90,619	20,836	23.0
	April	192	89,039	18,042	20.3
	May	192	89,241	15,228	17.1
	June	192	89,227	15,503	17.4
	July	190	89,551	12,459	13.9
	August	190	90,429	10,799	11.9
	September	190	90,783	13,171	14.5
	October	190	91,247	12,468	13.7
	November	190	91,977	12,206	13.3
	December	190	91,162	18,791	20.6
1910	January	193	90,998	22,253	24.5
	February	193	91,944	20,610	22.4
	March	193	95,388	21,524	22.6
	April	193	96,074	15,413	16.0
	May	193	97,358	14,121	14.5
	June	193	100,418	15,497	15.4
	July	192	103,875	20,172	19.4
	August	192	111,730	24,967	22.3
	September	192	114,365	14,262	12.5
	October	192	114,147	17,122	15.0
	November	192	116,581	20,378	17.5
	December	192	118,317	32,304	27.3
1911	January	190	120,859	32,312	26.7
	February	190	120,235	29,804	24.8
	March	190	121,828	31,187	25.6
	April	190	120,877	25,798	21.3
	May	190	121,132	32,996	27.2
	June	189	121,237	27,793	22.9
	July	188	116,801	18,128	15.5
	August	188	118,445	13,879	11.7
	September	188	119,724	13,350	11.2
	October	188	118,007	13,657	11.6
	November	188	117,826	23,620	20.0
	December	188	115,430	39,530	32.2

The New York trade unions show with great intensity the seasonal fluctuations among some trades in which these influences greatly predominate. They show, also, however, very strongly the cyclic fluctuation. The preceding table from the *American Federationist,* the official organ of the American

11. Pigou, A. C.: "Unemployment."
12. "Statistics of Unemployment and the Work of Employment Offices," Bulletin of the U. S. Bureau of Labor, Whole Number 109.

Federation of Labor, from data received from all parts of the United States, shows the seasonal and cyclic fluctuation but in a much smaller degree than the New York statistics.

PERCENTAGE OF EMPLOYMENT AMONG ORGANIZED WORKERS REPORTING TO THE AMERICAN FEDERATIONIST, BY MONTHS, 1902-1909

Months	1902	1903	1904	1905	1906	1907	1908	1909
January	...	6.1	6.4	6.3	7.8	2.3	8.8	9.8
February	...	3.7	7.3	6.1	4.6	3.2	8.2	7.4
Mareh	...	2.1	1.4	3.8	1.9	1.3	8.6	8.6
April	...	1.8	4.2	1.3	2.3	0.5	6.6	5.6
May	...	5.3	1.3	...	0.9	1.7	7.1	6.7
June	...	2.5	5.1	2.2	1.5	0.2	4.1	5.3
July	...	3.3	1.6	2.0	1.4	1.7	6.4	5.7
August	...	2.1	3.2	5.8	1.8	5.8	9.6	5.6
September	...	2.1	1.5	3.7	3.2	2.2	8.4	4.8
October	6.9	1.2	1.2	0.9	0.8	1.4	6.9	1.2
November	1.8	4.2	3.9	1.2	1.8	2.3	6.8	...
December	1.3	1.1	2.1	1.3	4.1	1.2	6.2	...
Smallest number reporting	83,277	36,293	44,870	41,148	28,300	26,680	42,700	56,418
Largest number reporting	133,354	135,626	115,406	154,118	165,671	131,050	134,720	139,836

The following tables of German statistics of unemployment in the year 1895 show, however, one point very emphatically.

NUMBER AND PER CENT. OF PERSONS OF THE EMPLOYEE CLASS OUT OF EMPLOYMENT JUNE 14 AND DECEMBER 2, 1895, BY INDUSTRIES

Industries	Persons in the Employee Class, June 14, 1895	Persons Out of Employment			
		June 14, 1895		Dec. 2, 1895	
		Number	Per Cent. of Total Employees	Number	Per Cent. of Total Employees
Agriculture, gardening and live stock	5,607,313	37,144	0.66	203,246	3.62
Forestry and fisheries	116,713	1,394	1.19	5,551	4.76
Mining, smelting and salt and peat extraction	564.922	8,312	1.47	11,487	2.03
Stonework and earthenware	468,489	6,872	1.47	26,964	5.76
Metal work	719,775	20,834	2.89	27,015	3.75
Machinery, tools, instruments, etc.	304,463	7,828	2.57	10,485	3.44
Chemicals	92,582	1,797	1.94	2,118	2.29
Forestry products, lighting materials, grease, oils and varnishes	38,116	796	2.09	1,045	2.74
Textiles	878,494	14,424	1.64	16,833	1.92
Paper	121,526	3,158	2.60	3,475	2.86
Leather	123,914	4,292	3.46	7,486	6.04
Woodenware and carved goods	456,229	13,363	2.93	18,257	4.00
Food products	656,970	21,465	3.27	28,553	4.35
Clothing	775,671	24,317	3.13	42,078	5.42
Building trades	1,151,851	33,008	2.87	179,797	15.61
Printing and publishing	106,536	4,454	4.18	4,667	4.38
Painting, sculpture, decoration and artistic work of all kinds	18,765	674	3.59	1,034	5.51
Factory hands, artisans, etc., of whom the industry cannot be classified	28,542	1,415	4.96	10,177	35.66
Commercial pursuits	626,637	22,048	3.52	26,334	4.20
Insurance	18,216	274	1.50	315	1.73
Transportation	533,150	6,927	1.30	16,230	3.04
Hotels, restaurants, etc.	316,951	8,061	2.54	15,603	4.92
Total	13,725,825	242,857	1.77	658,750	4.80

Giving the statistics of unemployment in the industries, it is noticeable that at the end of June in the 13,000,000 persons in the employed class but 1.77 per cent. was the average of the unemployment of these trades. The highest percentage occurred under "factory hands, artisans, etc., of whom the industry cannot be classified"—that is, evidently, the unskilled labor. The percentage in this class was 4.96. It is noticeable that on Dec. 2, 1895, when the total average of idleness for all these trades was 4.8 per cent., the same class of unskilled labor had risen from 4.96 per cent. to 35.66 per cent. It is a striking example that the unskilled labor is the first to be discharged and suffers most from any cause of unemployment. On the same date, when 35 per cent. of the unskilled were unemployed, the total average for the 13,000,000 workingmen was only 4.8 per cent.

Unemployment is a greater problem in this country than it is abroad. Even trade union unemployment rises higher in the statistics of New York and Massachusetts than it does in Europe. Miss Poyntz[13] states that during the great crises which have swept over the countries of Europe within the last two decades, the trade union unemployment statistics have rarely risen above 10 per cent., whereas in the United States the general statistics of unemployment have risen above 20 per cent. and even 30 per cent. The 1900 United States census only classified the unemployed according to the length of time they were idle. It does not give the average duration of unemployment for the different trades, but of the 5,227,472 males unemployed in all occupations in 1900, 49.6 per cent. were unemployed from one to three months, 39.6 per cent. were unemployed from four to six months, 10.8 per cent. were unemployed from seven to twelve months. That is, half of the employment is for less than 25 per cent. of the working time and half for more than 25 per cent. of the working time, so that in 1900 nearly 3,000,000 working males were unemployed for more than one fourth of the full working time. In the twenty-fourth annual report of the Commissioner of Labor, there is an analysis of 25,440 families. The total unemployment was 49.81 per cent. with an average number of days of 52½. All statistics as to the amount of unemployment in the United States do not enable one to answer the question or to form any possible estimate of the number of unemployed persons in the Uited States. The statistics in both Pigou and Beveridge show that in England, from 1860 to 1912, the highest percentage of trade union unemployment in the United Kingdom has risen but twice just above 10 per cent. in the years 1879 and 1886.

Besides the problem of skilled and unskilled labor of the ordinary industries, there is the more serious problem of casual labor. There are the great armies of casual workers that travel from one part of the country to the other, without homes and without family ties. They work in lumber camps, in the fields, and travel about picking up a job here and there and drifting back to the cities in the winter unemployed. Casual labor of men with its accompanying phenomena of underpayment, pauperism—for the paupers and vagrants will not work and are often the product of the condition of being unable to find work in the first place—woman labor, child labor, are all the results of a completely disorganized and medieval system of marketing labor. While labor is peddled about in a haphazard way, without systematic information as to the demand or supply of labor, without any centralized organization for bringing these two factors into contact, the elimination of casual labor and the economic distribution of labor will be impossible. The public organization of the labor market, through a clearing house of labor and a system of labor exchanges, and information on the labor market covering the whole field of industry, is a necessary preliminary to any other attempts to attack the problem of unemployment.

The development of unemployment insurance has taken the same course as the other forms of insurance. That is, it has passed through the period of voluntary mutual insurance, caring for a few inadequately, greatly improved under voluntary state subsidized insurance, and thence finally to the English compulsory subsidized state insurance. It is the same development that we have seen in other forms of social insurance. The only successful method by which unemployment insurance has been begun and voluntarily carried out has been through the out-of-work benefits of the various trade unions. Not all the unions could afford to give it; not all the unions that did give it could afford to give adequate amounts to their members when out of work. Among those that did there was no question that they were the best administered forms of relief. Each union knew best the state of its own labor market; they knew best when a member was really out of work and whether or not he could obtain work. They mutually controlled the administration of the fund and its practical application. Not enough of the labor unions could give sufficient labor to make any wide

13. Hearings before Committee on Labor, House of Representatives, 64th Congress.

impression on the situation. Various charitable schemes of relief at the time of great stress were tried, the giving of public works, the giving of employment with a deterrent element in it, such as giving board and lodging for stone yard and wood yard work, etc., were all tried without adequate success. They were used only when the great stress of the situation drew in both public and private help and it was found that the work with a deterrent element in it was by no means a solution. The more the problem was studied it was readily seen that the problem was one of industry and not of character, and the deterrent or punishing element in it was an unjustifiable element added to the already overburden of the workman.

The earliest attempt at a solution of the question was in the city of Berne, Switzerland, in 1893, which endeavored to give to individual workmen financial subsidy during the winter months. By a certain contribution paid during eight months in the year the unemployed workmen were able to draw a certain stipend from the municipality for the time in the winter when they were unemployed and could not obtain work. This form of insurance has been taken up in Cologne, Germany, and other funds have been undertaken on the same principle in other cities in Europe, such as Leipsic, Venice, Basel and Geneva. These funds do not work well and successfully. They are overwhelmed with 80 or 90 per cent. of the building trades which are the most seasonal unemployed of the workers. These funds are not run through the control of the trade unions and have not expanded to any large extent nor been very successful. Finally, in 1892, in the city of Ghent, a town of some 200,000 inhabitants before the war, the municipal council decided seriously to study the situation and to see if by some form of subsidized benefit the situation might be improved. In 1900[14] the municipal Council of Ghent decided to give as a subsidy to every member of a trade union 60 per cent. of his out-of-work benefit when he was employed. This subsidy was given under certain rules to a committee appointed by the municipality. This committee pays the subsidy to the trade union, the trade union having advanced the amount to an individual out of work. This subsidy is paid only in respect of involuntary unemployment, including unemployment due to a breakdown of machinery or to fire in the factory. It is not granted when the unemployment is due to a strike or a lockout or to sickness or other incapacity. It is paid to persons residing in the commune participating in the scheme. The committee pays the subsidy to any organization which provides insurance against unemployment, but in practice all such organizations are trade unions. The fullest freedom is left to the associations in determining the conditions on which they will provide insurance on their own funds. They also pay to those who were forced, through unemployment, to draw on their savings—that is, they were willing to subsidize an individual and pay 60 per cent. of the amount necessary for him to draw from his savings bank because he was unemployed. The same person could not receive a subsidy on both insurance and savings. Since 1904 subsidy has also been paid on individual savings made in provident societies. The mode of operation of the fund is simple. If the individual is entitled to receive 18 cents a day from his trade union as unemployment benefit, he receives 11 cents as a 60 per cent. subsidy for every 18 cents given. The union pays, therefore, 29 cents a day to its unemployed members, and in course of time the union submits its accounts to the committee and is paid 11 cents a day for every individual for moneys advanced, and the accounts are paid monthly. It is stated that besides benefits received from the unemployment, it has improved enormously the feeling of responsibility of the trade unions to the community and the participation on the committees has been of great mutual benefit. This is practically called the Ghent method.

In 1908 there was a serious industrial depression in this city and the amount of unemployment was extraordinary, but the system stood the strain. The unemployed benefits paid during that year totaled nearly $20,000 and the supplementary grant from the municipality was a little over $9,000. The average rate of benefit per member aided has risen from $165 in 1901 to $274 in 1906 and $355 in 1912.

The effect of removing the competition of unemployed men has been to advance wages. The proportion of unemployed to total trade union members has satisfactorily declined. In 1896 and 1899, before insurance was admitted, the ratio was thirty-one per thousand; in 1913, the number of unemployed in the trade unions had fallen to sixteen and twelve per thousand.[15] The number of poor in receipt of public aid has fallen from 1,635 in 1903 to 1,358 in 1912, a reduction which, taking into account the law, amounted to a decline of 50 per cent. The number of tramps housed by the city has fallen in the same interval 24 per cent., while the number of workmen insured against unemployment has risen 100 per cent. In 1913, just before the war, there were two distinct classes of wage earners in Ghent; those who are affiliated with the various forms of insurance against unemployment, sickness, old age and accident, and those who were guaranteed against pauperism, and an inferior class who were forced to appeal to public charity in case of these disasters. The first group were steadily increasing in number and were really more numerous than the second group, although the improvident group of Ghent cost the public treasury twenty to thirty times more than the insured.

For any successful unemployment insurance it is absolutely necessary that there must be some satisfactory method devised of helping the workless man find work. In Ghent a labor exchange had been established by the Council in 1891, but it proved itself so inadequate that in 1904 it was reorganized and the employers' association and trade unions were equally represented on the governing board. Thus loyal cooperation of both parties to the labor contract was enlisted. In the first four years after its reorganization the number of positions filled at the municipal labor exchange was quadrupled. Every insured man was forced to report his unemployment at the labor exchange and naturally on failing to find work, he procured the 60 per cent. offered by the unemployment fund. The Council of Ghent was further contemplating another precaution against unemployment—that is, the foundation of the Crisis Fund. The employers were invited to subscribe a fixed annual fund on the understanding that a municipal subsidy would also be accorded. This money was to be used in helping such of their employees as might be discharged or placed on short time in a period of business depression.

Thirty towns in Belgium have followed the example of the city of Ghent, twenty in Holland, ten in France, three in Italy, and two in Switzerland, and the Ghent idea of help for self-help lies at the basis of the national scheme for insurance against unemployment recently adopted in Denmark, Norway and Great Britain. One town in Belgium, Liege, has modified slightly the Ghent idea. Liege pays its subsidy direct to a labor union, not through a committee. Moreover, it pays for unemployment due to lockout but not due to strikes. In some places the Liege idea prevails and in others the Ghent idea. The result, however, is the same.

The first application on a national scale of the Ghent idea was undertaken by the new kingdom of Norway. In 1906 a law was passed to encourage and develop the efforts toward self-insurance already in operation among the principal trade unions. Since these unions are state-wide federations, the cooperation of all the towns and communes in Norway was necessary. The statute provided that the states and the communes concerned should reimburse one fourth of all benefits paid from unemployment funds organized in accordance with certain prescriptions. Only such employment funds were to be recognized as derived at least half their resources from members' dues, and the fund must be independent of the trade union treasury and devoted exclusively to the care of unemployed members. At first there was a bitter opposition from the labor unions to having any nonunion men participate. Finally, it was agreed that the nonunion member must pay an addition of from 10 to 25 per cent. of the dues required from union members, and the original subvention of one fourth was raised to one third and nineteen of the labor

14. Gibbon, I. G.: Unemployment Insurance.

15. Coman, Katherine: Unemployment Insurance.

unions agreed to participate. Up to 1914 it was said that one nonunion man had applied for membership in an unemployment fund. As there are 75,000 unorganized laborers in Norway, the problem of the unskilled laborer still remains unsolved. The terms on which benefits may be paid are that the unemployment must be involuntary, it must not have been caused by strike or lockout or by drunkenness or bad temper. The applicant must have reported to the nearest employment agency without, however, being able to find suitable work, and he may not receive double benefits—that is, he cannot be in receipt of aid from another fund. The member must have paid dues for twenty-six weeks and his benefits are not paid him for the first three days after he has announced himself out of work, nor can he receive these benefits for more than ninety days in any one year. An average membership due of $1.90 a year covers the normal amount of unemployment with an allowance of half the daily wage. All benefits are paid in the first instance from the unemployment funds maintained by the trade unions. Four times a year the state repays to the unemployment fund one third of the money legitimately expended by them; two thirds of the money furnished by the state is later returned from the communes, each paying in proportion to the number of beneficiaries resident therein. About 20,000 men are covered by this insurance, which is about 50 per cent. of the organized labor of Norway. As unskilled labor is practically uncovered and only about one half of organized labor, this scheme has not yet reached those who need it the most. It is said that a project for revision is being discussed which may render insurance for unemployment obligatory for seasonal trades.

In Denmark, in 1907, a law was passed which offered a subsidy to recognized unemployment funds amounting to one half the premium paid the members. Communes to pay an addition of from one third to one sixth of the sums contributed by persons residing within their limits on the understanding that the state will subscribe an equivalent sum. Thus the total public subsidy might amount to two thirds or even five sixths the membership dues and surpass in generosity the Belgium municipal grants of from 50 to 60 per cent. of the benefits paid.

The advantage in Denmark of estimating the government contribution according to premiums paid in rather than benefits paid out lies in the possibility of accumulating a reserve fund in good times against the years of depression. The unemployment fund must have a distinct legal entity, and its treasury must be entirely independent of the treasury of the trade union with which it is affiliated. Six representatives of the unemployment funds, together with an inspector general, make up the Council of Unemployment, and this body settles all questions of policy. For example, it was determined that a man would not be considered entitled to unemployment benefit until he had sought and failed to obtain work outside his own trade. A member must be ready to accept any work for which he is competent and only when no suitable work is found has he a claim on the unemployment fund. There has been also established by the Labor Exchanges Act an employment bureau in every town and commune to act in cooperation with trade union agencies. Fully 60 per cent. of the industrial wage earners of Denmark are now insured—73 per cent. of the insurable women and 28 per cent. of the insurable men. The unskilled workmen and casual laborers untouched by the Norway unemployment system have been brought within the scope of the state aid in Denmark by a very effective labor organization. This was through the personality of an unskilled laborer. The membership of this unskilled laborers' union is now 39,000. The hope of adequate insurance against unemployment was the primary inducement, but the organization has also been instrumental in forcing the general advance of wages, in reducing the amount of night work and Sunday labor and securing extra pay for overtime. Each member contributes $2.75 per year to the unemployment fund connected with this union, and is entitled to a benefit of from 27 to 40 cents a day for seventy days a year for legitimate unemployment.

Within the limits prescribed by law the conditions of unemployment insurance vary with each fund, the rate of wages and trade represented, the amount of unemployment and the chances of finding work are the factors that determine the amount of dues, rate of benefit, as well as period of support. The dues vary from a minimum of $1.40 paid by the unskilled workwomen to a maximum of $7 per year paid by the workers in stucco. The daily stipend is 27 cents, 40 cents and 54 cents, according to the financial status of the fund. The period of payment runs from fifty days in the year, allowed to unskilled laborers, to 160 days allowed to printers. The total amount of benefits paid in 1912 was $454,810, of which 53.8 per cent. was contributed by the members, 31.9 per cent. by the state and 14.3 per cent. by the communes. The total aid of unemployment from all sources for a period of five years during which the act has been in operation amounted to $1,755,000.

The labor problem in France differs from that in England and America, in that France is still the land of small industries, and the problems of commercial crises do not have such an intense influence as in England and America. The problems of casual labor are not so acute. According to the last three censuses, the proportion of wage earners involuntarily out of work to total wage earners has been steadily decreasing. It was 3.1 in 1896, 2.97 in 1901 and 2.33 in 1906, and the general average for the whole country just before the war was 300,000, a figure which could be easily duplicated in New York City in 1913-1914.

Insurance against unemployment through the agency or trade unions, aided by municipal subvention, has been in use in some thirty French towns for more than a decade. The system followed is usually that described for Ghent. In 1905 the appropriation of some $22,000 was voted by parliament as against unemployment. This state grant is paid every six months into the unemployment fund maintained by the unions and reckoned according to benefits, and is not paid to the members direct. The rate of allowance varies between 20 per cent. for local organizations and 30 per cent. for varied trades, which last are organizations with a membership of at least 20,000, representing not less than three governmental departments. This preference of 10 per cent. is given because it is believed the federated trade union is better able to control its members and provide for more opportunities to work and is of more enduring nature. This state insurance has not advanced very far, and the usual private employment agencies have an exceedingly bad reputation for their honesty. It is said, however, that in the northern part of France, just previous to the war, the unemployment insurance had taken on a sudden increase in activity and that at the proceedings of the unemployment conference held in Paris, in 1910, it was evident that a great interest in this subject was aroused in France.

Germany has not as yet any direct insurance against unemployment. It has, however, a thoroughly well-organized series of labor exchanges, the object being to put the employers seeking help and the employees seeking employment into immediate communication. In 1908, it is said by Beveridge,[16] the Imperial Statistical Office in Germany received regular returns from over 600 registries and exchanges filling from 150,000 to 180,000 situations in a month. The labor office in Munich is typical, and its stated objects are to put employers and employees into communication with a view to employment and to supply as far as possible information on all questions concerning workmen and committees of employment. It has also the duty of supplying the municipal statistical office with material for statistics as to employment and the supply and demand for labor in each occupation and at various seasons. It is managed by a committee consisting of three employees elected by the employee assessors of the industrial court and three employers and the official chairman nominated by the municipality. No fees are charged either to employees or employers, the whole cost being borne by the city of Munich. The labor office is divided into three sections for the men, the unskilled, the skilled workers in iron and wood and all other skilled workers. Each group has its own waiting room. There is one room for apprentices and two for women, the industrial workers and the domestic servants. The applicants for employment go to the appropriate waiting room and fill

16. Beveridge: Unemployment, a Problem of Industry, p. 239.

out a short form of details, and the employer sends to the exchange either by telephone, by post or by his representative, or he can go himself. If a request is received by telephone, the exchange sends the workman to the employer with a card of identification which is mailed back. If an agent or the employer himself has called, this is not necessary. In the unskilled section men stay in the waiting room all day; in the skilled section there are fixed hours for each trade. The labor office appears to concern itself very little with inquiries as to the charaeter of the applicants for employment. Efforts are, of course, made to send the sort of man asked for by the employer, but in the unskilled labor it is considered the employer's place to satisfy himself of the capacity of the man he engages. The direct utility of the labor office is to prevent economic waste by employers seeking for men and men for employers. Thousands of situations are filled outside of Munich, some outside of Bavaria and some even in foreign countries from this exchange.

The Berlin exchange is the largest in Germany, filling, in 1906, all but 100,000 situations. This is a voluntary, not a municipal institution. It charges a small fee of 5 cents, in return for which the applicants get a certificate admitting them to the waiting room of the exchange for three months or until they are placed in a situation. The exchange premises are divided into two distinct buildings—one almost entirely devoted to unskilled labor—and contains a waiting hall capable of seating 1,000 men. In the other building there are a number of separate sets of offices which are sectional exchanges for separate trades. Each trade has not only its own office, but its own staff, its own committee of management representing equally the employers' and the employees' associations concerned, and they hold a very strong position amounting almost to a monopoly in the field of furnishing situations in their trades.

The Strassburg labor office has a scheme in force of augmenting from a municipal fund benefits paid by trade unions to their members. One of the conditions for the receipt of this municipal subsidy is regular registration at the labor office. Able-bodied recipients of outdoor relief are required to register daily and must accept any offer of suitable work at the current rate of wages, on pain of losing their allowances. Another point to notice is that all contractors for city works are under stringent penalties bound to engage all their men through the labor office. These exchanges are also used as a means of preventing as well as relieving distress. At Freiburg, in 1906, 34.3 per cent. of men registered were still in employment at the time of their application, the man thus losing no time between cessation of employment and a new job. No public exchange requires the enforcement of any other condition of labor, as within its functions employer and workman must make their own bargain, the exchange cannot and must not attempt to do any more than put them into communication. If the employer offers an exceptionally low wage, the exchange simply calls his attention to the fact, and any man willing to accept the offer is free to do so.

The question of whether men should be allowed, through these agencies, to take the place of others on strike or lockout has been much discussed. To supply the men is apparently to take the side of the employer against the employee, and to refuse to supply them is to take the side of the employee against the employer. The practice most approved is to register vacancies created by a dispute and to notify them to applicants for work, but in doing this to give formal notice of the dispute to the individual applicants and also by placards placed in the exchange premises. At first the trade unions strongly condemned these labor exchanges, but after a few years the trade union congress has instructed organized labor to use these exchanges. It is believed that the conversion of hostility to support of the trade unions is due to the experience of the value of exchanges in shortening for the individual workmen the average period between one job and the next, and thus for the union diminishing the period of unemployed pay and the failure of purely trade union exchanges to secure general use by employers, except in a few trades in which the men were already completely organized, also to the establishment by employers of their own exchanges in definite opposition to trade unionism. A public exchange is at any rate better from the workmen's point of view than an exchange managed deliberately with the object of maintaining a large reserve of labor or of blacklisting individual agitators. The printing trade, however, has, throughout Germany, its own organizations maintained by a joint agreement of employers and employees.

It is very generally realized that to put on the individual workman the whole burden of finding a market for his labor is to leave to isolated action a matter that should be organized. Everything except labor is bought and sold in its own mart. These labor exchanges do not solve the unemployment problem. They simplify it enormously and are indispensable to a solution.

The labor situation in England and the unemployment question became so acute that in 1909 England determined to follow the example of Germany and create a centralized and organized system of labor exchanges. The Royal Commission on Poor Laws and Relief of Distress from 1905 to 1909 unanimously recommended the establishment of such a system of labor exchanges as an essential part of any scheme dealing with the problem of unemployment. In September, 1909, the act was formally passed to this effect. In 1905, under the Unemployed Workman Act, certain labor exchanges or bureaus were already in existence, but power was given to the Board of Trade to take over these former exchanges which had become practically of little value and most of them inactive or dead. Some sixty exchanges were begun in February, 1910, and by the first of May, 1911, the number had risen to 200, and after the passage of the Compulsory Insurance Act, in 1911, the number of these exchanges had risen to 400. It is contemplated by establishing local agencies for the labor exchanges in various districts that there will be within 5 miles of any considerable body of workers an agency or an exchange to which the employee and the employer may go for the exchange of labor. The cost of these labor exchanges is borne by the national exchequer. For the purpose of administration and control, the United Kingdom is divided into eight divisions. Each of these divisions has a divisional office which forms a control center for the exchanges within its area and has a coordinating administrative authority over the whole, and there is a central office in London. All agencies and exchanges are thoroughly linked together by telephone service. A labor exchange is defined by the act as "any office or place used for the purpose of collecting or furnishing information either by the keeping of registers or otherwise respecting employers who desire to hire work people and work people who seek employment." The Board of Trade is the official body under which these exchanges act, and there are certain regulations under the National Insurance Act of 1911. Under regulation, a statement as to the existence of a strike or lockout affecting their trade may be filed at a labor exchange by associations of employers or workmen, and the officer in charge of the exchange in notifying of vacancies calls the attention of labor applicants to any statements that have been received. In 1914 there were 400 exchanges open at the end of the year. Over 2,000,000 individuals had registered and over 1,100,000 vacancies had been filled and 814,000 individuals given work thereby. The proportion of individuals given work to individuals registered was 37.5 per cent. and the proportion of vacancies filled to vacancies notified was 75.5 per cent. These labor exchanges in England were first looked on suspiciously by the labor unions, for in the previous ten years they had already distributed $20,000,000 in unemployed benefits. But in the end the trade unions have cooperated.

In 1911 the compulsory unemployment insurance was passed under the National Insurance Act against sickness. This act is compulsory for all workmen in seven trades: building, construction of works, shipbuilding, mechanical engineering, iron foundring, construction of vehicles and wood sawing. The employers and workmen each contribute 5 cents a week. The rates under 18 are 4 cents. The dues are paid through the employer and he deducts the workman's share from his wages. An amount equal to one third of the total contributions of the employers and workmen is contributed by the

government. To be able to enjoy these benefits a workman at first was required to have paid dues for twenty-six calendar weeks for the perceding five years, but in 1914 this was amended to payment of ten full contributions. Benefits are paid in an insured trade to those who have made application for unemployment benefits in the prescribed manner and who have since the date of application been continuously unemployed, who are capable of working, but incapable of obtaining suitable employment, and who have not exhausted their rights to benefits under this part of the act. A workman is not obliged to accept employment lower than that fixed by custom in his trade or locality, nor to accept work in an establishment in which there is a trade dispute. No benefits are paid during strike or lockout. If a workman has been discharged for misconduct or has voluntarily left his employment without just cause, he cannot enjoy benefit for six weeks.

Further, to prevent unemployment, one third of the contributions are refunded to those employers who keep their men regularly employed and who have paid forty-five weekly contributions during a year. Provisions are also in the law to refund contributions paid in respect of workmen working short time in times of depressed trade. Higher contributions are levied for casual employment, except that the employment of different persons on different days through a labor exchange may count as steady employment for one person. Workmen who have paid contributions for 500 weeks are entitled to the return of all contributions paid, with compound interest at 2.5 per cent. a year, when they have reached the age of 60. The Board of Trade has power to extend the provisions of the act to trades other than those specified in the original draft, and after seven years may revise the rates of contribution and prescribe different rates of contribution for different insured trades, providing no increase shall be more than 2 cents a week. The association of workmen in an insured trade may make an arrangement with the Board of Trade by which the union is repaid three fourths of the amount of benefits paid by its unemployed members, provided the total benefits paid exceed the state benefit by one third. There is also a provision for repayments of the amount of one sixth the benefits to associations which make payments to unemployed workmen, whether in an insured trade or not, provided the benefit does not exceed $4.25 per week. Any employee may obtain an annual refund of 73 cents for each workman for whom he has paid forty-five contributions or more during that insurance year. This is to encourage voluntary unemployment insurance in other than the insured trades. The benefits fixed of $1.75 per week are, of course, not sufficient for full maintenance, but do prevent destitution. These are limited to fifteen weeks in one year, and not in greater proportion than one week of benefit to five weeks of contribution, and are not paid during the first week of unemployment.

The effect of this act in England cannot be accurately estimated in comparison with the conditions of the last two or three decades. The first annual report of the Board of Trade, however, showed that the fund had expended less than was expected and had accumulated a fund of $8,000,000. Of the 1,044,000 claims for benefit, 72.1 per cent. were made directly to the Board of Trade and 27 per cent. were made through trade unions. It was further shown that this compulsory insurance had stimulated voluntary insurance of trade unions, but during the first year's operation 172 unions, with a membership of over 376,000 in uninsured trades, had made arrangements to gain the subsidy. The Board of Trade further states, in its first annual report, that its first year's experience shows among other things that compulsory state insurance is administratively practical, and that it can be introduced without destroying voluntary insurance; in fact, the amount of voluntary insurance has been enlarged under the operation of compulsory insurance. After three years the statement is further made that the experience warrants the belief that compulsory unemployment insurance administered along the lines of the British act is practical and possible.

The difference during war time in England is such that unemployment has greatly diminished. The average of the previous ten years of unemployment among the trade unions was 4.8 per cent. In 1915 the mean annual percentage of unemployment in British trade unions was 1.1 per cent. This compulsory insurance unemployment act covers between 2,250,000 and 2,500,000 workers in insured trades, but in July, 1915, there were 2,019,683 members of the trade unions under the act, which means that about 500,000 had enlisted for the war. The English labor year book for 1916, in discussing unemployment insurance, suggests that the British system falls short because it is far from universally applied; indeed at present it applies only to one sixth of the wage earners and hardly to any women. It is far from adequate, for the provision of $1.75 per week is insufficient for the proper maintenance of a family, and there is nothing to save the unemployed man from the deterioration which long unemployment almost invariably produces. It is suggested that during his periods of unemployment a manual worker should have opportunity to put in his time at self-improvement, and that he should be able to attend, free of charge, the trade schools, day technical and other classes that the local educational authorities should provide. Moreover, the amount of subsidy of one sixth of the amount paid by employee and employer is not sufficient to stimulate the trade unions to take up the unemployed benefits and, in addition, the conditions imposed by the Board of Trade requiring registration at the labor exchanges, etc., prevents some unions from coming under the clause. Attention is drawn also to the fact that under the Ghent system on the continent out-of-work pay in some trade unions is equivalent to half-pay of the worker.

In comparing the different forms of unemployment insurance, it can be said that in general the voluntary unemployment funds are hampered by the fact that only a comparatively small number of workmen join them. It is also said that the results of the Ghent system must in general be designated as slight. Its purpose, "training in self-help," has been fulfilled almost nowhere, either in the sense that the trade unions have received a greater influx of members because of the subsidies, or that they have introduced unemployment benefits. Only this has been attained—the benefits given by these unions have been increased. However, those who have received them constitute a comparatively small portion of the unemployed, even where, as in Denmark, the organization of workmen was far advanced before the introduction of the subsidy system. In Belgium, however, in the mother country of the system, comparatively few workmen reap its benefits. It is true that the organization movement has forged ahead in Germany much farther than in Belgium or in France, and that unemployment benefit has attained a much greater development there than in other countries. Yet it has thus far been impossible to determine any effect on the strength of organization, and on the development of unemployment insurance in the cities which have introduced the Ghent system. The light financial burdens which according to the tables, are necessitated by the Ghent system—in nine German cities for which we know at least the amount of the annual grants have added up to a little more than $10,000—have aided its adoption greatly, but have at the same time contributed to decreasing its efficiency in the campaign against the consequences of unemployment. Hence, its ardent champions have become convinced that at least a partial compulsory insurance system should be instituted.

It is, therefore, seen in unemployment insurance, as in sickness, health, accident insurance and care of old age, the voluntary and the subsidized methods do not reach the results desired and that some form of compulsion is necessary to bring about the universal application and the full benefits of these social insurance laws.

The Social Insurance Committee of the American Medical Association has made, during the past three years, three extensive reports to the House of Delegates which contain, it is believed, the essential information on which definite conclusions may be drawn as to the value of the various kinds of social insurance which have been designed to protect and help the wage worker from the injurious effects of the hazards of ordinary life. The origin of these laws is of no consequence. Whether we consider that they are the devel-

opment of the ancient relief societies going back among the Austrian miners as early as 1280; whether they are the development of the guilds of the middle ages in the various countries; whether it all arose as a conception of Bismarck's in Germany, thirty years ago, being used by that statesman in his endeavor to counteract the growing spirit of socialism; whether they are the expression of economic laws developing through the organized collective sense of various peoples; or whether they are an expression of a developing strong centralized state power.

With us in the United States, whatever may be their origin or development, they are bound to be modified and presented in different forms by the forty-eight state governments of this Union, and, in the end, be a compromise between federal statutes and statutes in the various states. In the great industrial development of the last century, Germany was the first one to grasp the significance and necessity of these social insurance laws, and from that country they have spread in various modified forms throughout the civilized world. The United States is the last great civilized and industrial nation to begin to put them in force. It is a noticeable feature that when any country has once taken them up or taken one form of social insurance up, these laws have invariably extended and the adoption of one form after another has followed. The failure of one little Swiss town, St. Gall, to continue compulsory unemployment insurance, and the rejection of the first compulsory accident and sickness law by the Swiss Federation have been the only two exceptions to the above statement.

Although, in Germany, the element of compulsion has from the beginning been a pronounced feature of their social insurance laws, it is an interesting study to see in other countries the development of voluntary insurance which has proved inadequate, then voluntary insurance subsidized by the state, which, although more successful, was still inadequate, and, finally, in the same country, the full compulsory insurance in order to reach universality of application and the full development of protection to those whom these laws were designed to protect. This development has been especially true in the matters of accident and health insurance. The hazards of life that social insurance has been designed to cover are accident, sickness, motherhood, chronic invalidity, old age, premature death and unemployment and provision for widows and orphans. Only England and Germany possess nearly a complete system of social insurance—a curious contrast as representing one of the most democratic and one of the most autocratic governments in the world today.

In other countries the social insurance which exists shows an irregular intensity of development in each country, whether it is because the need of each separate form is different in each country or because the technical difficulties are smaller in one form of insurance than in another. Industrial accident insurance represents the best developed branch and, as Rubinow points out, in the order of their development the other branches may be placed thus—sickness insurance, maternity insurance, old age insurance, mothers and widows' pensions, and unemployment. The development of this whole movement is so strong, so well defined and universal, that it cannot be explained as arising from any peculiar racial or national psychology or peculiar political conditions of any country. It is seen in its highest development, as has already been said, in the most democratic and the most autocratic countries today. It is rapidly developing under other monarchical, constitutional and republican governments. Peoples of Teutonic, Latin, Anglo-Saxon and Slavic ideals have taken up and developed these ideas of social insurance, and the older races of Europe — Servian, Roumanian and Hungarian—have equally adopted and developed their own modifications.

Social Insurance in the United States

Regarding social insurance as a whole, this country is still in the stage of investigation, but the rapidity with which, after a few years—less than a decade—protection against industrial accident was taken up and adopted, shows clearly that when the idea is once understood and grasped how rapidly it appeals to all nationalities, although a few years ago the accident insurance was condemned as un-American and the same adjective is being used against the other forms of social insurance today as they are discussed. It has been a noticeable feature that all official investigations in this country have led to the approval of at least the basic principle in the movement for social insurance. There is no question that the enormous modern industrial development has increased the hazards of the wage earner and has increased also the dependence of a large part of the population on their own physical well-being and working capacity. This country, today, still possesses the strongest development of individualism, but so great has been the collective development of industry and so strong the collective development of industry, and so strong the collective development of labor, that the collective protection of the individual against a universal hazard has found ready and vigorous support. Besides all that, the last few decades have shown an enormously increased development of a strong social and ethic sense of the spirit of solidarity, which sees in the abstract the justice of the endeavor to use collective protection in preference to the older idea of relying for protection on the unaided powers of the individual. Whether poverty and destitution are on the increase in modern society is a difficult problem to solve and somewhat beyond the point. It is a fact that cannot be disputed that there is a very widespread and strong determination on the part of modern organized society to prevent, or at least to remedy, existing poverty and destitution as altogether unnecessary in modern possibilities of production. It is difficult to find any scientific reason for the support of the view that this world-wide effort is altogether unnecessary or impossible in this country. The higher working capacity of the working masses of the United States, as compared with many European countries, is recognized though often exaggerated, but it is practically neutralized by a higher standard of prices and also a higher standard of living, which presses on the earnings as closely as in other countries. In any case, the fact that a very large portion of our working population only earns the necessary amount for a decent existence, and in many cases the earnings are below the physiologic minimum for the support of the family, has been repeatedly established by numerous investigations. The increasing activity of numerous charitable agencies—public and private—is sufficient evidence that wage conditions alone in this country are unable to cope with the grave problem of destitution. It must not be forgotten that all insurance, whether private or social, is based on recognition of the fact that over and above the demands of a normal standard of living there are the demands of exceptional hazards and emergencies which cannot be met individually and must be met in a collective way, which is the underlying principle of insurance.

Effect of Social Insurance Laws

Let us see, then, what has been the effect of these social insurance laws in the countries where they are well developed, and the effect on the medical profession where these laws have been actively in force.

Comments by Prof. Walter Ewald, in his book on "Social Medicine," are of peculiar interest to the medical profession, as Professor Ewald is a physician and public health officer and also a lecturer on social medicine in the Frankfort Academy for Social and Commercial Sciences. In the second volume of his work not only is there a careful description and discussion of all forms of social insurance, but there is also a critical study of the general principles and details of the German social insurance legislation and also of the results of such legislation. Ewald begins with the following significant statement:

> German social legislation, which has grown throughout decades from a very small beginning to the present size and complexity, is a truly monumental work of inestimable value for the welfare and health of the people. When one studies the present-day services of this social legislation, one must arrive at the conclusion that we are dealing with a work which until very recently has given the German people a tremendous advantage over all other countries in the field of social care and protection of the workers against the hazards and sickness of their occupations. He further says, The German Empire from the very beginning selected the compulsory principle and has proven that in this way social insurance can be made successful. Opposed to this so-called

Germanic principle is the Latin principle of voluntary insurance as the basis for social legislation. At the last International Congress for Workmen's Social Insurance held in Rome, in 1908, the splendid results of obligatory insurance and the failure of the Latin principle were universally admitted. Unquestionably, optional insurance is ethically higher. Were it practicable, it would be more valuable than compulsory insurance, but optional legislation cannot furnish what compulsory insurance has done.

He concludes as follows:

The German system of social insurance is an enormous structure which deserves our fullest admiration, since insurance furnishes the implements of warfare against sickness, accidents and crime. If public health in Germany during the last thirty years has made remarkable progress out of proportion to progress in general economic conditions of the people but far beyond that, credit is entirely due for this to the system of social insurance which not only relieves its beneficiaries of the anxiety and worry caused by sickness, but even prevents such anxiety from arising.

Ewald in considering the results in Germany of these social insurance laws states that:

In viewing the results of German workingman's insurance, it is impossible to escape the feeling that we are dealing here with a social institution of the very first order. The German people are under very great obligations to their institutions for insurance of workingmen, for social insurance has saved innumerable lives, protected large numbers from becoming cripples or invalids, preserved or reestablished the working capacity and protected them from misfortune and need. It has led toward the prevention of disease and has stimulated a nation-wide struggle against tuberculosis and other social diseases. In one branch of insurance it has already extended protection to the coming generation and will also extend it in other branches in the near future. The individual has been granted his right and the social organism has been rendered an inestimable service.

So much has been said about the harmful effects of malingering, traumatic neurosis, etc., resulting from social insurance on the psychology of the German people, that it is interesting to know that Professor Ewald insists that these dangers are very greatly exaggerated, that in the field of sickness or health insurance simulation is scarcely observed and that suspicion is much stronger in the case of the voluntary members of the German system. Malingering is more frequently in the field of compensation, for in invalidity insurance the benefits are so slight there is very little opportunity to benefit by any malingering or exaggeration of disability. The simulation of disease, he says, has already existed wherever a grant of any benefit or the relief from any duty was made contingent on the presence of disease. The phenomenon of this nature followed compulsory military service, but no one issued this as an argument against such service. It was to be expected that social insurance should also develop a certain amount of simulation. Professor Ewald does not hesitate to criticize any detail of these laws, especially as to their effect on the medical profession, as we shall see later. He is not a universal eulogist.

W. H. Dawson, in presenting his book on "Social Insurance in Germany" to the English public, says in his preface:

No one who has followed the development of the German social insurance systems and who knows the immense educative influence which they have exerted upon the working classes can doubt or wonder that it is the preventive work of the insurance organizations, as applied alike to disease and accident, which most appeals to the imagination, sympathy and confidence of those in whose interest these laws have been passed. For, after all, in Germany, as here and elsewhere, what the self-reliant workman values more highly than distress benefits is a fair and full use of his faculties. What he wants is not sickness pay, but a healthy life; not accident compensation, but sound limbs and unimpaired energies; not infirmity pensions, but the opportunity and the power to follow as long as possible the employment of his choice. Hence in their aggressive campaign against disease and their constant endeavor to lessen the risks to limb and life in industrial occupations, the insurance authorities have from the first been conscious of the goodwill of the working classes, and have from no quarter received greater encouragement and praise than from the recognized leaders of organized labor. The wider effects and influence of social insurance have never, perhaps, been stated with greater clearness and force than in the following words of that keen economic thinker and philosopher, the late Dr. Albert von Schäffle: "The supreme aim of statesmanship is not the wealth and efficiency of the few, but the greatest physical, material and moral force of the entire community, by which a nation maintains its position in the struggle for existence. From this standpoint everything that makes the masses of the population secure against need, and therefore on the lowest plane contented, that strengthens a people by its own cooperative effort, that creates social peace and prevents violent agitation, that transforms the spirit of mendicancy into a consciousness of State-directed, collective self-help, and that raises the entire moral and political level of the lower classes, is of incalculable worth. And all this is done by the system of obligatory self-insurance against want and distress."

The president of a large association of employers in the iron and steel industry states that:

According to our observation the employers willingly bear the costs which the insurance laws impose on them, and it is doubtful whether a single employer would wish to be without these laws so far as the cost is concerned. The laws pay employers from their own standpoint, since they, too, are given a greater feeling of security. They are free from moral and physical burdens which the individual would not be able to bear, and they are protected against the constant disputes with exacting claimants. The best proof that the expense cost to employers by the compulsory insurance laws is borne most willingly is furnished by the fact that so many firms in addition carry on voluntary welfare institutions in behalf of their employees.

A certain amount of dissatisfaction is sometimes felt by employers on the ground that the insurance laws are believed to be to some extent abused. These statements are often made more strongly in conversations than in written testimonials, and it is said that the laws have been accompanied by one petty drawback—an increase of querulousness and of simulation on the part of the injured and sick; but these abuses are acknowledged to be negligible when compared with the great advantages of the laws.

It is idle to pretend that attempts are not made, and often made successfully, to obtain benefits improperly. But in discussing these, it is said that while there is a tendency to create in those who are not fond of work a diseased craving for pensions, wherever possible for life, on account of trivial disablement. This is called pension hysteria and is a characteristic of the accident insurance system to which medical men have emphatically called attention. Phenomena of this kind naturally reduce somewhat the value of the insurance systems for the improvement of the national health and strength; yet, in spite of all, the advantages of these systems are so great that the disadvantages alluded to, while it is necessary to combat them, cannot be mentioned in comparison.

Another statement that the standard of life of the workers has been raised by the insurance laws admits of no doubts whatever. On the other hand the sense of responsibility has been weakened owing to the fact that these laws have relieved the workers of anxiety and will do so in a greater degree when the projected insurance to widows and orphans is introduced. Another employer says that the assurance that the law will provide for all the vicissitudes which may befall them and will intervene under all circumstances in case of need weakens the feeling of responsibility in many workers, and this he regards as the most serious defect of these laws. On the other hand, it is certainly significant that many German authorities on the insurance laws, on long observation of their operation and influence, have come to the conclusion that it has encouraged, not discouraged, thrift, and, in general, have proved educative and morally stimulative to a marked degree. The following editorial appeared in a labor newspaper in November, 1908:

The serious objection is made against the insurance legislation that it has destroyed the workman's consciousness of responsibility. It is contended that the workman is so well provided for by insurance that he no longer feels under any necessity to care for the future. This complaint is unfounded. In the first place, it must be pointed out that the insurance benefits supply but a fraction of what a working class family needs in time of sickness. To the extent that this is the case, providence is actually impossible except in isolated cases. In many reactionary circles, however, spectres are seen everywhere, though none exist. Here and there the idea seems to prevail that the workman's strength should be strained to the utmost by exposing him and those dependent on him to abject want directly his health gives way. But a contented and efficient working class will never be created by any such means. Experienced teaches every day that the workman is happiest in his work and brings the greatest interest to the welfare of the community when he has the tranquillizing thought that he has a certain security even in bad times. The contention that his feeling of responsibility is disappearing is absolutely unfounded. Rather the contrary is true.

The attitude of the German working classes toward these laws is unquestioned—a complete change since the earliest of these laws was passed. The Socialists were among those who voted against it; the Socialist party also criticized severely the first old age and invalidity law, but when the law was amended ten years later, the voting in its favor was almost unanimous. Since then the labor party in the Reichstag has warmly supported any development of the social insurance legislation, although often disagreeing with

the parties in power in matters of both principle and detail. It is safe to say that of all the laws passed in the interest of labor since the laws were established, the insurance laws are the most valued of the working class and this holds good particularly of the sickness and invalidity insurance laws. Dawson goes on to say that not only so, but the German workman bears the cost of insurance, heavy though it is when compared with that which will fall on the working classes of England under the National Insurance Act, with marked willingness, and looks on the weekly deduction of his high contributions as perfectly equitable and self-evident. What makes the German workman specially attached to the laws is the knowledge that the benefits which they confer are, in virtue of his large contributions, a right and not a benefaction.

One employer is quoted as saying that it cannot be said that the insurance laws have created a more contented working class. That the work people themselves are contented is not maintained. Even with the benefits under the insurance laws greater than they are and granted at the employer's expense, there would be no permanent satisfaction of the work people's wishes; but the reason for this lies in human nature and not in the laws.

All these quotations would seem to show that the laws have accomplished what they were designed to do. But they have not accomplished results for which they are often held responsible and for which they were never designed. That is, these laws have been designed especially to relieve the distress and strains of want when the income of the family ceased, through accident or sickness to the wage earners, or when the income of the wage earners of the family ceased through invalidism or old age. These laws were not designed to cure pauperism, nor were they designed as a cure of poverty. They were designed to prevent poverty changing into destitution through the hazards of accident, sickness and old age, and this, in Germany, they seem to have done.. There seems to be a difference of opinion in Germany, as elsewhere, as to whether or not, if by one's own efforts one can, by small investments, make secure one's existence against the results of these hazards and against the results of sudden and persistent unemployment, one thereby weakens the moral fiber and weakens the energy of the wage earner. Does worry and the fear of want, does the never haunting spectre of destitution increase the moral courage and the mental vigor of the wage earners who live on such small wages that their existence is one of from hand to mouth?

The point of view that destitution and the necessity of an appeal to charity are necessary for the spiritual and moral development of the working classes and that the poor should be kept poor that the well-to-do may develop spiritually by the giving of charities, are not doctrines that are founded on scientific basis or that appeal to ordinary vigorous common sense. These laws are not designed in Germany or anywhere to cure pauperism beyond the endeavor to keep poverty from turning into destitution and from discouragement and hopelessness changing into pauperism, for we must clearly differentiate, in studying these laws, the difference between poverty, destitution and pauperism.

PAUPERISM, POVERTY AND DESTITUTION

Pauperism must be clearly differentiated from poverty, that larger and more important problem which presents many aspects which may be wholly unfamiliar to those who know only pauperism; some of those aspects face toward economic reform, others toward health, housing or the administration of justice. Poverty is really an economic maladjustment in which the economic environment has so overwhelmed the individual that he is unable to rise out of it. Sickness, malnutrition and the resulting discouragement often turn poverty into pauperism, for, psychologically, pauperism is poverty plus a mental attitude in which are mingled discouragement, lack of ambition and imagination, thriftlessness, irresponsibility, passive resignation to a parasitic relation to society, often the result and expression of feeblemindedness.[17]

17. Devine, E. T.: Pauperism, An Analysis. N. Y. School of Philanthropy Studies in Social Work, Nov. 9, 1916.

Destitution is when the economic wants produced by poverty become so severe that families must face starvation or turn to charity in order to live. Social insurance laws are designed to relieve the economic environment of the working classes that the ordinary hazards and emergencies of everyday life may not overwhelm them in their economic struggle, and while they may not prevent the calamity, they do protect against its effect. They have, in Germany and elsewhere, prevented poverty from turning to destitution, but feeblemindedness and degeneracy produced by alcoholism and the misfortunes of the weak and inefficient they have not prevented, nor do they protect against the consequences from these defects in human nature nor are these laws so designed to do. Many criticisms are expressed in this country that because they have not cured and prevented pauperism and poverty these laws have failed in other countries.

In England one may see more clearly the effect of a compulsory insurance law put into force. In Germany a generation has passed by since these laws were first promulgated, and one can well see in that country the effect of a generation of these laws in abolishing the slums and excessive mass of destitution that was present in England in the latter part of the last century. Although the laws in England have been in vogue but six years and during three of those years the nation has been under the stress of a terrific war, during which unemployment has practically ceased to exist, however, it is still possible to judge somewhat of the effect produced on the economic condition of the working people. One very noticeable feature of the effect of the English law was the enormous amount of unsuspected sickness that it brought to light, especially among the women. These women had been unable to stop their work and properly care for themselves, but had to drag on half sick, struggling on with their work. Physicians working among them were surprised at the amount of real illness which came to light when these people, by right and not by favor, could go to a physician and ask for proper care.

Under the present industrial organization we have shown, under unemployment insurance, that unemployment is one of the most frequent causes of continued poverty and destitution. How the unemployment insurance can relieve poverty and, together with the sickness insurance, relieve the hazard of cessation of income, can be shown in a certain measure by the effect of the English insurance law in its relationship to the working of the English Poor Law. It is difficult, however, to unravel the two effects, because the two years previous to the war in England were years of exceptional prosperity and unemployment had not been at so low a figure for twenty years. Since, therefore, there were fewer people in need of assistance, it is very difficult to disentangle the era of prosperity from the effects of the Insurance Act. The Insurance Act, moreover, touches the Poor Law only where the Poor Law touches the sick wage earner. In Manchester, a large cotton center, the actual number of payments of the Poor Law aid, outside of the workhouse, have decreased 30 per cent. The total number paid had decreased 25 per cent. in 1913, as compared with the previous year. Among the Liverpool dock laborers, who are wretchedly paid, it is estimated that in half of these cases which received the sickness benefit under the Act the families would have been broken up and relief under the Poor Law workhouse sought, if it had not been for the benefits of the Insurance Act. The figures for all England and Wales show that the application for relief on account of sickness or accident outside of the workhouse have decreased nearly 15 per cent. in January, 1914, as compared with the previous year. The cash sick benefits, therefore, had a very real effect in reducing the claims for Poor Law aid.

MATERNITY BENEFIT

The maternity benefit of $7.50, payable to the wife of each insured workman has had an even more marked effect. In the Poor Law Unions of London, the orders of attendance for midwives had decreased 60 per cent. in 1913 as compared with 1911. The London Poor Law Union shows a diminution of 20 per cent. in the calls for the parish doctor in the year 1913 as compared with the year 1911. The Poor Law

can thus be said to be relieved by the Insurance Act. This, however, was in the case of the wage earners who are least affected by the Insurance Act, for most of the classes that are affected by the Poor Law are not those insured. Under the Charity Organization Society the guilds of help touch a different stratum of the working population and one which is more largely insured. It is found in this group that in some cases the money from the Insurance Act was only adequate to meet the needs of the families. The Bradford Guild of Help found the per capita amount paid out in 1913, as compared with 1912, was nearly one third less, so that the Insurance Act definitely reduced not only the number of cases but the amount of final aid necessary.[18]

Another reaction is interesting, that some families who formerly resorted to the Poor Law now applied to the voluntary organizations, because with a sick cash benefit they are able to get along to a certain extent where previously they could not get along at all, and also they are applying for aid during convalescence. This increase, according to Miss Halsey, is attributable both to the ability of the insured to pay in part for this hitherto impossible luxury and to the increased medical attention now received by the industrial workers. It is further said that the increased number of operations, the pressure on hospital wards, the doctors' encouragement of a period of rest and recuperation are the undoubted causes of expansion in this field of charitable work. Where the Act is increasing work, it means that the Act has brought a new standard of treating sick persons, even though they may need some charitable assistance. Although these British hospitals are not legally a part of this Insurance system, they are very closely affected by the Insurance Act. The first, and one of the most important changes, has been the decrease in the number of outpatients. That decrease has come about because about one quarter of the outpatients are insured persons. These insured persons when they come with something which their panel doctor is able to care for, are referred to the panel doctor, and in the large London hospitals this decrease amounts to about 2 per cent. That the decrease is not greater is due to the use of the specialties—that is, the Roentgen ray and the departments for ear, eye and throat, this being work which the general practitioner cannot handle. The increased use of special departments is definitely stated as being due to the more general use of physicians by a large part of the population, many of whom have not been able to afford this luxury. In the London Hospital, the largest hospital in London, the increased number of patients who come with letters from their doctors amounts to about 50 per cent. A far larger proportion of insured persons come with letters than of the noninsured, due to the fact that the panel physicians found that the insured needed hospital treatment which they were unable to give. Moreover, it was noticed that an increased number of patients was admitted to the hospital wards from the outpatient department, showing also that a larger number of out-patients than was supposed were very seriously ill.

Another phenomenon noticed is the reaction of the maternity benefit on maternity work of hospitals. As a result of the mother's increased ability to pay for assistance, the outpatients in the maternity departments of the general hospitals in London decreased some 13 per cent. in 1913 as compared with 1912. In the maternity hospitals themselves a similar decrease of in-patients occurred, while the out-patients decreased 31 per cent. It is evident, therefore, that the Insurance Act, with its benefits of medical aid, sickness and maternity benefits in cash, has reduced the amount of charitable assistance necessary to the wage earners in England and is also serving to increase the standard of medical care given to the wage worker.

It is evident from the above figures that the economic position of the wage workers in England has been improved by the Insurance Act. This is definitely seen in the reduction of the Poor Law relief and also in the reduction of charitable medical services, as seen under the effect of maternity benefit. The workers are evidently able and willing to pay for services under this insurance law with its cash benefits for which they formerly were forced to seek in charity. It is evident, therefore, that under these insurance laws economic conditions for which they formerly were unable to provide can be taken as routine hazards. There is no question, also, from the above figures, that improved medical care has been given to the wage earners and that with improved medical care there must necessarily be improved health and an improved economic welfare. That this is so is very evident from the following personal communication from James Neal, Deputy Medical Secretary of the British Medical Association, to the Chairman of the Social Insurance Committee:

> Speaking generally, I should say that the insurance scheme has effected an improvement in the economic condition of some of the people it was designed to benefit in that many—and this especially refers to women workers—who previously could not afford medical advice and treatment now have it provided for them, and who even if formerly able to obtain medical advice were frequently prevented from following it as they could not afford to stay away from work, whereas now they are assured of a certain sum (sickness benefit) per week which enables them to take advantage of the medical advice given them. The question as to whether or not the insured population is satisfied with the medical care provided under the Insurance Scheme is a little difficult to answer definitely. Generally, however, I should say that they are satisfied, so far as it goes. There is an undoubted feeling on the part of insured persons that the scope of medical benefit should be extended. So far it is limited to those matters falling within the competence of a medical practitioner of ordinary skill. This limitation is, of course, purely a matter of finance, as at present there is no money to pay for operations and specialist services, though had it not been for the war it is believed a move would have been made in that direction.

OLD AGE PENSIONS

It has already been pointed out in discussing the old age pensions in Denmark that at times the important effect of some social insurance laws, such as the old age pension given in Denmark in 1891, was to cause a diminution immediately of the amount of poor relief necessary, and for five years, up until 1896, this expectation was fully realized. Since then, however, in Denmark, the expenditure for poor relief has steadily increased. This is probably due because new standards are formed when once the standard of absolute destitution is passed, and in the beginning most of the insurance pensions given abroad have been only enough to prevent starvation and keep body and soul together. They have not been enough really to live on. Doubtless as the years have passed, public opinion has realized—and the state has acted accordingly—that if anything was to be done there should be sufficient given to enable a person to live and not deteriorate under the stipend given. This has been done probably by the state increasing its relief rather than guaranteeing to furnish an increase of pension. Whether or not the social insurance laws can be said successfully to reduce permanently poor relief is a very difficult question to answer. The immediate results in England and Denmark were that it was. In a very comprehensive investigation in Germany, twice by the German union for care of the poor in 1895 and 1901 and again under the German Imperial Statistical Office in 1894, this question was very carefully studied. The results obtained from their investigation were not sufficiently conclusive one way or the other. In some communities it seemed evident that the care of the poor had been relieved by workmen's insurance and in other communities no such effect could be seen. The truth probably lies in the fact that no system of poor relief has ever actually met the full need of what was required of it. Until a clear cut differentiation can be made between poverty and pauperism—the first relievable, the latter not—the question will remain unanswered. The state must care for its pauperism by other means than insurance. It is evident, in England, that the first reaction of the insurance law was distinctly and clearly to relieve sickness and poverty. Both can be relieved and the effects of both can be controlled by social insurance laws.

LABOR EXCHANGES

The effect on unemployment and labor of the British system of labor exchanges can be seen in a small degree. The Insurance Act forced the payment of the benefits of unemployment through the labor exchanges, making the exchange

18. Halsey, Olga S.: The Reaction of the British Health Insurance on Existing Charities. Proceedings of the New York Conference on Hospital Service, 3, 1916.

the corner stone of the edifice, for no payment is payable unless proof exists that the claimant is desirous of working, if work of a suitable character can be found for him. This means an obligatory use of the labor exchange, for it is the only possible test of willingness to work that can be sanctioned by the state.[19]

One very important factor of these labor exchanges has been the decasualization of labor. It was found in the harbor cities of London and Liverpool and in many manufacturing centers that the normal margin of unemployed labor consisted of men who never worked more than a few days at a time, earning wages that sometimes were fairly good as reckoned by the hour, but insufficient to maintain themselves and their families in health. By recruiting this labor at a central labor exchange instead of at the door of each employer, the total volume of available work was distributed in such a way as to give regular or nearly regular employment to the previously casual worker. Of course, some by this method went entirely without work, but they were the most unfit and practically drifted out of the field and were practically those who were suffering from unemployment and disability to work. The cloth porters of Manchester and cotton porters of Liverpool were treated in the same way so that through the labor exchange these men obtained steady employment for several employers each week, instead of wastefully wandering round and losing jobs which they might have had through ignorance of where to go.

Another feature of the scheme was the payment of advances of wages to men who were not accustomed to waiting for the weekly pay day by sums deposited in a clearing house for this purpose by employers at the beginning of each week. A diminution of the seasonal effect has also been brought about through the exchanges by arranging with big corporations to save some of their work that could be done on optional time for the slack seasons and arranging with the supplying of labor to the fruit and hop pickers.

The exchanges also have proved of great value in organizing the female labor market during the war. The increase in female labor in some of the exchanges has amounted in 1914 to 60 per cent., in 1915 to an increase of 89 per cent; in the month of January, 1916, the increase of women working was 131 per cent. over 1915 for that month, and the men diminished 41.2 per cent.

Another effect of the labor exchange has been to steady the work of the boys and girls beginning work by keeping those who show an aptitude steadily on the job and helping those who do not show aptitude in their given work to other positions.

The employers appreciate greatly this new method of marketing labor for they have been able, through the exchanges, in the north of England, to obtain workers from the south of England without delay. The writer concludes that the labor exchange has fully proved itself as a useful instrument of the highest value. It has brought thinking persons, both of the employing and working classes, to a fuller realization of the many misfits, hardships, physical and mental breakdowns which could be avoided by a more careful selection of employees on the one hand and positions on the other. It has provided the nation with reliable data on the state of employment comparable for different times, different trades and different localities on a sufficient scale to permit of safe deductions. It has helped the scientific analyses of the problem of unemployment and thereby brought appreciably nearer its final solution. The British system of labor exchanges has slightly yet distinctly reduced unemployment.

State Compensation Laws Compared

What is the situation in this country at present? We have in thirty-eight states of the Union workmen's compensation laws designed theoretically to protect the wage earners against the effect of industrial accidents. With these laws there has been a change of legal conception regarding injury. The old Anglo-Saxon idea that proof must be brought forward to show where the fault for the accident lay before compensation could be given to the person injured has been changed to a conception that not because of fault should the injury be recompensed but because of the injury, and the industrial development of the country has finally come to realize the fact that human injury, disability and death should be charged to the industry that produces this wastage. The Social Insurance Committee has undertaken, through Dr. Rubinow, a comparative study of these compensation laws in the various states. This study is now in print. From a careful reading of these laws as at present administered it is very evident they are designed chiefly to protect the employer against suits for damages, to give the casualty insurance companies a generous profit. They are designed to give a more speedy return for damages than formerly, to undertake the responsibility of permanent disability by money recompense, and they are designed to do this at just as low a cost to the employer and insurance company as it is possible to do. This would be just and fair provided adequate care were given to the injured and a fair recompense and just dealing were given to the surgeon. In many of these laws only a pretense of adequate care or justice to the surgeons exists. The injustice of these laws has done more than anything else to array the medical profession against all social insurance legislation.

The laws in most states give a certain arbitrary amount of care and expense. It throws all the rest of responsibility on the injured workman where it is unjust that it should be placed, and it throws the really adequate care of serious injury on to the charity of the medical profession, which is equally unjust.

In Rubinow's standard accident table (considering only those accidents which caused disability on some other day besides the day of accident) out of every 100,000 cases it is shown that the period of temporary total disability has not expired:

After 7 days in	62,504
After 14 days in	38,218
After 21 days in	25,692
After 28 days in	18,479
After 56 days in	6,043
After 91 days in	2,204

Taking some of the states, therefore, such as Texas for example, where the time limit that care can be given to the injured is seven days; nearly two thirds of the accidents are still disabled when the employer's or carrier's responsibility for the care ceases. Rhode Island, Iowa, Louisiana, Vermont, Montana, New Jersey, Hawaii, Maine and Pennsylvania cease to care for their injured after fourteen days, which leaves over one third still to be cared for and, as a matter of fact, nearly two fifths. Moreover, in these states, Montana, New Jersey, Hawaii, Maine and Pennsylvania allow for the entire care of $50 in the first three, $30 in Maine and $25 worth of medical and surgical care in Pennsylvania. The shortness of the time in which recovery must take place is only equalled by the parsimony of the amount allowed for the medical treatment, for the care of the seriously injured. Alaska, Washington and Wyoming make no provision at all for medical care. Arizona, Kansas and New Hampshire give no medical aid, except the cost of the last sickness. If they are sure the man is going to die, they are willing to give some medical and surgical aid. Here, there is no appreciation of the value of recovery of economic efficiency or of the value of the laborer to the community.

At the other extreme, no time limit is set in the Canal Zone, under the United States service, Connecticut, California, Massachusetts, Oregon, West Virginia, Ohio and Maryland, and no money limit is put in the first five named. Oregon and West Virginia, Ohio and Maryland limit the amount from $300 to $150. Other states give a time limit of care, such as Nevada, 120 days; Wisconsin, Minnesota and Kentucky, 90 days; New York 60 days; Porto Rico and Illinois, 56 days; Indiana and Colorado, 30 days, and Michigan and Nebraska, 21 days, and vary their money limit from none to between $100 and $200. When the limit of care is kept up for eight weeks, or sixty days, the number of accidents left uncared for is very much smaller, and after thirteen weeks have expired—which is the limit of care under accident laws in Germany—only about 2 per cent. remain.

19. British System of Labor Exchanges, Bulletin United States Bureau of Labor Statistics, No. 206.

The cost of medical aid in these cases is interesting and the experience of Ohio will best bring it out. Ohio has no time limit for its medical benefits and the money benefits are set at $200. Only 1.2 per cent. of the cases cost Ohio for medical aid over $50 during the period of March 12 to September 15, and although during a later period there seems to be a rise in cost of medical aid, the proportionate cost did not rise above 2 per cent. The tables in the Ohio report show that if the medical benefit granted is unlimited in time, only four cases out of a thousand will be affected by the money limit of $100, only two out of a thousand by a limit of $150, as in Maryland; and only one in a thousand by a limit of $200.

Great stress is laid in certain publications on the amount of medical fees received under these compensation laws. As a matter of fact, in the early days of the laws the ratio of medical fees which become immediately due were calculated to the amount paid out of immediate insurance, leaving out all ratio of outstanding insurance and disregarding also the ratio in proportion of wage expenditure. That is, all compensation insurance charges are calculated in proportion to the pay roll exposed. For instance, the Massachusetts figures, in the first group given, cover a wage expenditure of some $505,000,000 and for the second period some $395,000,000, making a total of $900,000,000 on perhaps 1,800,000 annual workers. Expressed in this proportion to the payroll exposed, the cost for the first period was 7½ cents per $100 of wages, and during the second period 9½ cents, and for the entire period about 8½ cents, or on an average wage of $600, 51 cents per worker. A very large body of experience of the most important casualty companies seems to indicate that as against the Massachusetts cost of 8½ cents per $100 of wages, the cost in Michigan was 10.8 cents and in Illinois 13 cents and in New Jersey only 6.4 cents. This does not support the much talked of medical graft of the subject.

Compensation for Physician's Service

There is no question that these laws have brought out the fact that the payment of injury, according to fee bills, is neither just to the injured one nor to the medical profession. You cannot gage injury or medical care to the seriously injured individual on the law of averages and bring justice either to the injured or to the physician. At present the method of paying for medical compensation puts a premium on careless medical work and does not put a premium on the best work. There is no question that in the near future some new method of compensation must be devised by which the relative amount of economic efficiency retained by the worker shall be one basis of payment and the rapidity with which the patient goes back to work shall be another consideration, and injuries shall also be considered in ratio to the severity of injury and the condition of their infections.

This is not a purely theoretical consideration, but is possible of attainment, and a committee of the Medical Society of the state of New York has already been appointed for taking this under serious consideration. This subject, together with a discussion of the necessity of free choice by the patient of a physician, is fully discussed in the report by Dr. Rubinow to which those wishing further information are referred.

Voluntary Welfare Work

A very noticeable feature in this country is the enormous increase of voluntary welfare work among the big industrial establishments by which they are endeavoring to improve the social and economic condition of their wage earners. Among many establishments there have been formed establishment funds which take up the question of insurance, of accident sickness and even old age and retirement pensions, among their individual employees. Some of these are on the mutual benefit plan by which employees permit a certain deduction from their wages which gives them a beneficiary right to the advantages obtained, while others have certain benefits given outright by the employers. The pension funds of some of the big railroad companies are on a noncontributing basis of the employees. They are purely and simply the rewards given by the employer for services well done.

Unemployment

We have shown under the statistics of unemployment tremendous fluctuating employment in this country and the tremendous fluctuations of seasonal occupations and the variations between good and bad times. At present, and in all probability in the near future, this country will have less and less unemployment and there is no question that with the war and with the destruction of life and peoples in Europe, in the very countries from which, in recent years, this country has drawn its vigorous, unskilled labor, the immigration which has come to these shores so abundantly will enormously diminish and there will be a dearth of labor and a rise in wages. At present, however, there is no question that even in good times the wage earners of this country are unemployed for from one fifth to one fourth—20 to 25 per cent.—of the working days of the year. Those that are dependent on their daily wages have thus to consider a further diminution of what is apparently their actual wage. All investigations on the amount of wages have shown that about four fifths of the men and nineteen twentieths of the women earn less than $600 a year to support their families, and this amount of wage is not able, even in this country, to support these families on a fair standard of living. This is one cause of the enormous mass of woman and child labor. Some years ago, in the investigation on living wage by R. C. Chapin, in New York, it was shown that an income under $800 a year is just sufficient to permit the maintenance of a normal standard. Anything below this amount means that the difference must be eked out by taking boarders into the family or by the labor of the women and the children.

Wages and Expenses

An increase in wages will not entirely compensate and care for the extra hazards of life, for even with the steadily rise of wages in this country since 1899, taking the wages of that year as 100.6 per cent. (as has been done by Rubinow in his computation of the value of real wages) the weekly earnings from 1899 at 100.6 per cent. have steadily risen to 131.6 in 1912. But the retail prices of food have risen since 1899 from 100.8 to 154.2 in 1912, so that the purchasing power measured by retail prices of food has dropped in 1912 to 91.8 per cent., if calculated by hourly wages, and if by weekly earnings, wages have dropped in purchasing power, in 1900, from 100.2 per cent. to 85.3 per cent. in 1912. These figures are for this country before the war prices of the present moment were in vogue and show that while a rise in wages has occurred, the purchased power has diminished so that today the hazards of life of the ordinary wage earners bring a still greater strain on the income of the working classes.

It is more and more a fact that individually these are more difficult to be borne, and it would seem that in the near future it would be the part of wisdom to undertake some collective steps, such as insurance, to protect those of the population who need it the most. It is a noticeable feature that all official bodies or commissions that have been appointed to study this subject, as the California and Massachusetts Commissions, have reported in favor of these social insurance laws in principle and have particularly drawn attention to the necessity and wisdom in the near future of protection against the hazards of sickness.

Poverty and Sickness

How much sickness is apt to change poverty into destitution was shown some years ago by Edward T. Devine[20] of the principal disabilities present in 5,000 dependent families in New York. Unemployment was the principal disability in 69.16 per cent. Chronic physical disability, other than tuberculosis or rheumatism in 27.3 per cent.; temporary disability, other than accident or child birth, 19.68 per cent. Tuberculosis was in 12.38 per cent. and rheumatism in 6.94 per cent. Thus the chronic disability, including tuberculosis and rheumatism, was present in 46.62 per cent., and the temporary disability, including childbirth at 7.26 per cent. and accidents at 3.96 per cent., was in 30.9 per cent. of the cases. Destitution through lack of economic powers of old age was in

20. Devine, Edward T.: Misery and Its Cause, p. 204.

12 per cent. It is a noticeable feature, however, that the characteristics of the real pauper—laziness, shiftlessness, intemperance, unreliability and the disposition to beg and mental disease and deficiency—occurred in 44.64 per cent. of these families.

The more recent figures in California, giving the cause of destitution in 5,296 cases, state that 2,652 were caused by illness and unemployment; low earning capacity by 1,816; illness in members of the family was responsible in 234 cases. Illness of the wage earner was the direct and sole cause in 911 cases. In almost one fifth of the cases in which illness was found, pregnancy of the woman was the chief reason for application for help. Medical attention and financial assistance were both needed as the woman was unable, because of her temporary physical handicap, to do her part in the support of the family. In 11 per cent. of all the cases applying for help because of sickness, tuberculosis was the specified disease.

The California Commission further states that:

> The burden of serious illness is sending married women with children to work. It is causing many honest and conscientious wage-workers to go without sufficient food and clothing. It is forcing an increasing number of families to become recipients of medical and general charity. In the endeavor of the wage-earners of California to protect themselves, it was shown that little more than one-third of the wage-earners of the State are protected through voluntary efforts. A great majority of the one-third are the better paid workers and not those of the smaller earning capacity who are in even greater need of protection.

It is useless to pile up statistics. These are fair examples of what can be found throughout the United States. They are well gathered together and put forward in Warren and Sydenstricker's report in Bulletin 76 of the Treasury Department.

Again, in studying the possibility of the purchasing power of the wage earner's income, Nearing[21] states that:

> To those whose incomes are recorded in thousands of dollars, incomes of hundreds of dollars seem insignificant, yet it is true that among the wage-earners engaged in American industry, not more than one in ten has an annual income of $1,000 and over, while fully half fall below $600. The vast majority of wage-earners must therefore estimate their incomes in terms of hundreds. The individual budgets, cited in the appendix, which might be duplicated at will, in tens of thousands of instances, bespeak eloquently the economic struggle of those who do the work of the modern industrial world.

The effect of all this at present on the medical profession is that they must turn to the charity of the physician to receive adequate care when illness comes on them. The majority of wage earners cannot afford to employ their own physician and retain the relationship of physician and patient which the more fortunate in life enjoy.

Dispensaries in New York City

No adequate study of the dispensary figures and situation in any large city has been given out. For that reason the Social Insurance Committee undertook an investigation recently in New York City as to the dispensary situation in the year 1915. The following figures obtained are of interest.

The number of dispensaries in New York City is 106. The number from which reports could be obtained was ninety-two. The population of New York City in 1915 was 5,468,190; the number of patients treated in ninety-two dispensaries was 2,211,437. One of the dispensaries unwilling to make any report was one of the largest in the city, working on the east side among the poor. These figures, therefore, understate the realities rather than exaggerating them. The number of visits paid by these patients in 1915 was 4,050,036. The number of patients per hundred of the population treated in the dispensaries was 19.6—that is, practically one fifth of the entire population of New York City was treated that year in its dispensaries. The number of special dispensaries treating all diseases was forty-nine and special clinics, thirty-five. Eight dispensaries made some specified exceptions to the diseases which they treat. The charges made in these dispensaries for the first visit in 17 dispensaries was 15 cents or over; in 51 dispensaries, 10 cents, and 3 dispensaries charged 5 cents. No charge is made in 21 dispensaries. The charge for subsequent visits is: 9 dispensaries charged 15 cents and over; 42 dispensaries charged 10 cents; 1 dispensary 5 cents, and there is no charge in 40 dispensaries. Ten per cent. of the dispensaries charged 15 cents or over for their continual treatment and the remaining 90 per cent. were equally divided between no charge at all and 10 cents. Prescriptions were charged for in 32 dispensaries over 10 cents; in 35 dispensaries 10 cents and under; in 15 dispensaries prescriptions are free, and there are various charges in 10 dispensaries.

Working in these dispensaries are found 3,031 physicians of the 8,000 physicians in New York City. That is, 37.5 per cent. or three eighths of the entire physicians of the city work in these dispensaries, giving their services in the majority of cases for nothing. The two following tables of the distribution of patients according to specialties and the distribution of visits according to these specialties are particularly interesting.

DISTRIBUTION OF PATIENTS ACCORDING TO SPECIALTIES

(Data available for 1,014,000 patients)

Medical class	221,000	or 21.8
Surgical class	188,000	or 18.5
Pediatrics	94,000	or 9.3
Gynecology	47,000	or 4.7
G. U. and Skin	79,000	or 7.8
Neurology	23,000	or 2.3
Eye, Ear, Nose and Throat	209,000	or 30.5
Orthopedic Surgery	29,000	or 2.8
Dental	24,000	or 2.4

DISTRIBUTION OF VISITS ACCORDING TO SPECIALTIES

(Data available for 2,988,000 visits)

Medical class	604,000	or 20.2
Surgical class	574,000	or 19.2
Pediatrics	215,000	or 7.2
Gynecology	163,000	or 5.5
G. U. and Skin	332,000	or 11.1
Neurology	130,000	or 4.4
Eye, Ear, Nose and Throat	790,000	or 26.5
Orthopedic Surgery	92,000	or 3.1
Dental	86,000	or 2.0
Total	2,988,000	100.0

It is seen in these tables that two fifths of the patients are in the general medical and surgical classes, that is, about equally divided between the two. The general medical class, therefore, takes one fifth of the patients and practically one fifth of the visits. Surgery takes practically the same. The eye, ear, nose and throat classes take practically one third of the patients and 26.5 per cent. of the visits. It is seen, moreover, that one half of the patients go to these dispensaries for treatment in specialties which the general practitioner does not give them, for putting pediatrics into general medicine and classifying that the ordinary practitioner shall be an old-fashioned practitioner of children and medicine and surgery is seen that 49 per cent. of the patients come for these three classes. As a matter of fact, however, surgery is today a specialty and under any social insurance laws the surgeon would have to be calculated and treated as a specialist. The general practitioner then, if he included the care of the children of the family, would be able to give 27.4 per cent. of the treatment that was given to the people as in the general medical classes and to children. The majority of care, therefore, desired by the people coming to these dispensaries is something which the general practitioner does not give and, in England, is not expected to give. It shows, further, that the dispensaries in this country are gradually and unconsciously developing a sense of group medicine, because not only are the general practitioner and the various specialists represented in these dispensaries, but very thorough pathologic work and the work of clinical microscopy is extensively done. Thirty-five dispensaries connected with hospitals used the pathologists in the hospitals. Thirty-one dispensaries had special pathologists for the dispensary and in thirteen dispensaries the laboratories of the board of health were extensively used, although but four of the dispensaries under consideration were officially affiliated with the public health department. There are over 12,000 blood examinations reported as part of the routine work of these dispensaries, over 15,000 sputum examinations, over 35,000 urinary examinations. Fifty-two dispensaries had

21. Nearing, Scott: Financing the Wage-Earner's Family, p. 167.

Roentgen-ray rooms which are extensively used, for in the forty dispensaries reporting on it, 33,000 patients were roentgenographed, using 57,000 plates.

There is a further development in these dispensaries which is not given in these figures and that is development of the care of the patients in their homes by the physicians hired by the dispensaries. There is a follow-up medical care being more and more developed in New York City. Probably the physicians are paid about $25 a month for this and the care is given free to the patient or for the same amount that is given while visiting the dispensary. In other words, there is a social development of medical care equivalent to that which would be given under sickness insurance, and it is gradually developing on a charity basis. This is but the logical conclusion of the situation and one that adds to the intricacies of any consideration of remuneration of medical fees under health insurance. A large number of these patients, probably 80 per cent., would be included in any sickness insurance law.

It is self-evident that under the social insurance laws the economic condition of the medical profession is very deeply affected. These laws cannot be promulgated without affecting the interests of the profession, because the medical profession is absolutely essential to the putting in practice of any of these laws. Ewald very distinctly draws attention to the position of the German medical profession before these insurance laws went into vogue and the resultant effect on the profession after the laws were passed. While in the main Ewald praises the principles of social insurance and the laws themselves, he strongly condemns the unfavorable condition of the German medical profession due to a large extent to these same social insurance laws. His point of criticism, however, is directed not against the principle of health insurance but against the particular provisions of the German law concerning medical aid, especially the permission of salaried contracts between the funds and the medical profession. He brings out very clearly the fact that previous to the passage of the insurance laws many of the physicians were giving at a very low rate of pay, part in charity and part to assist the workmen, their services to the guilds and societies on which the big insurance funds were formed. The law immediately placed the remuneration of the physicians on the same basis that they had given in charity, claiming if they could do that in charity they could have the same for a livelihood. It was the same result as the fee bills have shown in this country, that a minimum fee of a fee bill immediately becomes in the eyes of the corporation dealing with the profession the maximum fee that can be charged for anything. Another evil that proved a source of vicious results in Germany was the fact that the salaried physicians of the funds could not serve two masters. They could not serve the funds on the business basis on which they were hired and serve the patients on the professional basis which they were expected to do. Many scandals broke out by which it seemed that the physicians were in collusion with the funds to the great detriment of the professional care of the patients. The question immediately, therefore, arose of the right of free choice of physicians by the patients, and Germany has been broadly split into two camps on the subject; the Leipsic group vigorously claiming for free choice and the Dresden claiming that better results were obtained by salaried physicians and no free choice or very limited free choice of physicians in a district. Professor Ewald very energetically defends the principle of free choice of the physician and also the admission of every practitioner to the panel. That is, no limited panel at all, for Ewald very strongly believes and defends the principle of private practice in the exercise of the medical profession as a natural one that preserves the dignity of the profession and establishes the proper relation between physician and patient.

A great majority of the German profession, before the war broke out, was strongly in favor of free choice of physicians under the insurance laws. The only physicians who were opposed to it were the small minority of the salaried doctors under the funds and a certain number of older physicians who were not in touch with the modern economic movement in the profession. Although many funds, as I have stated above, were very largely opposed to free choice, this right to the doctor was slowly but surely gaining ground. The Leipzig Union in Germany, with a membership in 1910 of 24,000 out of a possible 32,000 in Germany, has, as one of its essential aims, the acquisition and preservation of free choice of the physician by the patient.

In England, just previous to the insurance laws, the same condition was in vogue that physicians were treating many poor patients for a fee much less than they could possibly live on if it were the general fee of their practice. Many physicians who cared for the members of the huge friendly societies were under a lay control, which prevented them from practicing their profession in an independent and dignified manner, for frequently in the disputes which arose between the physicians and societies, the same persons were the accusers and judges of the actions of the physicians.

Poverty and destitution among the working classes in England were so extensive that medical practice was being performed on club rates and drifting rapidly into various vicious forms of contract practice. When the law went into effect the rate that was offered the physicians was based, in the first place, on the reduced rates that the physicians had been forced to practice in their contract and charity work. The same standard was applied to them as had been applied to the German physicians in the early instances of the insurance laws. The whole plan of payment of the English profession was also one by capitation, which practically was contract practice dignified by state approval. Except in the towns of Salford and Manchester, where, although they had only a definite sum from which they could draw for their payment, the doctors insisted on choosing a method of payment per visitation and not per head per year. This method has been acknowledged to have given more satisfaction to both patients and doctors than the capitation plan so generally in vogue. It has given better service to the patients, it has given more satisfaction to the physicians, it has kept the dignity and the position of individual patient to individual physician which private practice incurs, and has diminished that feeling of so much per patient per year so inevitable under the capitation plan. The following extract is from a letter from James Neal, Deputy Medical Secretary of the British Medical Association, to the Chairman of the Social Insurance Committee:

> There is no doubt that when the Act first came into operation the majority of the profession anticipated that it would be unworkable, but these anticipations have not been realized and for the most part, the medical profession has found the Act far less objectionable than was anticipated. It is still thought by many that the clerical work falling on the doctor is excessive, and that insured persons demand treatment for trifling conditions for which, apart from the Act, they would not seek medical advice. Part of the clerical work, the keeping of records, has been dropped for the duration of the war. Many practitioners consider that the extensive contract work which the Act brought about is detrimental to the best interests of the profession, being of the opinion that it is impossible to get the best results from any form of contract practice. Many also object to the element of lay control inseparable from any such scheme, and to the disciplinary measures that have been introduced. So far as I am aware, the Act has not materially affected specialists, consultants and operating surgeons, but with a certainty of the extension of the Act so as to provide specialist treatment it is only a quesion of time before these classes will be involved.
>
> The effect of the Act upon the incomes of panel doctors, as compared with pre-Act days, depends upon the class of practice. General practitioners engaged in industrial areas where practically the whole population is insured under the Act have had their incomes increased, but it must be remembered that the amount of work they have been called on to perform has also increased. Formerly many people in industrial areas received their doctoring through clubs at cheap rates, or received none at all, and these are now, of course, included in the insurance scheme. The practitioners who have suffered loss of income, as compared with the pre-Act days, are (a) those who at the commencement of the operation of the scheme refused to participate in the work, the result being that when they finally decided to join the panel the majority of the people who would otherwise have put their names on their panel lists had already selected some other doctor, and (b) those who have remained off the panel and who previously attended at private fees people who now obtain their medical attendance and treatment through the insurance scheme.

In the annual report of the Council of 1913-1914 of the British Medical Association there is a report of a committee of the British Medical Association appointed to consider in what way the Association could best promote the interests of the members who have refused to enter into agreements

with insurance committees for service on the panel system. The objections given involve the interests of the state, the insured, and the medical profession. The main objections seem to be somewhat as follows:

It is stated that many thousands of medical men refuse to work under the panel system who are not in any way antagonistic to the principles of health insurance. The committee while of the opinion that no system of contract medical practice will give the most efficient service, considers that it is not impossible to devise a system which would enable each insured person to obtain the professional services of the doctor of his choice. They believe further that it is not in the best interests of the state that its money should be spent in obtaining for the insured a needlessly restricted medical service. It is claimed that when the Act was under discussion in the House of Commons, it was frequently promised the insured should obtain free choice of doctor. At present this is denied them and they must choose between sacrificing their medical benefits or changing their doctor, and while hundreds of thousands of insured persons at present are sacrificing their medical benefits, a very large but unknown number are unable to do this because they cannot afford to sacrifice their medical benefits. This is not just to the insured. One essential reason why the medical practitioners will not work on the panel is that they object to contract medical practice being substituted for the private relations between doctor and patient. Another great objection is that the panel system handicaps the efficient work of the medical profession and puts a premium on that which is less efficient. The medical profession supplies an article of varying value—that is, their professional skill. Insured persons require that article in varying degree. The result of these two factors is, in urban districts, where there are a large number of medical men and a large number of insured persons, those insured persons who suffer most from ill health tend, more than the average person, to seek the services of those medical men who are regarded by the public as being most efficient in their work. It therefore follows there is a higher average rate of sickness among the patients of these practitioners. If these medical men who are regarded by the public as most efficient in their work give service on the panel system, they will be receiving the same remuneration per head as will those medical men who are regarded by the public as being less efficient. But the earning capacity of the former will be less because, in addition to spending more money and time in doing their work, they will actually have more work to do. As a result, the more efficient medical men serving on the panel are handicapped and the less efficient receive a bonus in that their panel lists have a diminished proportion of unhealthy lives. This is disastrous to the health of the nation, because a system which pays for good work on a lower scale than it pays for inferior work must result in a lower standard of efficiency. On the other hand, the medical men regarded as most efficient cannot select their patients and refuse to place on their panel lists the names of those who suffer above the average from sickness, because by so doing they would ignore the best traditions of their profession and the interests of those who had trusted them. Therefore, if the administration of medical benefit under the Insurance Act is continued on the present rigid system, the result must be to lower the standard of efficiency in the medical profession and to prevent the insured receiving the best medical service.

In considering then the effect on the profession both in England and Germany, we realize that the friction in the working of the insurance laws preventing them from running smoothly has been due to the fight over free choice of the physician by the patient and also due to the failure to separate the function of official medical officer of the funds from the function of the daily care of the sick. The remuneration on a basis of contract practice in England has added to the difficulties, and in Germany the remuneration of the profession has not yet been satisfactorily settled.

There are four fundamental principles in the consideration of any insurance laws in relation to the medical profession which seem to be essential for the just working of these laws: First, the freedom of choice of physician by the insured, because only in this way can conditions of mutual confidence between physician and patient be preserved. Second, a sufficient medical representation in the administration of the insurance laws, because only in this way can the profession be protected against exploitation by the insurance carriers and from destructive competition within its own ranks. Third, a standard of payment in proportion to the amount of work done, preferably on a basis of fees per visit. The payment by capitation, and competition and exploitation within its own ranks, will surely bring on contract practice and all its evils to the profession and to the patients. Fourth, there must be a separation between the medical superintendence of the funds and the daily medical care of the individual patient. The physician that superintends the medical questions relating to the funds must not be permitted to perform the duties of the personal care of the sick, nor can the physician who cares for the sick among the insured act in the position of superintending medical questions relative to the fund. These two can, to advantage, mutually help each other and mutually keep the medical questions between funds and patients in equilibrium; but it will surely be to the disadvantage of both funds and insured if the functions of these two physicians are blended in one man. Only by adherence to these general principles will the social insurance laws here discussed run smoothly and only by adherence to these principles will justice be done to the medical profession.

It is obvious that the success of sickness insurance, maternity insurance, invalidity insurance and also, to a somewhat lesser degree, accident compensation, largely depends on the cooperation of the medical profession. Outside of the question of the public value or the social value of these forms of insurance, the medical profession has its own economic and professional interest at stake. Any development of these branches of social insurance must very materially affect the conditions under which a large proportion of the profession will perform its work. It is not only to the interests of the profession itself, but the social efficiency of these measures require that the work of the profession be done under dignified conditions and for a satisfactory remuneration. Effective medical work can only be done by a satisfied and prosperous profession. The interests of both the working masses and the profession, therefore, require that the provisions of the insurance laws dealing with all matters of medical aid be prepared with the active cooperation and under the careful scrutiny of the organized profession.

Recently there appeared in the *Boston Medical and Surgical Journal* a communication[22] suggesting that the vexed question of medical aid under social insurance laws could be answered by abolishing the problem, by cutting out entirely the proposal to furnish medical care as part of the insured benefit at least until we know more. It is doubtful if such a problem can be solved by refusing to meet it. It would seem that if medical benefits were not furnished under the social insurance laws, such as sickness insurance, and that cash benefits, etc., were, that while the insured would be protected against the economic effect of sickness and would be more able to pay his physician's bills, the doctors' bills under these circumstances would be no more paid than they are now and the physician's bill would be the last one paid, as it is now, or left unpaid. It would mean the further development of dispensary practice, and an increased income of the wage earner would, as little as possible, be spent in paying the doctor as long as there was a cheap dispensary to which they could turn. The development of the physician from a dispensary going out among the poor and following up the work of the dispensary in the homes of the poor would enormously increase as it is beginning rapidly to increase in New York City. There must be, even under this scheme, a medical officer of the fund appointed on a salary to judge when the patient was sick enough to receive cash benefit and when he was well enough to have these benefits cease. This must go on whether or not the individual care of the panel physician was given. There would be no control over the care of the patient and no harmony

22. Cotton, F. J.: Boston Medical and Surgical Journal.

between the fund physician and the attending physician of the patient. If the attempt was made by the funds to hire physicians to look after their clientele, it would bring all the evils that this method of performing the work has brought in Germany. It is acknowledged by all students of the subject, that these two functions should be separated, and it leaves a vicious condition of medical care when they are not so separated. It would seem that this method of avoiding the issue, if put in practice, would possess many of the disadvantages which it seeks to avoid. This scheme would improve the condition of the workmen but would injure the work and economic position of the medical profession and fails to solve the problem.

Medical Service Under Social Insurance Laws

Your committee feels very strongly that the members of the medical profession are the only ones who can solve the problem of medical service under these social insurance laws. These problems must be faced by it, if the profession is to obtain the justice that is due it, if it is to protect its economic position in the community. Laymen, however just, do not understand the point of view of the profession and do not understand the peculiar problems that the professional life of a physician and surgeon brings forth. There is no question but that the intense reaction in many states against sickness insurance or any further expansion of the social insurance laws in this country is due to the injustice and cold-blooded unfairness by which physicians and their patients have been treated under the workmen's compensation laws. To work out these problems is a most difficult task. The time to work them out, however, is when the laws are molding, as now, and the time is present when the profession should study earnestly to solve the questions of medical care that will arise under the various forms of social insurance. Blind opposition, indignant repudiation, bitter denunciation of these laws is worse than useless; it leads nowhere and it leaves the profession in a position of helplessness if the rising tide of social development sweeps over them. The profession can, through its influence in the community, prevent for a time these laws being passed and it can, by a refusal to cooperate, still further retard them, but in the end the social forces that demand these laws and demand an improvement in the social existence of the great mass of the people of the nation will indignantly force a recalcitrant profession to accept that which is unjust to it and that which is to its detriment.

The profession today, in certain states, is acting the part that our school boy history showed of old King Canute sitting on the seashore bidding the rising tide to stop, and King Canute only got wet for his trouble.

Your committee has endeavored, when opportunity offered, to help mold the medical portions of suggested laws, because those members that have done it have felt it necessary that there should be something to protect the profession if these laws should pass. The profession has always stood, and been proud of its standing, as the guardian of the health of the nation, and it cannot avoid the responsibility for, nor look with indifference on any laws which may affect the public health. It is the duty of the profession to see to it that the nation suffers no harm from social laws which affect public health and sanitation. It is the duty of the profession to cooperate with the law makers that the great subjects of preventive medicine and sanitation shall be written in these laws and shall form a part of them. It is also the duty of the profession further to see that the welfare of their patients does not suffer harm in matters of health.

Wherever introduced accident insurance has materially contributed to industrial safety. Sickness and invalidity insurance have resulted in the improvement of hygienic conditions of life and work. The better treatment of the sick has improved the general health and prolonged the life of the workers. Unemployment insurance has stimulated regularization of conditions and of unemployment through organization of public employment bureaus.

The Committee on Social Insurance offers, therefore, to the House of Delegates the following resolutions:

Whereas, The report of the Committee on Social Insurance of the American Medical Association has shown that the world-wide movement for social insurance has made such rapid progress that it has become one of the most important branches of industrial legislation in many countries, and

Whereas, The growth of social insurance in this country is manifested by the wide acceptance of the principle that industrial accidents should be compensated and it is probable that this movement, as in other countries, will further demand protection of workers against the hazard of illness through sickness insurance and other social insurance legislation, and

Whereas, All matters affecting sanitation and the health of the community and the prevention of disease are the especial concern of the medical profession and affect the economic condition of the medical profession, be it therefore

Resolved, That the House of Delegates of the American Medical Association in the interests of both the wage-earners and the medical profession authorize its Council on Health and Public Instruction to continue to study and to make reports on the future development of social insurance legislation and to cooperate, when possible, in the molding of these laws that the health of the community may be properly safeguarded and the interests of the medical profession protected, and be it further

Resolved, That the House of Delegates instruct its Council on Health and Public Instruction to insist that such legislation shall provide for freedom of choice of physician by the insured; payment of the physician in proportion to the amount of work done; the separation of the functions of medical official supervision from the function of daily care of the sick, and adequate representation of the medical profession on the appropriate administrative bodies.

Respectfully submitted,

Alexander Lambert, Chairman.

Committee on Women's and Children's Welfare

Council on Health and Public Instruction:

Never, since my connection with the Committe on Women and Children's Welfare, have I felt the pressure of responsibility so keenly as at the present time. Because of the vast destruction of human life throughout the warring nations, child conservation has become an economic necessity, and the health of women should be protected if for no other reason than that they may aid in the development of the children. Because of this serious situation our committee wishes to urge most earnestly the active cooperation of every member of the American Medical Association in two things: the further development of baby health conferences, and the securing of an adequate vital statistics law in each state. Both of these activities have been most splendidly kept before the public by the Children's Bureau and the General Federation, and, by cooperating with them, the Committee on Women and Children's Welfare has been able to do its most effective work in 1916-1917.

Our last year started with a much clearer understanding of what is being done in the United States toward preservation of child life than we had ever been able to have before in the history of our work. Through the efforts of the Council on Health and Public Instruction of the American Medical Association, a conference was called, last October, of representatives from all the societies interested in child welfare. This conference met in Chicago, made a comparison of work being done, and appointed a committee of six, with Miss Julia Lathrop as chairman, to map out a general program to be followed by all the societies represented. The first tangible result of the work of this meeting is to be seen in a set of fifteen panels, ten of which were prepared by the American Association for Study and Prevention of Infant Mortality, and five by the Children's Bureau. These are printed by the American Medical Association, and are exceedingly clear and forcible in text, and attractive in form. The single copies are 15 cents and the entire set $2, bringing them more nearly within the reach of those desiring them than the sets previously published, which have been often prohibitive in price, and not plentiful enough to rent.

Our cooperation with the Children's Bureau during the past years has always reacted most satisfactorily on the work of our own committee. It has been our particular function to assist the bureau this year in its plans for a nation wide baby week. To that end we have revised our pamphlet on baby health conferences and added to our series a record sheet for noncompetitive conferences, which is used and approved by the Children's Bureau. The following extract from the directions given for entrance to the baby department

of one state fair, for 1917, explains the practical use to which this record sheet is to be put.

Class No. 172. Noncompetitive Class (without Score Card):

2547—Boy 36 Months and under 48 Months.
2548—Girl 36 Months and under 48 Months.

A record sheet prepared by the Children's Bureau will be used. A full physical examination is made of each baby; a printed blank is filled out, giving the results of the examination and notes with regard to the individual needs of each baby. This record sheet is given to the mother.

In this class no attempt is made to compare the development or condition of different babies: the object of the examination is rather to center the attention of the mother on the qualities and needs of her own child, to teach in a practical way the facts with regard to the care of babies, and point out the sources of assistance in making or keeping the baby well. No treatment or prescriptions are given; where there is need for either, reference is made to the family physician or dentist, to specialists, or, where the parents can not afford private care, to clinics and hospitals.

No prizes are awarded but a ribbon will be given to each baby examined.

Perhaps the greatest new possibility for our committee in this year's work has come from our connection with the General Federation of Women's Clubs. Within that federation there is a department of public health which in its turn is divided into four divisions; one of these is child hygiene, and it has been my great opportunity, as chairman of that division, to submit a program and recommendations for the work of 1917-1918. This material appeared in the General Federation of Women's Clubs magazine for April, 1917, and will be incorporated in the handbook of the Committee on Public Health of the General Federation. Through these two avenues we are able to come in direct touch with 2,000,000 women of the United States. The program and recommendations follow:

There are only eleven states which already have an adequate vital statistics law. We recommend that these states work along lines suggested by their own state registrar; such as investigating the cause of their death rate, establishing child welfare stations, making surveys, and working toward securing a child hygiene division either under their state board of health or university extension.

For the states which do not have an adequate law we submit the following program for the first day allowed us in the club year-book. May we keep constantly in our own minds that we rank with Turkey and China in not having adequate registration laws; that it is a rebuke to our national intelligence and pride that we can only guess approximately the number of deaths and births in our country, and that no efficient infant welfare work can be done until we know where the babies are and how many there are.

BIRTH REGISTRATION

1. A spot map of localities showing results of test in birth registration (Census Bureau).
2. Devices and campaigns to awaken interest (See "Birth Registration Test," Children's Bureau, pages 4, 5, 6).
3. Why the "model bill"? (See "Why Births and Deaths Should Be Registered: American Medical Association.)
4. Cooperation with state and local health officers.
5. Relation of birth registration to infant mortality. (See Infant Mortality, 1915, Children's Bureau. See pamphlets issued by American Association for Study and Prevention of Infant Mortality.)
6. Birth registration and child labor. (See "Birth Registration Test," Federal Bureau. See "Study Course on Public Health," Program XIV, American Medical Association.)

The second day in the calendar can be devoted to the question of baby health conferences, with a view to establishing permanent local, county, and state stations or bureaus.

BABY HEALTH CONFERENCES

1. Demonstration of measuring babies: normal and subnormal types presented.

Suggestion to Committee

Experience has shown that the most effective way to make these demonstrations count is to secure two babies, one as near the normal type as possible, the other with as many remediable defects as possible. The latter can often be secured from some charitable institution. One nurse and one doctor are necessary to conduct the demonstration. Score cards should be in the hands of the audience during the demonstration.

2. Discussion of score card and anthropometric table. See: American Medical Score Cards. American Medical Anthropometric Table. Record Sheet (same as used by federal bureau). Baby Week Campaign (issued by the federal bureau).

Suggestion to Committee

If practicable, this topic should be combined with the explanations accompanying each measurement. If this is not possible, it should follow immediately. Questions and discussions should be encouraged from the audience. Under this discussion the necessity of parents having an anthropometric table can be brought home. For example, a child should, at a given age, weigh a certain number of pounds according to his height, and the circumference of his head, chest and abdomen should be proportionate; if not, the cause should be ascertained. This discussion is of utmost importance, as it is one that will lead most effectively toward the establishment of permanent conference stations.

3. Mental Development; Binet Tests above 3 years of age. Mental Tests below 3 years of age. (See: American Medical Score Card. American Medical Baby Health Conference, Pamphlet 5.)

Suggestion to Committee

This topic is given because it is the part of the measuring and scoring least understood and most criticized. Practically every normal baby will respond in varying degrees of promptness and accuracy to the tests offered; but the subnormal or mentally backward child invariably fails to respond. The test, as it now stands, is far from satisfactory in marking the fine points of difference among normal children; but it is of greatest accuracy and value in determining the subnormal child's deficiencies. Both physicians and parents have misunderstood and undervalued these mental tests.

4. Care of Mother; Rural; Town; City. (See: Prenatal Care, by Mrs. Max West, Children's Bureau. Maternal Mortality, by Dr. Grace L. Meigs, Children's Bureau Leaflet No. 1. Prenatal Care Record, by American Association for the Study and Prevention of Infant Mortality.)

Suggestion to Committee

Especial attention should be called to the condition of mothers in rural districts and in small towns where tradition keeps the mother at her usual work until the birth of child and sends her back too soon afterward. Scarcity of servant help, and ignorance of results make this condition often as threatening as in the slum districts of the city where the mother must of necessity work in factories or away from home. Many times the actual physical labor of the mother in the rural districts equals that of the much talked of slum mothers, and the results on the child are less harmful only because partly counteracted by pure air and better food.

Distinct from these two days of regular club work on child hygiene, we wish to recommend most earnestly the observance of Baby Week. If the week set apart by the Children's Bureau is not advisable in the community, another may be substituted: if a week is impossible at least *observe one day*. By all means cooperate with the federal bureau in this matter. This bureau has a baby week pamphlet which gives suggestions suitable, by modifications, to any locality.

We feel that when these two lines of work are well accomplished and the results achieved, many other things for which our department stands, such as housing conditions, food supply and public utilities in municipal and rural life, will have received material aid.

In the localities in which the foregoing programs and suggestions are difficult to follow, we recommend "An Outline for Study Course on Public Health, prepared for the use of Women's Clubs" by a joint committee from the American Medical Association, and the Home Economics Department of the General Federation of Women's Clubs. The parts of this particularly suited to a child welfare program are: Program III, Subject, "The Cost of Food"; Section B. Program IV, Subject, "The Care of Food"; Program VIII, Subject, "Control of Communicable Disease," Sections A, B and D. Program IX, Subject, "Cost of Preventable Disease." Each of these is accompanied with a good bibliography. The outline can be obtained from the American Medical Association, 535 N. Dearborn St., Chicago, Illinois.

During the past year all orders for contests and conferences have been filled by Dr. Frederick R. Green, secretary of the Council on Health and Public Instruction, from the Chicago office. From our own office we have sent sample material only.

The Central Committee, who have given us valuable and steady assistance for this year, is composed of the following members: L. Rosa H. Gantt, M.D., Spartanburg, S. C.; Samuel Jay Crumbine, M.D., Topeka, Kan.; Mary G. Haskins, M.D., Detroit; Gladys Cooper, M.D., Red Oak, Iowa; Grace L. Meigs, M.D., Washington, D. C.; Phoebe Van Voast, M.D., New York; Margaret V. Clark, M.D., Long Beach, Calif.

The Score Card Committee is as follows: Henry L. K. Shaw, Albany, N. Y.; Velura E. Powell, Red Oak, Iowa; Josephine Baker, New York; Howard Childs Carpenter, Philadelphia.

In conclusion, we wish to call especial attention to the following classes in baby health contests, as those most effective in their remediable effects, and in consequence most desirable to center on: initial examination; improvement class; and the noncompetitive class, explained before in this report.

Again may we point to the fact that conservation of child life, health, and development has never been such an insistent factor in the world's history as at the present time. The difficulties and responsibilities of our committee have been daily borne in on us with increasing urgency in the last two years, and have grown especially heavy since the declaration of war by our own country. We, therefore, wish to express our appreciation to the Council for their sympathetic and unlimited support.

Respectfully submitted.

LENNA L. MEANES, Chairman.
M. L. TURNER, Secretary.

COMMITTEE ON COOPERATION WITH THE NATIONAL EDUCATION ASSOCIATION

Council on Health and Public Instruction:

Feb. 27, 1917, the committees, appointed by the American Medical Association and the National Education Association, for the purpose of investigating sanitary conditions of rural schools and suggesting improvements, met in Kansas City, Mo. Resolutions were passed, advising the publication and circulation of the fifty charts prepared by Dr. Thomas D. Wood, and that they be printed by the American Medical Association press at Chicago. U. S. Commissioner Claxton subscribed for a large number for the government.

February 27, in the Auditorium of Kansas City, Drs. Wood, Dodson and Green, and Commissioner Claxton addressed the superintendents, and requested that they use their influence in securing a fund at the meeting of the National Education Association, in July, 1917, at Portland, for the purpose of continuing the work of the committees.

At the meeting on this date, a resolution was passed also, asking that the American Medical Association committee use its influence to secure a fund, at the meeting of the American Medical Association, in June, 1917, for the same purpose.

In Southern Colorado, an important step has been taken in the rural schools this year toward protecting the teeth and health of the schoolchildren. In the coal camps an eye, ear, nose and throat specialist has been appoinnted to examine and treat the schoolchildren of these schools. Also dentists and special nurses have been appointed and are at work among the schoolchildren of the camps, treating and repairing teeth and teaching mouth hygiene.

At these camps, visiting nurses have been appointed who devote their entire time to teaching hygiene and sanitation in the homes of the miners. This work is having a decidedly beneficial effect on the health of the community, and does much to improve the schools.

Owing to the importance and timeliness of first aid work, classes in camps and schools are being continued. Through the Extension Division of the University of Colorado, twenty-one classes in first aid have been organized, local physicians being the instructors. The American Red Cross cooperates by giving its certificates to all who pass the examination of the course.

Architecture of schoolhouses has not been lost sight of, and whenever possible the importance of properly constructed schoolhouses has been emphasized, giving the unit schoolhouse as an illustration, with its faultless lighting and ventilation. A number of schoolhouses have been built this year in Colorado on the unit plan.

During the past fall and winter I have given health and other talks, mostly illustrated with lantern slides, at Sunrise, Wyo., and the following places in Colorado: Morley, Florence, Canon City, Trinidad, Boulder (University of Colorado, School of Medicine), La Junta, Salida, Colorado Springs, Primero, Walsen, Beulah, Denver (Baby Show, Medical Society, Delphian Society, and High School, East Side), and Pueblo (Crews-Beggs D. G. Store, four lectures; Colorado Supply Company Store, Railway Y. M. C. A., Carlile School, Civic Federation Club, South Side School, Centennial School, Minnequa Congregational Church, Pueblo County Medical Society, Nathan B. Forest Literary Club, Norton Art Club, Daughters of the American Revolution, and Minnequa Hospital).

Respectfully submitted.

R. W. CORWIN, Chairman.

COMMITTEE ON CONSERVATION OF VISION

Council on Health and Public Instruction:

At the Minneapolis meeting of the American Medical Association a Conservation of Vision Committee of the Council on Health and Public Instruction was formed, and I was requested to assume the chairmanship. This I reluctantly consented to do, for I was well aware of the fact that my other duties left no unoccupied time at my disposal for the performance of Conservation of Vision work. By making many sacrifices, however, and by the expenditure of about $600 a year out of my own pocket, I have done what I could and trust it has met with your approval. The work is before you and you know about what it is. Up to Jan. 1, 1917, the American Medical Association has given $600 a year for the support of the Committee. Owing to financial reverses, this income stopped Jan. 1, 1917, and since then the support has proceeded from the Academy of Ophthalmology and Oto-Laryngology and myself. The American Medical Association has always paid for our printed matter which has, of course, been of great assistance. The American Medical Association has also furnished a box of stereopticon slides for each state for lecturing purposes.

We appointed state managers in each state, whose duty it has been to perfect a state organization and report once a year to our committee. Wherever possible, the state managers have also been made chairmen of the Conservation of Vision Committee of the various state medical societies. In this way, harmony in work has been secured. These state managers have secured the services of well-known oculists in various portions of their states, who have agreed to go and lecture in neighboring cities whenever invited. Their expenses have usually been paid by the society issuing the invitation, although many men have paid their own expenses, thus sacrificing both time and money in the enterprise. The state managers have arranged for lectures before medical societies, women's clubs, teachers' institutes, normal schools, etc., and thus far about 500,000 people have listened to these lectures. We have positive assurances that much good have followed the lectures. Among such benefits may be mentioned medical school inspection, school nurses, schools for defectives, better shop conditions, the abolition of the "shop oculist" and common towel in many factories, active work in the passage of laws for ophthalmia neonatorum, trachoma, wood alcohol, shop conditions, schoolchildren's eyes, etc. Our Committee has also been instrumental in having lectures delivered in medical schools by the professors of ophthalmology on visual conservation. While the American Medical Association published its weekly *Health Bulletin*, and sent it broadcast all over the United States for use by papers, magazines, etc., our Committee kept it constantly supplied with practical articles on the care of the eyes, avoidance of accidents, etc. We also published twenty pamphlets on subjects concerning visual conservation, that have had a large sale, and that have been gratuitously distributed to thousands of readers. These pamphlets were written by well-known ophthalmologists, and no technical language was used in any of them. We have reason to believe that they have accomplished much good.

A very important work of our Committee has been the collection of practically all the state laws in the United States concerning the eyes. This collection has been divided into seven papers and has appeared quarterly in *Ophthalmology*. The subjects have been as follows:

State Legislation Concerning Schoolchildren's eyes, etc.
State Legislation Concerning Ophthalmia Neonatorum.
State Legislation Concerning Trachoma.
State Legislation Concerning Wood Alcohol.
State Legislation Concerning Shop Conditions, etc.
State Legislation Concerning Optometry.
State Legislation Concerning the Blind.

These articles will be revised and soon will be published in book form by the American Medical Association. In this one volume can then be found practically every law in the United States on the subject of the eye. These are not the only accomplishments of our Committee, but it is enough to demonstrate the usefulness of the organization and its possibilities for the future. This Committee has become a national institution and is highly regarded wherever its work is known. Much remains to be done, however, and it is a pity that the Committee is compelled to close its labors and go out of existence, especially as it only requires about $1,500 a year to enable us to go on with the work. I am sure that the American Medical Association regrets most sincerely that owing to "lack of funds" this and other committees must cease from their beneficial labors; but under present conditions they have no alternative. I, therefore, desire to say

to the Council on Health and Public Instruction of the American Medical Association, that I regretfully retire from the work as chairman of the Committee on Conservation of Vision and do sincerely thank the Council for the assistance and sympathy it has shown the Committee in the past. I also regret that the Council is financially unable to continue its partial support of this Committee in the future, and that this organization, which has done so much for visual conservation, must unfortunately go out of existence.

Respectfully submitted.

FRANK ALLPORT, Chairman.

Report of the Council on Medical Education

Dr. Arthur Dean Bevan, Illinois, Chairman, presented the report of the Council on Medical Education, which was referred to the Reference Committee on Medical Education.

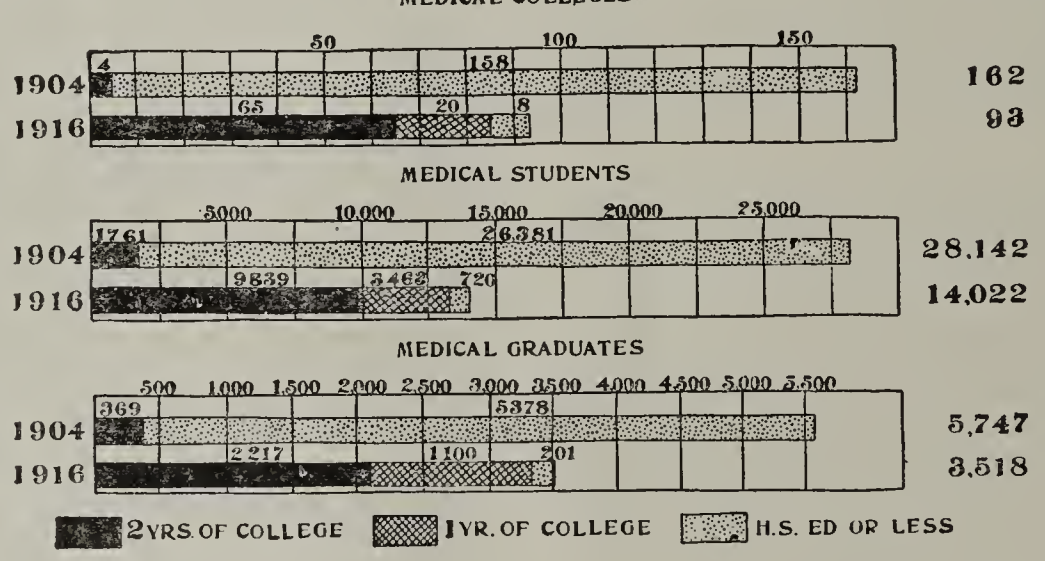
The report follows:

To the President and to the Members of the House of Delegates of the American Medical Association:

The campaign for improvement in medical education, carried on during the last fourteen years by the American Medical Association, through the Council on Medical Education, is very important, considering the present demand for medical men caused by the entry of the United States into the world war. Through the improvements which have been brought about, a large proportion of the medical schools during the last five or six years have been sending out thoroughly trained graduates such as only a few medical schools were turning out fourteen years ago, and it is the graduates of these recent years who constitute largely the material which is most available for the government medical services. In 1904 only four medical schools were requiring for admission the standards which now are being enforced, or have been adopted, by sixty-five medical colleges. Then only a few medical colleges had six or more expert, full time teachers in their laboratory departments, where now there are over seventy such colleges. Then less than a score of medical colleges had close relationship with dispensaries and hospitals, which are now possessed by over sixty medical schools. And in 1904 a still smaller number had adopted the methods of teaching by bedside and ward section clinics, which are now generally employed by a majority of the colleges. All this has resulted in a decided improvement in the character and training of medical graduates. Add to this improved training the experience gained by 75 or 80 per cent. as interns in hospitals and we can appreciate the greatly improved medical service which can now be offered to the government as compared with that available fifteen years ago. In this development the medical schools have avoided the weakness of the English and German systems of medical education. It can be stated without exaggeration, therefore, that a better all-round medical training is now being furnished by the leading medical schools of the United States than can be obtained in the medical schools of either Germany or Great Britain.

TABLE 1.—QUALITY VERSUS QUANTITY
Changes for the Better in Twelve Years

Entrance Requirements	Colleges		Students		Graduates	
	1904	1916	1904	1916	1904	1916
High school education or less	158	8	26,391	720	5,378	201
One year of college work.....	0	20	0	3,463	0	1,100
Two years of college work.....	4	65	1,761	9,839	369	2,217
Totals.....	162	93	28,142	14,022	5,747	3,518
Percentage with higher requirements.....	2.5	91.4	6.3	94.9	6.4	94.3



From a different viewpoint, the reorganization in medical education has largely eliminated the low grade medical colleges and correspondingly reduced the numbers of poorly trained graduates which such institutions were annually pouring into the profession. Of the forty-one medical schools which have become extinct since 1904, thirty-four, or over 80 per cent. of them, had been rated in the lower classifications. It is evident that any further reduction there may be in the number of medical colleges, students and graduates will come through the further elimination of inferior teaching institutions. While there has been a reduction in the total number of medical colleges, students and graduates, the number of high grade medical schools, with their enrolments of students and their annual output of graduates, have been greatly increased. The figures are shown in Table 1, and more graphically in the chart which follows that table.

The reorganization in medical education, with the reduced number of medical colleges, was bound to result in a reduction also in the numbers of students and graduates. Fortunately, the high grade medical colleges have passed the lowest ebb and, as shown in Table 2,[23] their output of graduates is again on the increase. The present demand for medical men for the medical services and the splendid opportunity for advancement in those positions will doubtless result in a further increase in the enrolment of medical students in high grade institutions. There should be no reduction, since the General Medical Board of the Council of National Defense has urged college students already in medical schools not to enlist, but to continue in their college and medical courses, so as to give the country the benefit of their trained, rather than their untrained, services.

MEDICAL COLLEGES AND THE WAR

The entry of the United States in the European war has led to a consideration of procedures which may be necessary on the part of medical colleges to meet the demand for medical officers. Early in April medical colleges were urged to graduate before the usual time —or to grant certificates showing that graduation at the end of the term was quite probable—students who had secured a general average of 85 per cent. or more during the four year medical course and who should succeed in gaining admission to the Naval Reserve Force. These students were to be assigned to active service at once, for instruction and training, with the view of being later examined for appointment as assistant surgeons in the United States Navy. Reports received from thirty-seven state licensing boards were unanimous in the statement that such graduates would not be handicapped when they should later come up for license, since the military medical training would be considered as an equivalent of the training which otherwise would have been received in the medical school. Such graduates when applying for a license will be required to show documentary evidence of their having been in the government medical services.

The demand for physicians at first appeared to be so urgent as to require medical schools to adopt continuous sessions

23. See table, THE JOURNAL A. M. A., April 14, 1917, p. 1127.

and omit the usual summer vacation, at least for the senior and junior classes, and it appears that several colleges had made arrangements to do so. Fortunately, more careful consideration by the General Medical Board showed that for the present at least such a measure was not imperative. The sudden effort to establish a continuous session might cause great confusion in many medical schools and might seriously interfere with the best teaching. In many colleges it would require an extensive reorganization of the medical curriculum, and in some parts of the country the hot summer months make undesirable the conducting of teaching during that season. Again, in almost all colleges there are some students who have to earn money during the summer vacation to meet their college expenses. Meanwhile, the summer months will not be lost, since they can be spent, with possibly greater advantage, in other more productive occupations. Besides the General Medical Board of the Council of National Defense, several standardizing agencies, including the Council on Medical Education, which have considered the matter are of the opinion that the emergency is not at present sufficiently acute to justify a shortening of the medical course or the lowering of educational standards, although certain readjustments in procedure may become necessary. If, however, the emergency arises, the medical schools and state boards can be depended on to do whatever the government requires.

Medical Students' Register

One of the most important and satisfactory pieces of work undertaken by the Council was the establishment, in 1910, of the medical students' register. In this work the Council has had a most gratifying cooperation from all but a few of the medical schools. Not only have the colleges furnished elaborate reports each year regarding new students admitted but also, on blanks furnished by the Council, have had each new student fill out and sign a statement regarding his educational history, showing by years where and when his preliminary education was obtained. This provides the Council with the means of checking and verifying the entrance qualifications of every student from whom such a report is obtained. This regular check on the administration of entrance requirements is preventing a relapse to careless methods on the part of certain medical schools, which would likely occur if by any chance this check were removed. Where fifteen years ago very little was known as to just what entrance requirements were being enforced by medical schools, now the Council has the means of knowing positively whether the entrance requirements of medical schools are actually and satisfactorily enforced. In no one particular have the medical schools of this country been so greatly improved as in the requirements for admission. It is not claimed that perfection has been reached, and faults may still be found, but those faults are known and are being corrected. Through the information furnished by the students' register, the Council is in position to disprove the reports which are occasionally being circulated that the higher standards of preliminary education in the South, or in other sections of the country, are "merely on paper and not enforced."

The medical students' register, meanwhile, is an important addition to the Biographical Index of the physicians of the United States, which is the basis of the American Medical Directory. Meanwhile, for the last few years, the work of the Biographical Index and the Directory has been conducted under the supervision of the secretary of the Council on Medical Education.

The Hospital Intern Year

The ideal standard of medical education which was suggested by the Council on Medical Education in 1905 consisted of (a) a four-year high school course; (b) a year devoted to college courses in physics, chemistry and biology; (c) a four-year medical course, and (d) a year as an intern in a hospital. We are pleased to report that this standard is no longer merely ideal, but has been generally adopted, with the exception of the fifth year as an intern in a hospital. At present hospitals are not in sufficiently close relationship with medical schools to allow the latter to have ample supervision of the intern's work. Again, the investigation and standardization of hospitals can at present be best done by the licensing boards, under the authority granted by the state. It appears inadvisable, therefore, to require this intern year as an essential for the M.D. degree, but rather to have the student secure it after graduation from the medical school, as an added qualification for the license. In fact, an internship as a prerequisite for the license has already been adopted in six states. It became effective in Pennsylvania in 1914, in New Jersey in 1916, and will become effective in North Dakota and Rhode Island in 1918, in Illinois in 1921 and in Michigan in 1922.

Revised List of Approved Hospitals

A revised list of hospitals deemed in position to furnish acceptable internships for medical graduates has been published during the year. This revision was based on reports received from the advisory committees on hospitals in the various states. In this revision, a few unworthy hospitals, which were contained in the first list, were excluded and a much larger number of worthy institutions were added. The list now includes 519 general hospitals, providing 2,709 internships; 57 state hospitals, providing 303 internships, and 111 special hospitals, providing 328 internships. Altogether there are 687 hospitals, which provide internships for 3,340 medical graduates. There are doubtless other institutions which are worthy of being included on the list, but which are omitted because repeated requests have failed to secure the necessary information in regard to them. If all these could be listed, even now there would doubtless be an ample number of fairly good hospitals to provide internships for all students graduating each year in the United States.

A List of Approved Colleges

Acting on the instructions of the House of Delegates, given a year ago, the secretary of the Council has prepared a list of approved colleges of arts and sciences. That list is much needed as a guide to deans of medical colleges, secretaries of state licensing boards and others, in administering the present standards of admission to the study of medicine. It is quite evident that the Council cannot presume to be itself the judge of colleges of arts and sciences, therefore, it has depended on lists of institutions approved by such standardizing agencies as the Association of American Universities, the North Central and Southern associations of colleges and secondary schools and on lists approved by state and other prominent universities. The list compiled includes 340 colleges and universities. In the preparation of this list the Council has received valuable assistance from Dr. K. C. Babcock, formerly specialist in higher education of the United States Bureau of Education, now dean of the College of Liberal Arts and Sciences of the University of Illinois, and Dr. Theodore Hough, dean of the Department of Medicine of the University of Virginia. Last February these gentlemen and Prof. George Gailey Chambers, director of admissions of the University of Pennsylvania, representing the Association of American Universities; Dr. W. F. R. Phillips, professor of anatomy of the Medical College of the State of South Carolina, representing the Association of American Medical Colleges, and Dr. N. P. Colwell, the secretary of the Council, were appointed as a special committee to further develop this list of approved colleges.

This committee also has in charge the preparation of a suggestive schedule of subjects to be included in the two years of college work which, after Jan. 1, 1918, is to be the minimum standard for admission to be required of all medical schools listed in Class A. The object of this suggestive schedule is to develop a greater uniformity in the collegiate courses preliminary to medicine.

Economizing Time in Preliminary Education

A careful analysis of the length of time required to obtain a medical education in this country shows that, with their hospital intern year added, medical students complete their medical training, on the average, at the age, approximately, of 28 years. From this it is evident that something is seriously wrong with our scheme of American education and that a reorganization must be effected that will reduce

the age of graduation from medical and other professional schools by at least two years. With the purpose of pointing out these facts to the medical profession and to the educators of the country our conference last February was largely devoted to this problem. Articles were presented to Hon. P. P. Claxton, United States Commissioner of Education; President Harry Pratt Judson and Prof. C. H. Judd of the University of Chicago, and others who have devoted particular study to this problem.

Several methods by which a saving of the student's time might be brought about were advanced. One was through the development of a so-called junior high school, to extend through what are at present the seventh and eighth grades of the elementary school and the first year of the high school. This would be followed by a so-called senior high school, covering what are at present the last three years of the high school course. It is planned, however, that the curriculum for the elementary and high schools be so rearranged as to cover not only the courses now given in the elementary and high schools but also the subjects contained in the first two years of the regular college course.

According to Professor Judd, whose opinions appeared to coincide with those of other speakers, the seventh and eighth grades of the public schools need to be completely remodeled, and he hopes that this can be brought about through the organization of the junior high school and the rearrangement of the curriculum so that it will include many of the subjects heretofore taught in the regular high school course. Says Professor Judd:

> We are working over the algebra which used to be the exclusive property of the high school and getting it down to the seventh or eighth grade. . . . Geometry has been taught in the latter part of the high school course. We are trying in the seventh and eighth grades to find out how much of geometry belongs elsewhere. We are discovering by a study of pupils that foreign languages can be learned in the elementary school.

That these changes are reasonable is readily understood from the following statement by Professor Judd regarding American public Schools:

> The number of days of the school year in all public schools is now enormously greater than it was when the present organization of an eight-year elementary school and a four-year high school was adopted. In the middle of the last century schools were held for a few weeks in the middle of the winter when the children were not otherwise engaged in home occupations. A school which was in session four months was unusually long. Today, the better systems hold sessions for nine months. As a result, the courses of study can be correspondingly enriched. While the elementary school of 1860 might legitimately devote itself to the three R's, and the high school might legitimately be satisfied with a few elementary courses in science and letters, the schools of 1917 with their longer terms cannot be content to teach such meager courses.
>
> Again, the high school of today has taken over many of the courses of the college of a generation ago. This is not merely a matter of the course of study; it is also a matter of social opportunity. The cities of this country are now providing free of cost to every student the facilities which formerly were provided by endowment at colleges. Many cities now provide higher training in institutions explicitly classified as junior colleges. This movement is far advanced in California and is under way in Kansas City, Mo., Chicago, Detroit, Grand Rapids, Mich., Joliet, Ill., and other cities.

In Professor Judd's opinion the organization of the junior high school is the most important educational movement that has taken place in America in the last century. He says (italics ours):

> It means a complete reorganization of these two schools, the elementary and secondary, and by means of the junior high school, there will be a welding together of the schools which will result in economy and increased efficiency. I venture to prophesy that *we shall ultimately come to a six years elementary school followed by a three-year junior high school, and this followed in turn by a three-year senior high school. We shall complete the essentials of elementary education at the end of six years. We shall complete the training that is now ordinarily given in a high school and in the first two years of college in the next six years.* This is a feasible program, parts of which are now at hand and on exhibition in a good many schools in this country. Kansas City, Mo., has had a seven year elementary school for a long time. We tried the experiment under rigorous conditions of scientific study in our elementary school in the University of Chicago. Many centers that could be mentioned are carrying down the secondary school work to the seventh and eighth grades and saving one year.

Such a reorganization would bring the high schools of this country on a par with those of the various countries of Europe.

Apparently, however, those seeking to bring about these reforms in education are having a difficult time and it is evident that the medical profession should exert all the influence it can in support of the changes suggested. To again quote Professor Judd:

> These changes are being tried out, but progress is slow. What we need is the moral support and cooperation of intelligent people. As soon as some school puts algebra, geometry and Latin down in the seventh grade, there will be a medical certificate issued by the family physician of some pupil to the effect that the child is being overworked. When the members of an institution, perfectly intelligent and conscious of what they are doing, go to a perfectly intelligent constituency and point out that the seventh and eighth grades need more studies there will be fifteen mothers, if not fifty, who will say it is not so; that the educators are wrong in wanting to give children of this generation an education which differs from that of a generation ago.

When asked what the medical profession could do in furthering these needed reforms in education, Professor Judd replied:

> A number of organizations are devoting themselves to this problem. The National Education Association has a committee known as the Committee on Economy of Time, supported by committees of various organizations, one of which is the Association of American Universities. These committees need to be brought to work in harmony. What we need is the machinery of standardization. Your secretary, Dr. Colwell, has cooperated efficiently with the North Central Association of Colleges and Secondary Schools in the work of standardizing colleges and that cooperation might help also in the organization of the junior high school and of high schools in general. Therefore, my suggestion is that the Council have a committee to cooperate with the existing organizations that are working for the economy of time in education.

It is the purpose of the Council to present this urgent problem to the colleges and universities of the country and attempt to initiate a propaganda for such a reorganization as will shorten by at least two years the time now required to secure a complete medical education. We believe this can be accomplished by the right sort of readjustment of the work of the primary schools, high schools and colleges, without diminishing in any way the thoroughness of preparation.

Another method suggested for saving time was to make provision so that medical students who were physically able to do so could continue their work throughout part or all of the summer months, such as has been done since 1899 by Rush Medical College, in its quarter system. Meanwhile, we learn that the quarter system has recently been adopted by the Medical School of Leland Stanford Junior University.

Higher Degrees in Medicine

In the development of graduate medical instruction in this country a question has arisen in regard to degrees for the satisfactory completion of courses in such work. While it was believed that suitable degrees should be provided so as to recognize graduate courses, at the same time, so far as possible, a multiplicity of degrees was to be avoided. After a discussion of the subject at the February conference, the following special committee was appointed to make an investigation and to report further on this subject at the next conference:

> Dr. Horace D. Arnold, Boston, chairman; Dr. N. P. Colwell, Chicago, secretary; Dr. Louis B. Wilson, Rochester, Minn.; Dr. Isadore Dyer, New Orleans; Dr. John M. Dodson, Chicago; Dr. Alfred Eycleshymer, Chicago; Dr. William Pepper, Philadelphia; Dr. Victor C. Vaughan, Ann Arbor, Mich.; Dr. J. M. T. Finney, Baltimore; Dr. Edward Jackson, Denver, and Dr. James Ewing, New York.

Medical Curriculum

In 1909, at the fifth annual conference, a special committee of one hundred prominent medical educators, after a year of special study of the subject, brought in a report on a "Model Medical Curriculum." This has had a beneficial effect on medical education in the United States. At the eleventh annual conference in 1915 another special committee brought in a report including suggestions for the reorganization of clinical teaching. This may be considered as a supplement to the report on a model medical curriculum, and it deals with important changes needed in the methods of teaching in the clinical departments of the medical school.

The time has now come when a new suggestive schedule of the subject content of the medical curriculum and the number of hours to be devoted to each subject should be prepared. It is hoped that a greater degree of uniformity

of curriculums may result, especially in the subjects of the lower classes, so as to permit of a more free migration of medical students. A special committee to prepare a report which shall include suggestions in regard to the changes desired has been appointed, as follows:

Dr. F. S. Lee, Dalton professor of physiology, Columbia University College of Physicians and Surgeons, chairman; Dr. Charles R. Bardeen, dean and professor of anatomy of the University of Wisconsin Medical School; Dr. Reid Hunt, professor of pharmacology, Harvard University Medical School; Dr. Theodore C. Janeway, professor of medicine, Johns Hopkins University Medical Department, and Dr. William G. MacCallum, professor of pathology, Columbia University College of Physicians and Surgeons.

Relations with Canada

A year ago we reported that the rules regulating the practice of medicine in two Canadian provinces—Ontario and Quebec—contained clauses discriminating against medical colleges in the United States. Correspondence with the licensing board of Ontario, and with prominent physicians of that province, has resulted in eliminating the discriminatory clause. With Quebec, however, no change was made and the discriminatory clause still remains. Meanwhile, reports have been received stating that the better schools of Canada are planning to require another year of work devoted to the premedical branches, whereby the requirements of those colleges will be on a par with the requirements for admission to the leading medical schools of the United States. The Faculty of Medicine of the Western University of London, Ont., also has adopted the requirement of two years of premedical college work to take effect after Jan. 1, 1918.

State Board Statistics

In The Journal of April 14, 1917, was published the Council's annual presentation of statistics based on examinations conducted by state medical licensing boards. The statistics, which are based on examinations conducted during 1916, show a decided progress in the licensing of physicians in this country in the last thirteen years, which is briefly set forth in Table 3.[24] The most marked progress was in connection with the adoption of higher standards of preliminary education, thirty-six states now requiring one or more years of collegiate work, and twenty-one of these requiring the two-year standard. The next largest increase is in the refusal of state boards to recognize graduates of low-grade medical colleges. There are now thirty-nine states in which the diplomas granted by certain medical colleges are not recognized as an acceptable qualification for admission to the licensing examination. The facts are set forth in Table 4.[25] It is worthy of note that there are eighteen colleges the diplomas from which are not fully recognized in twenty or more states. The facts set forth in this table are based on official reports received from the state licensing board. On the other hand, it is seen that there are ten states in which the boards do not have, or are not using, the authority to refuse recognition of a medical college, no matter how inferior or undeserving it may be. It is evident (see Table 5) that these states are bound to be the dumping ground for the output of low-grade colleges which are rejected by other states.

Character of Applicants Licensed

Table 5, which was not published with the other statistics, is of special interest, since it shows for each state the character of the candidates licensed during 1916. Note that, of the 5,394 candidates licensed, the classification of the colleges from which they graduated is known for 3,877. There were 164 licensed (miscellaneous) who graduated from colleges which became extinct, or which merged with other colleges, before 1907, when the first classification of medical colleges was prepared; 82 were graduates of foreign medical colleges and 1,271 were licensed without examination by the endorsement of licenses (reciprocity) in other states. Of the 3,877 coming from colleges of known classification, 3,077, or 79.3 per cent., graduated from Class A medical colleges. Note that in Michigan, New Hampshire, Rhode Island and Virginia all candidates from colleges of known classification came from Class A medical schools. In all but a few states, it is noteworthy that the greater number of those licensed are from Class A institutions. The contrary is true, however, in several states. It will be seen that the largest number of graduates from Class C colleges were licensed in Missouri, Arkansas, California and Illinois. In Illinois 249 graduates of Class B colleges were licensed and more graduates of Class B and Class C colleges were licensed than graduates of Class A medical schools. The same is true in Arkansas, California and Missouri. It is evident, therefore, that in the states just named there is need of more efficient methods in the licensing of physicians. Illinois still has the darkest record in connection with the licensing of physicians. We are pleased to report, however, that great improvements are in sight through the enacting in Illinois of the new consolidation law, which, it is hoped, will place the licensing of physicians on a strictly educational basis.

TABLE 5.—CHARACTER OF PHYSICIANS LICENSED IN 1916

States	Graduates of					Reciprocity Licenses	Totals Licensed
	Medical Colleges in Class			Misc. Colleges	Foreign Colleges		
	A	B	C				
Alabama	46	4	0	5	0	0	55
Alaska	9	0	0	1	1	0	11
Arizona	18	4	1	4	6	0	33
Arkansas	15	22	24	6	0	28	95
California	81	40	15	3	7	156	302
Colorado	22	1	2	0	0	61	86
Connecticut	32	2	0	4	3	6	47
Delaware	11	2	0	0	0	6	19
Dist. of Columbia	27	1	1	1	3	11	44
Florida	48	8	0	9	3	0	68
Georgia	122	9	1	1	0	19	152
Idaho	17	2	1	8	1	4	33
Illinois	252	249	11	2	3	39	556
Indiana	42	3	0	1	3	27	76
Iowa	67	7	1	5	2	21	103
Kansas	24	1	7	0	0	63	95
Kentucky	50	13	0	3	0	6	72
Louisiana	64	3	0	1	0	9	77
Maine	20	1	0	2	2	6	31
Maryland	87	1	0	5	3	24	120
Massachusetts	134	5	8	11	8	0	166
Michigan	131	0	0	0	4	89	224
Minnesota	52	1	0	1	2	45	101
Mississippi	43	2	0	3	0	10	58
Missouri	72	18	57	14	0	51	212
Montana	20	7	1	10	0	0	38
Nebraska	45	4	3	0	0	18	70
Nevada	6	1	1	0	2	19	29
New Hampshire	10	0	0	0	0	15	25
New Jersey	62	8	0	1	1	91	163
New Mexico	1	1	0	3	0	9	14
New York	457	46	8	5	7	21	544
North Carolina	73	22	0	1	0	17	113
North Dakota	10	2	0	3	0	20	35
Ohio	154	27	0	0	1	69	251
Oklahoma	28	19	0	5	0	55	107
Oregon	26	3	3	4	2	19	57
Pennsylvania	202	20	0	10	1	0	233
Rhode Island	26	0	0	1	0	0	27
South Carolina	47	2	1	3	0	0	53
South Dakota	11	5	0	2	0	0	18
Tennessee	75	38	7	7	1	14	142
Texas	72	13	1	1	3	75	165
Utah	11	3	0	1	0	8	23
Vermont	15	1	0	0	1	6	23
Virginia	94	0	0	4	1	32	131
Washington	33	3	0	3	9	0	48
West Virginia	40	12	0	6	0	32	90
Wisconsin	64	6	0	1	1	55	127
Wyoming	9	4	0	3	1	15	32
Totals	3,077	646	154	164	82	1,271	5,394
Percentage of all licensed	57.0	12.0	2.9	3.0	1.5	23.6	100.0

Regular Work Conducted by the Council

The various regular lines of work now being conducted by the Council on Medical Education are as follows:

(a) Conducting, during the first week of February each year, a conference on medical education and medical licensure, where problems of interest to medical schools and to state licensing boards are brought up for discussion. The report of this conference is published in the American Medical Association Bulletin about March 1 each year. This conference has grown from a small beginning until in 1916, 329 delegates were present.

(b) An annual presentation of statistics based on examinations conducted by state licensing boards during the preceding

24. See Table M, The Journal A. M. A., April 14, 1917, p. 1120.
25. See Table D, The Journal A. M. A., April 14, 1917, p. 1112.

year. Reports are obtained throughout the year shortly after each examination is held. The statistics are published about the second week of April each year.

(c) The revision and publication of a book of "Laws and Board Rulings Regulating the Practice of Medicine in the United States." This book also contains the latest available information in regard to the requirements for registration in various foreign countries; a complete list of foreign medical colleges and other information in regard to medical colleges, medical education and state requirements of preliminary education.

(d) Cooperation with the Association of American Medical Colleges and with the Federation of State Medical Boards so as to further the establishing and maintenance of uniform and reasonable standards of medical education and medical licensure.

(e) Cooperation with associations of colleges and secondary schools, so as to keep medical education in close correlation with other departments of education.

(f) Collecting and publishing information in regard to medical colleges, students and graduates for the Council's annual presentation of medical college statistics. These are published about the third week of August each year.

(g) Obtaining information from medical colleges regarding new students enrolled at the beginning of each session. This information is the basis of the medical students' register.

(h) Reports obtained from state boards, from medical colleges and for the students' register furnish the information for maintaining and keeping up to date the biographical index of all physicians of the United States. This information is also utilized in correcting and bringing up to date the American Medical Directory, a new edition of which is issued every alternate year.

(i) Keeping up to date the classification of medical colleges. In justice to certain colleges and as improvements appear to warrant, reinspections are made, so that the college's rating can be changed if the conditions found justify such action.

(j) Obtaining from all available sources information in regard to the various drugless cult institutions. The most notorious of these institutions are written up and from time to time the facts in regard to them are published.

(k) Information in regard to hospitals is now being collected, so as to answer the requests for such information which come to the office of the American Medical Association. This information is also serviceable in connection with the maintaining of the list of hospitals furnishing acceptable internships.

(l) All the lines of work referred to, provide data for the *clearing house of information* in regard to medical colleges, medical education, medical licensure, drugless cult colleges, hospitals, etc., which is now being maintained by the Council. Information is now being furnished in response to a rapidly increasing volume of correspondence from those in need of such information. Requests are now being received from a rapidly increasing number of prospective medical students asking for information regarding medical colleges. Full information, including the Council's classification, has been included in a small pamphlet, so that it can be furnished readily and at small expense.

FUTURE WORK

The following special lines of endeavor are such as could be carried on by the Council with, undoubtedly, excellent results. They may need to be postponed, however, on account of the entry of the United States in the world war, but should be taken up as soon as conditions are favorable:

(a) There should be another general revision of the Council's classification of medical colleges. The standard on which the present classification is based should be strengthened and the medical schools reclassified accordingly. This should follow a reinspection of all medical schools. The reinspection would be of marked benefit not only through a reclassification of colleges, but also through the assistance to the colleges which the Council would be able to render, through oral and written suggestions.

(b) An effective work which could be carried on by the Council would be to have a representative attend and make a special study of the examinations conducted by various state licensing boards. The Council could in this way obtain better information regarding the methods of examination and information regarding effective methods employed in one state could be furnished to other states. Through this visitation the needs of each individual state could be studied and efforts could be intelligently directed toward improvement.

(c) A careful and thorough investigation should be made of all drugless cult institutions, so that first-hand information regarding them could be published. This information would be of service in dealing with the medical cult problem.

(d) There should be a further investigation of graduate schools, and information should also be collected regarding the various measures employed to take graduate courses to physicians, so that reliable information could be disseminated among those in need of such courses.

(e) The investigation of hospitals is a matter which could be carried on with advantage, to whatever extent funds for such work may be available. This is a work which may largely devolve on state licensing boards, but the American Medical Association should keep in close touch with and participate in that work, so as to develop and maintain uniform standards.

Respectfully submitted,

ARTHUR DEAN BEVAN, Chairman
JAMES W. HOLLAND
HORACE D. ARNOLD
ROBERT C. COFFEY
WILLIAM D. HAGGARD
N. P. COLWELL, Secretary.

Dr. Arthur T. McCormack, Kentucky, moved that the House take a rising vote as an indication of appreciation of the magnificent work of the Council on Medical Education and its members individually.

Seconded and unanimously carried.

Dr. Bevan stated that he did not take a vote of appreciation as a personal compliment, but as a compliment to the members of the council who had done the work.

Report of the Council on Scientific Assembly

In the absence of Dr. E. S. Judd, Minnesota, chairman, the Secretary suggested that the Report of the Council on Scientific Assembly be received as printed in the Handbook, and referred to the Reference Committee on Reports of Officers.

There being no objection to this suggestion, it was so ordered.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

Your Council on Scientific Assembly appreciates the responsibility placed on it and realizes that changes in the conduct of the Scientific Assembly should be made only after careful deliberation both on the part of the Council itself and of the House of Delegates.

NUMBER OF SECTION MEETINGS

The Council repeats and desires to emphasize what was brought out in the excellent report of the special committee on Sections and Section Work two years ago: that is, that at our annual sessions too many section meetings are held at the same time. There is no question as to this. The annual sessions of the British Medical Association are often compared with our annual sessions to the advantage or disadvantage of the one or the other, according to the point of view. The British Medical Association is charged with devoting too much time to social functions and renewing acquaintances and too little time to scientific work. We are accused—and the Council on Scientific Assembly believes this is a just criticism—of devoting too much time to scientific work and too little to social enjoyment and getting acquainted with each other.

Your Council is of the opinion that a more effective distribution of time will be presented if the Sections are limited to one meeting a day. Those men who are particularly interested in what they regard as their particular section feel it their duty to attend all the morning and afternoon meetings, any one of which is liable to be extended.

It is a strain to attend every meeting of a section.

It is possible to have too much of a good thing.

There is such a bewildering abundance in the program of the Scientific Assembly that the average man is at a loss to know what section to attend and not infrequently finally ends by not attending any. The man who is faithful to one particular section has no opportunity of attending the meetings of other sections. It would be a good thing for the ophthalmologist if he were free in the morning or the afternoon, to attend the laryngological section and it would do him no harm if he attended the Section on Practice of Medicine or the Section on Nervous and Mental Diseases, or some other; nor would it injure the laryngologist to visit the ophthalmological section or any of the others. This applies also to the internist, the surgeon, the obstetrician, the neurologist, the dermatologist, in fact to all physicians. Our Scientific Assembly ought to be so conducted that a man would not think he was neglecting the section in which he has an especial interest when he takes time to keep in touch with what is being done in other sections or to meet other physicians outside the sections.

The present division of the Scientific Assembly has developed gradually as a result of groups of men, engaged in a special line of practice, requesting the formation of separate sections for their specialties. At the present time, certain individuals and groups cannot get away from the opinion that the sections are independent organizations to which they belong by virtue of "membership" and to which they must give allegiance. They seem not to realize that there is no provision for affiliation with a section other than that a Fellow registering as in attendance at an annual meeting is privileged to "designate the section in which he wishes to be enrolled," and this is for the purpose of voting for section officers. It should be emphasized that the Scientific Assembly of the American Medical Association is an entity and that the sections are merely parts of a whole.

The Council would not be misunderstood. Allegiance to a particular section is desirable. It has been and is an important factor in developing scientific work.

The Council recommends that, as a trial measure, the ten Sections to which are assigned three units or less, shall hold but one meeting a day and that these meetings shall be assigned by the Council on Scientific Assembly so that sections covering more or less closely related subjects shall be grouped, one meeting in the morning and the other in the afternoon. For instance, the Section on Dermatology could be paired with the Section on Genito-Urinary Diseases; that is, the Section on Dermatology meeting in the morning and that on Genito-Urinary Diseases in the afternoon. Then the Section on Diseases of Children might alternate with that on Orthopedic Surgery; the Section on Practice of Medicine with that on Pharmacology and Therapeutics; the Section on Surgery, General and Abdominal, with that on Obstetrics, Gynecology and Abdominal Surgery; the Section on Ophthalmology, with that on Laryngology, Otology and Rhinology. This of course assumes that later on the sections having more than three units will ultimately decide to hold one meeting a day.

This grouping could be so arranged that the sections which meet in the morning one year would meet in the afternoon the next; so that if there be any advantage in the morning over the afternoon meeting, or vice versa, this would be equalized. The Council is of the opinion that if this plan of holding but one meeting a day is carried out by the ten sections, the remaining five will appreciate the advantage of the plan and adopt it.

Neglected Topics

A number of more or less important subjects are not discussed in the Scientific Assembly because they do not seem to fit in any of the existing sections. This, in part, at least, may account for appeals which have been made to the House of Delegates to establish a new section for this, that or the other subject. Such petitions often are recognized as just appeals but there are already too many sections. Moreover, as a rule, there is no assurance of an actual demand for the section or that the progress in the specialty asking for recognition is sufficient to warrant a separate section. By way of illustration, the Section on Hospitals is cited. It was constituted because some men felt that the subject was of sufficient importance to warrant a section. Time showed that this was not the case. There is no doubt that at intervals a meeting could be devoted with profit to discussing questions concerning hospitals and their management. The Council is convinced that many other topics now neglected should be provided for from time to time on the program of the Scientific Assembly. For instance, the technic of roentgenography; anesthetics, including mechanical devices for administration; or such timely topics as the duties of the medical corps of the federal government, the important subject of expert testimony and other relations of physicians to courts at law; life insurance examinations, and many others which might be cited should be presented occasionally. None of them require a separate section; all of them, and similar topics, are worthy of occasional discussion. If the House approves, provision should be made whereby your Council could arrange for the discussion of such subjects by allotting a unit or units to certain of them from time to time, as well as appoint officers to arrange and conduct such meetings.

By-Laws and Standing Rules

The functions of the Council are defined in the by-laws but this body is vested with no authority. If the House of Delegates desires it to be more than simply an advisory body, the Council is ready to serve the Association to the best of its ability; and submits, for the consideration of the House of Delegates, the following suggestions for the modification of the by-laws of the Association:

(*a*) That to Chapter VII, Section 7, page 20, there be added the following paragraph:

"To this Council shall be referred, unless otherwise unanimously ordered, resolutions, measures and propositions relating to the sections and section work presented to the House of Delegates before final action is taken by the House."

(*b*) That Chapter XI, Section 4, paragraph (c), page 31, have added after the word "chairman" appearing in the fourth line of the printed paragraph the words "and in accordance with rules and regulations enacted by the House of Delegates," so that this paragraph shall read:

"Secretary.—The secretary shall keep a record of the proceedings of the section in a book provided for such purpose; shall, with the cooperation of the chairman, *and in accordance with rules and regulations enacted by the House of Delegates,* arrange the program; and shall, at least thirty days before the Scientific Assembly, forward it to the Secretary of the Association for insertion in the official program; and shall perform such other duties pertaining to his office as may be provided by the by-laws of the Association or of the section."

(*c*) That Chapter XI, Section 12, page 33 be amended so as to read:

"Number of Papers on Program.—The number of papers, including addresses, on the program of any section shall not exceed six in each unit assigned to the section, by the rules and regulations enacted by the House of Delegates, provided, however, that no section may list more than thirty papers on its program."

(*d*) That Chapter XI, Section 3, page 30, be amended by substituting for the first sentence, which reads: "The election of officers of the several sections shall be the first order of business of the next preceding the final meeting of the section at each Scientific Assembly except when the section holds but one meeting," the following:

"Election of Officers.—The election of officers of the several sections shall be the first order of business of the next preceding the final meeting of the section at each Scientific Assembly, provided, however, that when a section shall hold not more than two meetings at any annual session, these officers shall be elected at the final meeting."

The Council further suggests the following standing rules for the government of the Scientific Assembly:

1. The term "unit" shall signify a single meeting of a section at an annual session.

2. Not more than six numbers shall be listed on the scientific program of any one unit, and further, no section shall list more than thirty papers (the number to which a section is limited by the by-laws of the Association) at any one annual session, distributed among all the units assigned to it.

3. The sections of the Scientific Assembly shall be limited at each annual session to the maximum number of units listed in the appended table:

Practice of Medicine	6 units
Surgery, General and Abdominal	6 units
Obstetrics, Gynecology and Abdominal Surgery	6 units
Ophthalmology	6 units
Laryngology, Otology and Rhinology	6 units
Diseases of Children	3 units
Pharmacology and Therapeutics	3 units
Pathology and Physiology	3 units
Stomatology	2 units
Nervous and Mental Diseases	3 units
Dermatology	3 units
Preventive Medicine and Public Health	3 units
Genito-Urinary Diseases	3 units
Orthopedic Surgery	3 units
Gastro-Enterology and Proctology	2 units

4. Those sections to which three or a less number of units are assigned shall hold but one meeting on each of the days of the annual session during which section meetings are held.

5. The Council on Scientific Assembly shall apportion the morning and afternoon units at each annual session to the several sections.

Respectfully submitted.

E. S. JUDD, Chairman.
ROGER S. MORRIS.
GEORGE H. SIMMONS.
J. SHELTON HORSLEY.
ALEXANDER R. CRAIG.

Report of the Committee on Red Cross Medical Work

Dr. George M. Kober, District of Columbia, chairman, presented the Report of the Committee on Red Cross Medical Work, which was referred to the Reference Committee on Reports of Officers.

The report follows:

To the Members of the House of Delegates of the American Medical Association:

A Committee on Red Cross Medical Work was created at the request of the American Red Cross at the 1912 Session in accordance with Section 8 of Chapter VII which reads as follows:

"Sec. 8.—Committe on Red Cross Medical Work. The Committee on Red Cross Medical Work shall consist of three Fellows, one of whom shall be appointed by the President upon nomination of the Surgeon General of the Army, one upon the nomination of the Surgeon General of the Navy and the third member of the Committee, who shall be its chairman, shall be appointed by the President and nominated to the Red Cross as the representative of the Association on its Relief Board. This Committee is authorized to cooperate with the National Red Cross and shall have advisory supervision over state committees having charge of the same subject and shall be empowered to act for the Association in matters involving medical personnel in times of disaster provided that it shall expend money or contract financial obligations only as shall be authorized in writing by the Board of Trustees."

ORGANIZATION AND ACTIVITIES OF THE AMERICAN NATIONAL RED CROSS

It is not generally known that the American Red Cross was chartered by Congress not only as a relief organization in case of disaster in civil life, but also to furnish volunteer aid to the sick and wounded of armies in time of war, and for said purpose to act in accord with the military and naval authorities as a medium of communication between the people of the United States of America and their army and navy.

The President of the United States is ex-officio President of the American Red Cross and he appoints five others members of the central committee, who are at present the Secretary of State, Surgeon General of the Army, Surgeon General of the Navy, Comptroller of the Currency and the Solicitor General of the United States. The plans of the American Red Cross for war time relief service have long since been made in conjunction with the War and Navy Departments, and will be executed only in coopcration with the government.

The chief object of committees on Red Cross Medical work in every state and county of the Union, is to provide a body of representative physicians of approved qualifications, on whom the Red Cross can call to direct or participate in medical work carried on by that organization in any emergency which may arise. We have simply to recall the many disasters such as floods, earthquakes, forest fires and cyclones which have required the intervention of the Red Cross in order to appreciate the value of a permanent committee in every county to advise with the representatives of that society in handling medical and sanitary problems incident to such an occurrence.

Apart from its activity in emergency relief work the Red Cross in times of peace is also engaged in an educational campaign for the mitigation of human suffering and the saving of lives. So far it has extended this movement with excellent results to the teaching of prevention of accidents and first aid to the injured, in connection with mines, railways, lumber camps, industrial plants and bathing beaches, etc.

ACTIVITIES OF THE COMMITTEE ON RED CROSS MEDICAL SERVICE

It has been the aim of your Committee to stimulate the creation of a Committee on Red Cross medical work in every county medical society. This has involved the issue of repeated circulars. The correspondence up to 1915 being carried on direct with the county medical societies. The Reference Committee on the report of the Officers at the session of the House of Delegates in 1915 recommended that the activities of the committee be directed through the state associations rather than with county societies directly.

On July 24, 1916, Major Robert U. Patterson, M. C. U. S. A., the Secretary of the National Committee on Red Cross Medical Service, at our request recircularized through the Secretary of the State Medical Society all County Medical Societies as had not already organized a Committee on Red Cross Medical Work.

A copy of the Circular (see appendix A) was addressed to the Secretary of the respective county medical societies, inclosed in addressed and stamped envelopes and forwarded to the Secretary of the State Medical Society, so all that remained to be done was for the Secretary and President to transmit them with such indorsement as they deemed proper. This action has had the effect that since May 1, 1916, 174 additional county medical associations have been enrolled so that now 756 county societies in 49 different states are in close affiliation with the American Red Cross ready to cooperate with that body in all emergencies which may confront the nation in peace or war.

NUMBER OF COUNTY MEDICAL SOCIETIES BY STATES WHO HAVE APPOINTED COMMITTEES ON RED CROSS MEDICAL WORK

Alabama	10	Nebraska	17
Arizona	8	Nevada	1
Arkansas	20	New Hampshire	6
California	16	New Jersey	7
Colorado	11	New Mexico	8
Connecticut	6	New York	30
Delaware	1	North Carolina	11
District of Columbia	1	North Dakota	5
Florida	11	Ohio	41
Georgia	20	Oklahoma	26
Idaho	2	Oregon	5
Illinois	43	Pennsylvania	44
Indiana	48	Rhode Island	5
Iowa	37	South Carolina	11
Kansas	23	South Dakota	5
Kentucky	36	Tennessee	15
Louisiana	7	Texas	47
Maine	9	Utah	2
Maryland	2	Vermont	4
Massachusetts	15	Virginia	9
Michigan	18	Washington	9
Minnesota	11	West Virginia	9
Mississippi	17	Wisconsin	20
Missouri	38	Wyoming	1
Montana	8	Total	756

DUTIES SO FAR PERFORMED BY COUNTY COMMITTEES

So far some of the committees have been called on by Major Patterson, the Chief of Bureau of Medical Service of the American Red Cross, to report on the qualifications of physicians and surgeons offering to serve the Red Cross hospital units in the European War zone. The endorsements have been invaluable in the selection of men, as it is highly important that reputable men only be chosen, in order to protect the American Red Cross and the reputation of the Medical profession whom they represent abroad. Some of

the committees have been called on to act as instructors and judges in contests organized by the First Aid Department of the Red Cross for miners, lumbermen, railway service men, industrial workers, etc.

It should be understood that in case of war the "Department of Military Relief" of the American Red Cross will place all of its personnel and agencies at the disposal of the Army and Navy of this country.

MEDICO-MILITARY PREPAREDNESS

In this connection it should be stated that owing to the strained relations of this country with foreign nations the Government in the spring of 1916 appointed an Advisory Committee of prominent citizens as consultants on various industrial and economic problems. About the same time the subject of medical preparedness was more or less discussed at the Clinical Congress of Surgeons of America. In the early part of April the President of the American Medical Association, Dr. Albert Vander Veer, was asked to cooperate with the presidents of the Congress of American Physicians and Surgeons, the American Surgical Association, the Clinical Congress of Surgeons of North America and of the American College of Surgeons jointly to appoint a committee which would make a comprehensive survey of the medical resources of the country including the names of physicians available for field or home duty in time of war, with special qualifications of each and the equipment of the institutions with which these men are connected together with other data required for a mobilization of the medical resources of the country. This Committee met in Chicago for organization on April 14, 1916, and elected as Chairman, Dr. Wm. J. Mayo; as Secretary, Dr. Frank F. Simpson, and the following Executive Committee: Drs. George E. Brewer, George W. Crile, J. M. T. Finney, Robert G. Le Conte, Fred B. Lund, William J. Mayo, Franklin H. Martin, Frank F. Simpson, William S. Thayer and Albert Vander Veer. On April 28 this Committee met in Washington and made an offer of their services and those of 70,000 medical men, which they represented, to the President to assist the medical welfare of the Army and Navy.

NATIONAL COMMITTEE ON RED CROSS MEDICAL SERVICE

Col. J. R. Kean, Medical Corps of the U. S. Army,[26] the Director General of Military Relief of the American Red Cross, pointed out to the Committee at its Washington meeting "that the work proposed by it seemed to cover ground which was given to the American Red Cross by its charter and by the proclamation of the President of the United States of August 22, 1911, and proposed that this committee should work either through the Red Cross or in conjunction with it. This suggestion, after due deliberation on the part of the Committee of the associated medical societies was accepted to the extent, that an agreement was entered into that they should cooperate with the American Red Cross through its National Committee on Red Cross Medical Service, which committee should be an interlocking one with the committee of the associated medical societies, by having as members of the national committee all the members of the committee of the associated societies, which was known as the Advisory Committee of Civilian Physicians and Surgeons on Medical Preparedness."

The Red Cross on June 1, 1916, appointed a National Committee on Red Cross Medical Service composed of thirty-six representatives of the Associated Medical Societies. The following were the members appointed, the numbers after their names indicating the number of years which each member is to serve:

Bevan, Arthur D. (1).....122 S. Michigan Ave., Chicago
Billings, Frank (2).....122 S. Michigan Ave., Chicago
Binnie, John F. (3).....1334 Rialto Bldg., Kansas City, Mo.
Bloodgood, Joseph C. (1).....904 Charles St., Baltimore
Bradford, Edward H. (2).....D. Har. Med. School, Boston
Brewer, George E. (3).....16 E. 64th St., New York
Crile, George W. (1).....Osborne Bldg., Cleveland
Cushing, Harvey (2).....Peter Bent Brigham Hospital, Boston
De Schweinitz, George E. (3).....1705 Walnut St., Philadelphia
Finney, J. M. T. (1).....1300 Eutaw Place, Baltimore
Gibson, Charles L. (2).....78 E. 54th St., New York
Kober, George M. (3).....920 H St. N.W., Washington, D. C.
Lambert, Samuel W. (1)..Dean Columbia Univ. Med. School, New York
Le Comte, Robert G. (2).....1530 Locust St., Philadelphia
Lund, Fred Bates (3).....527 Beacon St., Boston
Martin, Edward (1).....1506 Locust St., Philadelphia
Martin, Franklin H. (2).....30 N. Michigan Ave., Chicago
Matas, Rudolph (3).....3523 Prytania St., New Orleans
Mayo, Charles H. (1).....Rochester, Minn
Mayo, W. J. (2).....Rochester, Minn.
Murphy, J. B.*.....
Murphy, Fred T. (1).....5738 Coates Ave., St. Louis
McMurtry, Lewis S. (2).....The Atherton, Louisville, Ky.
Noble, George H. (3).....980 Peachtree St., Atlanta, Ga.
Ochsner, Albert J. (1).....2101 Sedgwick St., Chicago
Porter, Charles Allen (2).....254 Beacon St., Boston
Reed, C. A. L. (2).....Union Central Bldg., Cincinnati
Rixford, Emmet (1).....1795 California St., San Francisco
Royster, Hubert A. (2).....423 Fayetteville St., Raleigh, N. C.
Sewall, Henry (3).....Majestic Bldg., Denver
Simpson, F. F. (1).....7048 Jenkins Arcade Bldg., Pittsburgh
Strong, Richard P. (2).....120 Broadway, New York
Thayer, William S. (3).....406 Cathedral St., Baltimore
Vander Veer, Albert (1).....28 Eagle St., Albany, N. Y.
Vaughan, Victor C. (2).....221 S. State St., Ann Arbor, Mich.
Williams, J. Whitridge (3).Dean, Johns Hopkins Med. School, Baltimore

* The vacancy occasioned by the death of Dr. Murphy in August, 1916, was filled by the appointment of Dr. Walter Jarvis Barlow of Los Angeles.

The ex-officio members are: The Surgeons General of the Army, Navy and Public Health Service; the President of the American Medical Association, President of the Congress of American Physicians and Surgeons, President of the American College of Surgeons, the Director General of Military Relief, the Director General of Civilian Relief, the Director of the Bureau of Medical Service, the Director of the Bureau of Naval Service, and the Chairman of the National Committee on Red Cross Nursing Service.

The regular meetings of this committee are scheduled to be held at the time of the meeting of the American Medical Association and also at the time of the Annual Meeting of the American Red Cross.

In order to secure a thorough cooperation between the National Committee on Red Cross Medical Service and the States, the American Red Cross appointed a Committee of nine in every State. The members of this Committee were chosen as follows: three by the President of the American Medical Association, three by the President of the Congress of Physicians and Surgeons and three by the President of the College of Surgeons.

RECOMMENDATIONS

While this action may not be in accord with the recommendations of the House of Delegates which directed in 1915 that activities of the "Committee on Red Cross Medical Work of the American Medical Association should be made through the State Associations instead of the county societies, directly meaning thereby Medical Associations, the facts are that this matter was beyond the control of your committee. The President of the American Medical Association committed the Association to this action, evidently for the purpose of harmonizing conflicting, but highly important patriotic activities in the line of national medical preparedness. The President of the American Medical Association moreover has also endeavored to safeguard the affiliation which should exist between the Association and the State Societies by selecting invariably the President and Secretary of the State Medical Association among the three members alloted to him. In the judgment of your committee his action should be approved by the House of Delegates, as it was doubtless the best solution of a very difficult and delicate problem.

Your Committee further recommends that hereafter all communications with County Medical Associations may be transmitted through the State Committee on Red Cross Medical Service. Heretofore we have complied strictly with the directions of the House of Delegates.

In this connection it should be remembered that just as the "Advisory Committee of Civilian Physicians and Surgeons on Medical Preparedness" is an interlocking one with the National Committee on Red Cross Medical Service, so it is intended that the State Committees should perform the dual functions on medical preparedness, and also on Red Cross Medical Service.

The Duties of the National, State and County Committees on Red Cross Medical Service are clearly defined in Appendix B.

An outline of the activities of the National Advisory Committee and of State and county committees on Medical Preparedness will be found in Appendix C.

A careful perusal of these regulations is earnestly recommended.

There are a few points not referred to in these documents which your Committee deem important to emphasize in the interest of efficiency and preparedness.

1. It is extremely desirable that all county medical societies that have not yet organized Committees on Red Cross Medical Work will do so at the earliest possible moment, so

26. See Annual Report of the American Red Cross, Dec. 13, 1916, p. 46.

that they may participate in the patriotic duties expected to be performed by the Medical Profession in all parts of our beloved country.

2. The experience of European countries has shown the unwisdom of medical students enlisting in line or sanitary organizations, thereby interrupting their medical education and depleting the ranks of future medical officers. A similar tendency has been noted in this country, and in order to guard against a possible shortage the Medical Board of the Council of National Defense on April 23 declared it to be the patriotic duty of even premedical students to remain under instruction until the country can avail itself of their trained services. In justice to this class of men and also the graduates of the class of 1917, who in the interest of real efficiency have been urged to complete their hospital year, their position should be clearly understood in every community and defended by the medical profession upon the ground of genuine preparedness.

3. Physicians can render a great service by advising college and high school graduates not destined for a medical career to enlist in the ambulance corps or other sanitary organizations of the American National Red Cross, or in the Hospital Corps of the United States Army and Navy. It is worthy of note that there are commissioned medical officers now in these services, who began their career as enlisted men of the hospital corps.

4. There is a distinct need for Medical Officers in the regular Army and Navy with about 1,300 vacancies to be filled. It is generally conceded that the most available class of men for Medical Officers are graduates of the classes of 1916, 1915 and 1914, since the majority have had one year and quite a large number two years of hospital experience and that they include a large percentage of unmarried men. On the other hand it should be remembered that there is a large number of medical men now on the rolls of the American Red Cross and the Officers Reserve Corps, and many more are wanted, whose practice is liable to be dissipated, while performing a patriotic duty. In order that the families of such men and their practice may not suffer, your committee strongly recommends the methods suggested to prevent such an evil. (For details see *Journal American Medical Association,* April 14, 1917, p. 1131, and April 28, p. 1270.)

5. Your committee also recommends that a copy of this report with the action of the House of Delegates be transmitted to the State and County Medical Associations in the United States and Insular Possessions.

ADDENDUM

Since the foregoing report was submitted for printing, the mobilization of the medical forces of the American Red Cross under the leadership of director general, Col. Jefferson R. Keen, Medical Corps, U. S. Army, has made rapid progress.

Of the 38 base hospitals with a capacity of 500 beds each, and a personnel of 24 medical officers, 65 nurses and 153 sanitary corps enlisted men for each hospital, 6 are already doing duty on foreign soil with the allied troops.

In addition to the 38 base hospitals, 20 hospital units each composed of 1 director, 1 adjutant, 2 chiefs of service, 4 staff surgeons, 4 staff physicians, 1 head nurse, 20 nurses, and 3 clerks, have been organized. These hospital units are intended to supplement and assist already established military hospitals.

Of the 42 ambulance companies organized, each composed of 5 medical officers and 119 sanitary corps men, 12 are now awaiting orders for Europe and the remainder are undergoing instruction. In addition, 14 Red Cross sanitary training detachments, with a personnel of 64 each, have been organized and are now preparing for active service.

It must be a source of gratification to the American medical profession to know that the first military aid given to the Allies has been in the line of medical relief and the conservation of life.

Respectfully submitted.

GEORGE M. KOBER, M.D.,
Chairman.

HENRY T. BIRMINGHAM,
Colonel Medical Corps, U. S. Army.

T. W. RICHARDS,
Surgeon, U. S. Army.

APPENDIX A[27]

To the Secretary, Medical Society:

DEAR SIR:—The undersigned have been constituted a committee by the President of the American Medical Association to cooperate with the American Red Cross, in the matter of medical work

The committee feels that a great deal of substantial good will come to all communities by providing a body of representative physicians of approved qualifications to direct or participate in medical work carried on by the Red Cross in different localities in times of emergencies and to advise with the representatives of that society on questions of medical policy and procedure. Besides its activity in emergency relief work, the Red Cross is engaged in an educational campaign for the mitigation of human suffering and the saving of lives. So far it has extended this movement only to the teaching of prevention of accidents and first aid to the injured, but it is hoped in future that it shall include popular instruction in the prevention of disease. These medical committees are not in any way bound to this educational work of the Red Cross, but members of the committees who may be interested are invited to correspond with the First Aid Department of the Red Cross.

In the opinion of this committee, the plan may be properly considered under the following headings:

1. OBJECT. Primarily this service is designed to meet local emergencies when conditions of disaster are such as to call for the intervention of the Red Cross. When exigencies come about in any community the Red Cross would be glad to feel that it might call on carefully selected physicians in that community to lend their aid in the medical work incident to the situation.

2. ORGANIZATION. It is desired to have in every county a central committee of five physicians, two of whom shall be the President and Secretary of the County Medical Society, *ex officio.* The President of the County Medical Society shall select the other three members, preferably from the list of councilors or of the executive committee. This committee shall be designated the "Committee on Red Cross Medical Work." The names and residences of the members, immediately after organization, should be reported to the chairman of the American Medical Association Committee. In case of disaster, requiring relief action by the Red Cross, these county committees will be called on to nominate qualified medical men in their respective counties for Red Cross service. The committees will also serve in an advisory medical capacity to the Red Cross in time of disaster and in other lines of Red Cross activity as indicated in a preceding paragraph.

3. QUALIFICATIONS. The certification of physicians by County Committees will be accepted as ample evidence of the physical, moral and professional qualifications of the gentlemen recommended for appointment. It may be pertinent to state that service in time of disaster may entail severe physical effort and physical fitness of appointees to perform hard work is, therefore, important.

4. COMPENSATION. In some instances the Red Cross may require the services of physicians at a distance from their places of residence and for varying periods. Under these conditions the Red Cross will be prepared to pay traveling expenses and a moderate honorarium to be agreed on between the physicians and the National Director of the Red Cross.

It will be obvious to you that the arrangement here proposed is primarily intended to provide for emergencies which may suddenly arise in any community, or, on the other hand, may happily never occur. Thus it may be that the committee which we are inviting you to create may never be called into action, while, on the other hand, it may have occasion to perform a very great public service, especially in case of war. Your cooperation in the completion of this plan at as early a date as convenient will be appreciated.

Please address all communications bearing on the contents of this letter to the Secretary, National Committee on Red Cross Medical Service, American Red Cross, Washington, D. C.

Very respectfully,

GEORGE M. KOBER, M.D.,
Chairman.

HENRY T. BIRMINGHAM,
Colonel, Medical Corps, U. S. Army.

T. W. RICHARDS,
Surgeon, U. S. Navy.

The formation of local committees in the American Medical Association, as outlined in the above circular, is most important. It is urged that every member cooperate to the fullest extent in the humane work of the American Red Cross, which the Association desires to assist through these special committees.

RUPERT BLUE,
President of the American Medical Association.

Resolution on Department of Health

Under the head of "new business," Dr. Arthur T. McCormack, Kentucky, offered a resolution on a department of health which was referred to the Reference Committee.

27. Appendixes B and C, Regulations of the National Committee on Red Cross Medical Service and Information Regarding the correlated activities of the Council of National Defense and the Advisory Commission, the Medical Departments of Government, and the Committee of American Physicians for Medical Preparedness, repeat material already published in THE JOURNAL, and are therefore omitted.

Care of Infants and Children During the War

Dr. H. M. McClanahan, Nebraska, delegate from the Section on Diseases of Children, presented a report as follows, which was submitted by the Executive Committee of the Section on Diseases of Children in reply to questions asked by the Council for National Defense, concerning the care of infants and children during the war. This communication was referred to the Reference Committee on Legislation and Political Action.

SYNOPSIS

The accompanying report has to do with:

1. The most efficient disposition of the pediatrist in the present crisis.
2. The importance of providing a sufficient number of trained women to meet the increasing needs of infant and child welfare.
3. The proper organization of all infant and child welfare agencies and activities.
4. Increase of rather than diminution of activities in public health and of the work of existing infant and child welfare agencies.
5. The importance of special activity on the part of agencies having to do with:
   A. Prenatal care.
   B. The problems of illegitimacy.
   C. The securing of the milk supply.
   D. The care of children between the ages of 2 and 6 (the neglected period).
   E. Child labor.
   F. Juvenile delinquency.
6. The physical examination and medical supervision of boy scouts and all children assigned to farm or garden work.
7. The importance of publicity concerning the care of the baby and the care of older children.
8. Formation of a national program.

Conditions may arise here or abroad in which men trained in pediatrics will be able to render valuable service under special commission—for example, extensive epidemics of contagious disease, appalling infant or child mortality, now or during the period of reconstruction.

Even in times of peace there are not enough pediatrists in this country to meet the problems of infancy and childhood, and the demand of the government for medical men for war service is taking pediatrists from work for which they are especially trained, work which is of greater importance to the country today than ever before. We suggest, therefore, that the teachers of pediatrics, those devoting themselves exclusively to pediatric work and those devoting their time to problems of infant and child welfare, can best serve their country by continuing to devote their energies to the solution of these problems.

Therefore, if your Council desires, the American Medical Association will submit a list of such physicians.

The conditions which tend to lessen the number of pediatrists in the country are also effective in drawing on the groups of nurses especialy trained in the care and nursing of infants and children. We recommend that every possible effort be made to prevent these especially trained groups from being called to military service.

This shortage has already begun. Even in normal times there are not enough nurses of this class to meet the demands. We therefore recommend that all pediatrists occupying teaching and hospital positions be urged to aid in the training of women who may volunteer for nursing and welfare work.

Authority should be given to some centralized organization designated by your board. Committees on public safety or other similar bodies organized in various states probably have knowledge of the individuals and organizations best fitted to direct the work in their community having to do with the problems of infancy and childhood. All the agencies interested in child welfare should be coordinated under one head and unnecessary duplication of effort obviated. Committees should work in harmony with the local and state boards of health. If the federal or state government give assistance for relief work these committees should be the agency through which the relief be given.

No class of the community feels so quickly and so seriously the neglect of health measures as do children. We therefore recommend that your Council call on all communities to see to it that there is no abatement, but, on the contrary, a decided increase of their activities along the lines of infant and child welfare. This is to apply to all public and private agencies.

A study of conditions in Europe brings out the following facts relative to infant and child welfare work, and should be particularly emphasized:

A. Prenatal Care: The large number of child-bearing women who have had to enter industry, and the high cost of living with its resulting diminished rations, have a tendency to increase infant mortality, and the children born of such mothers tend to be premature or under the normal weight. The mother's continuation in work diminishes her chances of nursing the baby and has shortened the period of lactation. Forty per cent. of the infant death rate occurs during the first month of life in this country, as has been shown by a recent report of the Children's Bureau. We therefore recommend that a definite rule regarding the employment of nursing mothers in factories be adopted and enforced. Financial assistance should be given when necessary. Factories and other industries where these women work should be required to make provision for suitable nurseries in order to facilitate breast feeding.

B. Illegitimate Infants: Should illegitimacy become such a problem in this country as it has in Europe, we recommend that the mother be given state or federal aid.

C. Importance of the Milk Supply: The experience of Europe has shown that after maternal nursing nothing is more essential to the health of infants and young children than adequate milk supply. We should not make the mistake made in Europe of allowing the milk supply to become impaired. The attention of the Department of Food Control and the Department of Agriculture should therefore be called to the necessity of preventing a milk shortage. We protest against the wholesale slaughter of milch cows.

D. Neglected Period (aged 2 to 6): Children during this period have greatly suffered in Europe on account of the increase in the number of mothers employed in industry. We deplore the breaking up of the home and recommend that special provision be made to keep the mothers with young children in the home. Where this is impossible arrangements should be made for the care of young children of mothers employed.

E. Child Labor: The breaking down of child labor laws in Europe has been so flagrant that unless immediate precautions are taken similar abuses are likely to arise in this country. There is already seen in certain communities a tendency to break down existing laws of child labor. The American Pediatric Society enters its protest against the repeal of any of the existing laws, and, on the contrary, urges their more rigid enforcement.

We recommend a plan of supervision similar to that adopted by the National Child Labor Committee in Pamphlets 276 and 277.

F. The increase of juvenile delinquency in Europe during the war has been appalling. In certain communities in England it has exceeded 50 per cent. To prevent this tendency we recommend that special endeavor be made through all existing agencies for improving the conditions of the older children (playground associations and boys' clubs, etc.).

At present there is no general or proper medical examination of boy or girl scouts to determine their physical fitness for their duties. We recommend proper medical examination prior to admission and subsequent oversight. This also applies equally to children detailed to work on farms.

Publicity should be given through all existing organizations, and when possible through the press, to infant welfare literature; especially to be recommended is *Public Health Bulletin No. 10* on the "Care of the Baby." Special effort should be made to see that the family of each enlisted man receives this and similar literature. This can best be done by the local committees.

Since innumerable organizations are distributing pamphlets and literature broadcast, some of which are good and some poor, we recommend that a central committee of pediatrists be appointed to review, standardize and approve such literature for wider distribution.

The very laudable desire of our fellow citizens to render some service to their country has led to the formation of innumerable organizations, much duplication of effort, great waste of energy and failure to attain results. This distressing state of affairs in some states is actually interfering with the work of organizations of long standing and equipped with trained workers. We recommend, therefore, that your Council cooperate with the organizations recognized as representative in the various states in attempt to establish a method of coordination and cooperation by which all of this splendid energy may be used to the best advantage. To this end we would suggest that you outline an organization and plan of procedure which may be utilized, first, as a means of gathering information on which specific needs of each community may be determined; and second, as an agency through which these needs may be met.

Insignia for Medical Students Not in Active Service

Dr. Charles F. Kuhn, Michigan, presented the following, which was referred to the Reference Committee on Reports of Officers:

One of the greatest hardships to come to the Fellow who is anxious and willing to serve is to be told he is beyond the age limit. I do not think that any physician gets beyond the age when he is ready to strike a blow for his country. The medical journals and preparedness boards have been asking our young men who are now in school or are contemplating a course of training to remain—they are in the hotbeds of enthusiasm—and so I desire to present the following resolution:

Inasmuch as THE JOURNAL of the American Medical Association, through its editorial columns, and the Board of National Defense, through its medical section, are urging all medical and premedical students to continue their studies, and since to do so will be to subject a large class of enthusiastic and patriotic young men to the possible opprobrium of "coward" and "slacker"; therefore be it

Resolved, That the Michigan State Medical Society, in special session assembled, does hereby urge on the General Medical Board of National Defense that a way be devised whereby all medical students or those about to enter medicine shall be recognized as being in their country's service, and that some insignia so designating them shall be given them; be it further

Resolved, That the secretary of the society be instructed to inform the chairman of the board, Dr. Franklin H. Martin, of the action of this society at once.

On motion, the House of Delegates adjourned until 9:30 a. m., Tuesday, June 5, 1917.

ADDENDUM

Report of the Secretary

[See page 1713; insert before last paragraph:]

Under date of May 25, 1917, your secretary received the following letter signed by E. F. Howard, secretary of the Mississippi State Medical Association:

At the recent meeting of the Mississippi State Medical Association, the following resolution was unanimously adopted by the House of Delegates:

Whereas, The American Medical Association, through its House of Delegates, has given to its Judicial Council appellate jurisdiction in matters of discipline of county society members; and

Whereas, This action is entirely contrary to democratic principles and opposed to those ideas, formerly laid down by the American Medical Association, that constitute the basic principles of our organization; therefore, be it

Resolved, That the secretary be instructed to notify the American Medical Association that the Mississippi State Medical Association will not admit its jurisdiction in this matter, and insists that the county societies alone shall judge the qualifications of their members.

Dr. Horace G. Wetherill, Colorado, moved that inasmuch as the letter read by the Secretary did not come properly before the Reference Committee on Reports of Officers, it be referred to the Judicial Council.

Seconded and carried.

Report of the Board of Trustees

[See p. 1713. Instead of Dr. William T. Councilman, Dr. Thomas McDavitt, vice chairman, presented this report.]

Report of the Council on Health and Public Instruction

[See page 1721, 1st column, line 36.]

The Council has given careful consideration to this communication, and presents to the House of Delegates the following resolutions for its consideration:

Whereas, It is the unanimous opinion of the Council on Health and Public Instruction of the American Medical Association that alcohol has no drug value, either as a stimulant, as a tonic or as a therapeutic agent, and that it has no food value; and

Whereas, Its use as a beverage or as a therapeutic agent is detrimental rather than beneficial to the individual; therefore, be it

Resolved, That the House of Delegates of the American Medical Association, at its Sixty-Eighth Annual Session, declares it is opposed to the use of alcohol by individuals either as a medicine or as a beverage; and be it further

Resolved, That its use in medicine is permissible only in the preparation and preservation of pharmaceutical products.

(*To be continued*)

Trachoma in Amsterdam.—Trachoma has long been prevalent at Amsterdam, and a committee was recently appointed to seek out the foci and suggest ways and means for an effectual campaign against it. The committee report shows that among 73,480 schoolchildren, 1.39 per cent. were found to have trachoma. The proportion among the 7,062 Jewish children was 8.8 per cent. while it was only 0.6 per cent. among all the others. The Jewish children who lived under better hygienic conditions, outside of the old ghetto, showed a much smaller proportion but even in them the proportion was larger than in the non-Jewish children. In the private infant schools the Jewish children showed 32.1 per cent. with trachoma while in the public infant schools the proportion was only 10.7 per cent. Four foci were found in different parts of the city, including the ghetto. The old experience that trachoma is rare among the well-to-do was confirmed by the committee's investigations. It was found further that over half of those with trachoma had never had any treatment for it. The committee recommends examination of all children at the fifth year and further examination every year of those recorded as having had trachoma. Treatment should be by experts in a special trachoma dispensary, easily accessible and open all day. The committee does not advise compulsory treatment, but merely that children recorded as having trachoma should not be admitted to school without a certificate that they had been treated. Treatment in the school building is not desirable, and it is not necessary to have special schools for the trachoma children, but in the school rooms they might have their seats together in a certain quarter of the room.

PARIS LETTER

Paris, May 17, 1917.

Death of Landouzy

Louis Landouzy, professor of the medical clinic and dean of the Faculty of Medicine of Paris, has just died at the age of 72. He was born in Rheims in 1845, and was the son and the grandson of physicians residing in Rheims, where he began his studies. He finished his training at Paris, to which city he went in 1867, and was appointed hospital physician in Paris in 1879, and assistant professor of the Faculty of Medicine the following year. He obtained the chair of therapeutics in 1893, but as soon as the first professorial chair in the clinic became vacant, he gave up instruction in therapeutics, and became, in 1901, a professor in the medical clinic. In the course of the same year he was elected dean of the Faculty of Medicine, and since that time continued to fill that office. He has been a member of the Academy of Medicine since 1894, and in 1913 was elected member of the Académie des sciences. Landouzy used a certain brusque authoritativeness, speaking and writing in a language which he was fond of seasoning with neologisms. From the beginning of his career, Landouzy was occupied chiefly with neurologic questions. In 1874 he described a type of progressive muscular atrophy, beginning with the face in infancy, and not accompanied by lesions of the marrow or the nerves. This progressive atrophic myopathy is known today as "atrophic myopathy, type Landouzy-Dejerine." Later, Landouzy directed his attention mainly to the field of tuberculosis. We owe to him notably the demonstration of the tuberculous nature of frankly acute pleurisy. We owe to him also the demonstration of the frequency and the special forms of tuberculosis in children. During the last few years he took a great part in the fight against tuberculosis, and since the beginning of the war he has never ceased to plead the cause of soldiers rejected on account of tuberculosis, claiming for them, with great energy, the benefits of obligatory assistance.

In 1899, Landouzy organized visits to the French mineral springs, which he termed "journeys for medical study." Up to 1913 he spent his vacations each year visiting twenty different mineral springs at the head of a group of French and foreign physicians. Landouzy was one of the directors of the *Presse médicale* and the *Revue de médecine.*

The War

THE NEW STATUS OF THE ARMY MEDICAL SERVICE

The secretary of war has just submitted a report to the president of the republic, in which attention is called to the fact that, in view of the development shown by the army medical service, the scope of its installations, the extent of its personnel and its equipment, it becomes necessary that it be given greater freedom of action, in order that it may continue to progress and adapt itself rapidly to the needs of the present war. It is indispensable that, while subject to the higher authority of the general staff, it may be assured of its part in the general collaboration and of the disposition of its means of action. The secretary of war also proposes to introduce a bill, modifying the rights and prerogatives of the officers of the health service; but, in the meantime, in order to take immediate action, the president of the republic has signed the decree which provides that the personnel of the health service shall occupy identically the same position as regards control and personnel which is occupied by the different branches of the armed service. The personnel of the health service shall be eligible to serve on any staff and under the same conditions as the officers of the different branches of the armed service. It will give to the general staff all the information found desirable as regards existing resources and necessary equipment in the way of personnel and supplies. It will assist in the working out of orders and will provide for their direct transmission.

RURAL CONVALESCENT HOMES FOR THE WOUNDED

The secretary of agriculture and the undersecretary of state attached to the military health service have recently submitted a communication to the prefects of the several departments and to the directors of the health service which provide for the creation of rural hospices. Experience has shown, in fact, that in a great number of cases convalescents,

who, up to the present time have been treated entirely by mechanical physiotherapy, improved more rapidly through the agency of work. Consequently, it has been decided that in all the sections of the country in which they do not exist already, rural hospices shall be created near the center for physiotherapy. These rural hospices will be installed in the towns and villages, or, better still, in the open country. They will comprise from twenty-five to 150 beds, and, from the administrative point of view, will constitute an annex of the center of physiotherapy. The measures put into execution by this communication, moreover, will have the result of placing at the disposal of the farmers a supplementary contingent of farm laborers.

RESTRICTIVE MEASURES PERTAINING TO FOOD CONTROL

The director of food control has instructed bakers, beginning with May 1, to cease the manufacture of cakes containing flour as an ingredient. He has permitted them to use rice in place of flour in the preparation of cakes. The chief cake bakers have united, and have chosen a committee to make up new recipes which require no flour. In order to make these recipes better known, they will publish a small collection of them. This will permit the bakers to continue their trade in spite of the restrictive regimen.

On the other hand, the experience with the evening meals without meat (THE JOURNAL, June 2, 1917, p. 1643), not having given the expected results, the director of food control has decided to go back to the restrictive measure which he previously introduced, which provides for two days without meat; horse meat, however, is permitted every day. In fact, a delegation of the butchers interested made a demand on the secretary of food control not to include horse meat in his decree restricting the consumption of meat. In support of their request they urged that the horses to be slaughtered, coming from the French and English armies, are in such quantities that they could not dispose of them all if restrictive measures limited the consumption of horse meat. The delegation furnished the director the following figures: In January, 1914, the abattoirs of Vaugirard at Paris slaughtered about 4,900 horses; in January, 1915, a little less than 2,000; in January, 1916, about 3,000; in January, 1917, 5,000. If the restrictions were imposed on the trade in horse meat, the delegation added, about forty horses for the two days of prohibition provided for by the decree would be lost from the standpoint of consumption, and that to no purpose.

FIELD HOSPITAL PRESENTED TO THE RUSSIAN ARMY BY FRANCE

Justin Godart, undersecretary of state for the military health service, recently presided at the presentation of a field hospital given by France to the Russian army. This sanitary equipment, of an entirely new plan, and provided with the latest types of instruments, is the outcome of a subscription taken up throughout France and the colonies (THE JOURNAL, April 7, 1917, p. 1053). It consists of fifty-two vehicles of which twenty are for the transportation of the wounded, and twenty-three are trucks for the transportation of material equipment. It comprises likewise a receiving station, a waiting room for the wounded, an examining room, a Roentgen-ray laboratory, and an operating room. The instruments were manufactured in the shops of the military health service. The personnel comprises 120 nurses and eighty-five chauffeurs. The medical personnel comprises twenty-three officers, among whom are physicians and pharmacists and administrative officers.

ACTIVITY OF THE AMERICAN FIELD SERVICE

The formal presentation of the American flags given by Clarence Mackay to the seventeen sections of the American field service recently took place in the midst of a large gathering, which included distinguished men of the American colony. At the present time the American field service already consists of seventeen sections, of which fifteen are at the front in France and two at the front in the Orient. These sections are served throughout by Americans who volunteered for service in the French army. Many of them have been serving in our ranks since the beginning of the war. At the present time it is in a position to offer each week to France a section for sanitary service composed of twenty-five men, with ambulance material and equipment, furnished entirely by Americans, together with a section for transport service composed of fifty men, for which the material equipment is furnished by the French government.

LONDON LETTER

LONDON, May 19, 1917.

The War

ARRIVAL OF UNITED STATES MEDICAL CORPS

A complete unit of the United States Medical Corps, with a personnel of over 200, including sixty-five nurses, has landed in England. It is in charge of Major H. L. Gilchrist, who was summoned from the Mexico border to take command. The men were selected from a large number of applicants who, according to Major Gilchrist, were "crazy to get here as fast as they can." On arrival of the vessel bearing the contingent, it was boarded by a British general and his staff, and the unit was paraded for his inspection. They presented a smart appearance in uniforms like those of our Australian troops. The men are principally literary and law students recruited from Harvard, the Western Reserve University, Oberlin College, Allegheny College, the University of Pittsburgh, and the Ohio State University. The nurses come from Lakeside Hospital. With the unit as director is Major G. W. Crile, Ohio. The British general addressed the members of the unit from a rostrum on the saloon deck with the Stars and Stripes on one side and the Union Jack on the other. He welcomed them on behalf of the British Army and thanked them for what they were about to do.

THE FOOD SUPPLY

In the House of Lords, the food controller, Lord Devonport, stated that the control of supplies is growing in many directions. The shortage of potatoes led to an increased demand for substitutes, such as turnips and beans, with the result of a great rise in price of these commodities. As far as possible the government is attempting to prevent the inflation of prices. Thus Lord Devonport found that beans shipped from Burma and not due to arrive for some weeks had been sold over and over again by speculators until in one case the price was in the region of $450 per ton. He sent for the importer and told him that this would not be allowed, and succeeded in taking over the original contract at a price of $385, against a market ruling price for the moment of $420. Steps are being taken further to reduce unnecessary imports, so as to reserve all the shipping available for supplies of prime necessity. He was able to make a gratifying announcement in view of the severe danger to food supplies which the submarine campaign at one time seemed to threaten: "If the call for reduction in the use of breadstuffs is responded to—and it is being responded to—and if the efforts of the submarine are not successful beyond reasonable likelihood, we shall get through as regards breadstuffs with a fairly satisfactory balance in hand until our new harvest becomes available." Since this announcement, the depredations of the submarines have decreased. As regards the supply of meat, there is little trouble. The imports are only slightly less than in the corresponding period of last year, and our home herds are as large as if not larger than at any previous period. As the meatless day has increased the consumption of cereals, it has been abolished. Turning to fats, the supply of butter, margarin and lard is better than last year. The government is now importing all cereals, barley, rye, oats flour, etc. In addition it has taken over the control of mills so as to make certain that these are supplied according to their capacity and also that the supplies may be distributed so as to meet the demands in every direction. Although, excepting potatoes, there is no shortage of food, prices are high and are now 98 per cent. greater than before the war. But if eggs are omitted from the dietary, margarin substituted for butter, and the consumption of sugar and fish reduced to one half of that prevailing before the war, the percentage can be reduced to 65. Compared with a year ago, prices show an average increase of 29 per cent.; potatoes show an increase of 65 per cent., and cheese and eggs of nearly 50 per cent.

GERMAN PHYSICIANS CONDEMNED

The following resolution has been published by the medical authorities of Scotland: "The faculties of medicine of the Scottish universities, together with the presidents and councils of the Royal College of Surgeons of Edinburgh and of the Royal Faculty of Physicians and Surgeons of Glasgow, desire to record their condemnation and detestation of the neglect and inhumanity which characterized the conduct of certain members of the Prussian medical staff to whom the

treatment of British prisoners of war was entrusted, especially in the internment camps at Wittenberg and Cardlegen during outbreaks of typhus fever which had been largely provoked by overcrowding, insufficient food, and entire absence of all sanitary measures. The facts, as stated in the recent reports of a British government committee, which are based mainly on the testimony of officers of the Royal Army Medical Corps, themselves prisoners of war, are of such a nature as to bring indelible disgrace upon the physicians concerned, and upon the German government, which remains ultimately responsible for the treatment meted out to prisoners of war. As members of a profession which has hitherto, in every quarter of the civilized world, been inaccessible to the shameful influences which make for barbarity in warfare, we are reluctantly forced to the conclusion that a spirit of gross inhumanity has not been absent from the Prussian medical service."

THE MEDICAL SERVICE IN MESOPOTAMIA

The perfection which the medical service has attained on the western front has been described from time to time in previous letters. Unfortunately in the Mesopotamia expedition the conditions were far different, a fact principally due to difficulties of transport. A great improvement has now been reported by Sir Arthur Lawley, chief commissioner in Mesopotamia of the British Red Cross. He first visited Bombay and inspected several hospitals, including one for officers in the Gwaekar of Barodahoues. He found that, in all, structure, equipment and personnel were first rate. He then sailed to the base of the Mesopotamia expedition, Basra, in a hospital ship, and inspected the arrangements made for the reception of the sick and wounded, and on arrival saw the ship loaded. Nothing was left undone that could add to their comfort. The Red Cross river launches on the Tigris had proved invaluable in the evacuation of the wounded. From the firing line to the base at Basra there was not a hospital unit afloat or ashore to which Red Cross comforts had not been issued with a generous hand. Communications of every kind by road and river have now been laid out and developed on a well thought out plan, and medical equipment has been introduced on a lavish scale. An ample water supply is assured at every camp. A new type of ferry boat (not a hospital ship) for the rapid evacuation of the wounded has been introduced and is admirably adapted to its purpose. Sir Arthur Lawley went up the river on the eve of the storming of the Sanna-i-Yet position, and was able to visit the advanced dressing stations while the first wounded were being brought in. They were carried back by Red Cross launches on the river or motor ambulances on land. The first roar of the bombardment began at 10 a. m., and the first batch of wounded were in the field ambulance at noon. The first consignment, their wounds dressed, their stomachs filled, and their cigarets alight, were down stream by 4 p. m.

THE EFFECT OF LIQUOR CONTROL ON ALCOHOLISM

The war has led to a stringent control of the liquor traffic. The hours during which saloons are open are greatly shortened, alcoholic drinks are sold in a much weakened form, and the price of the most widely used one, beer, has been trebled. The results were reviewed by the chairman of the board of control, Lord d'Aberon, at the Royal Institute of Public Health. He maintained that in the public health legislation of this country the significance of the liquor traffic as affecting the health and wellbeing of the community had been neglected. The problem had been viewed as a social one belonging to the sphere of morals rather than to medicine, with the result that the evils had continued unchecked. He advocated restrictions directed especially to limiting the conditions which lead to excessive indulgence. The two main restrictions concerned the strength of alcoholic beverages and the times during which their consumption is permitted in saloons. During the war these had been reduced for over two years and the results were now available. In 1914 the deaths from alcoholism showed a slight upward movement. In 1915 there was a slight opposite movement. The policy of restriction came into force in the second half of the year. In 1916 the decline in deaths from alcoholism was enormous, amounting to over 40 per cent. for men and nearly 50 per cent. for women, as compared with the standard of 1913. Similarly the convictions for drunkenness showed a fall of nearly 60 per cent. in the case of men and over 40 per cent. in women.

Marriages

Lieut. William Frederick Williams, M. O. R. C., U. S. Army, Cumberland, Md., to Miss Virginia Ellen Mann of Sacramento, Calif., May 22.

Lieut. William Byrd Hunter, M. O. R. C., U. S. Army, Fort Bliss, Tex., to Miss Mary Olive Kinsey of El Paso, Tex., May 19.

Lieut. David Norvell Walker Grant, M. C., U. S. Army, to Miss Dorothy C. Krayenbuhl, at Colon, C. Z., May 14.

Lieut. Clifford Hood Arnold, M. C., Pa. N. G., Chester, Pa., to Miss Audrey Trayser Dillon of Richmond, Va., June 5.

John A. Roberts, M.D., Waukesha, Wis., to Miss Fredericka Wehrman of Madison, Wis., in Chicago, recently.

Morgan Otto Barrett, M.D., Troy, N. Y., to Miss Dorothy Julia Healy, at New Rochelle, N. Y., May 18.

Edward Peirson Richardson, M.D., Boston, to Miss Clara Lee Shattuck of Brookline, Mass., May 25.

Frank Whipple Snow, M.D., Newburyport, Mass., to Miss Rosamond Bean of Boston, May 21.

Merrick Fiefield McCarthy, M.D., to Miss Marjorie Porter, both of Cincinnati, May 19.

Charles Augustus Williams, M.D., to Miss Irene Schoof, both of Doland, S. D., May 23.

Perry Gilbert Lush, M.D., to Miss Mayme Holpunch, both of Chicago, May 9.

Emanuel Friend, M.D., to Miss Magdalene Alexander, both of Chicago, May 26.

Heman Laurence Dodd, M.D., to Miss Alice Richard, both of New York, May 24.

Deaths

Francis Henry Brown, M.D., Boston; Harvard Medical School, 1861; aged 81; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; once president of the Suffolk District Medical Society; a member of the American Academy of Medicine and American Public Health Association, founder, secretary and consulting surgeon of the Children's Hospital, Boston; formerly Passed Assistant Surgeon, U. S. P. H. S.; aural surgeon to the Boston City Hospital; a veteran of the Civil War, in which he served as acting assistant surgeon, U. S. Army; formerly surgeon to the Boston Dispensary and to St. Joseph's Home, and physician to St. Elizabeth's Hospital; editor of the *Boston Medical and Surgical Journal;* who was struck by a street car while crossing the street in front of his residence in Boston, May 13, died in the Boston City Hospital, two days later, from his injuries.

Thomas Charles Fitzsimmons, M.D., Fairview, Pa.; Bellevue Hospital Medical College, 1884; aged 59; a Fellow of the American Medical Association and member of the Philadelphia Psychiatric Society; medical superintendent of the State Hospital for the Insane, Fairview; formerly city physician of Scranton, Carbondale and of Fell Township; a member of the state commission to erect a state institution for the care and treatment of epileptic and feebleminded; died in the Medico-Chirurgical Hospital, Philadelphia, May 17, after a surgical operation.

William Reed Thompson, M.D., Washington, Pa.; Jefferson Medical College, 1867; aged 80; a Fellow of the American Medical Association; once president of the Washington County Medical Society; and one of the best known practitioners of Pennsylvania; one of the organizers of the Washington City Hospital; for many years a trustee of Washington and Jefferson College; died in the City Hospital, Washington, April 17, from injuries received the day before, when he was struck by an automobile while crossing a street.

David Walker, M.D., Portland, Ore.; Queen's University, Dublin, Ireland, 1856; M. R. C. S. Ireland, 1857; aged 79; surgeon of the *Aberdeen* and the last surviving member of the McClintock Expedition sent to find Sir John Franklin's party, in the Arctic in 1857; for sixteen years a surgeon in the United States Army; died at the home of his daughter in Portland, May 11, from heart disease.

Harry Lane, M.D., Washington, D. C.; Willamette University, Salem, Ore., 1876; aged 61; a member of the Oregon State Medical Association; United States senator from Oregon since 1913; formerly a practitioner of Portland; for one term superintendent of the Oregon State Insane Hospital, and twice mayor of Portland; died in a hospital in San Francisco, May 23, from cerebral hemorrhage.

Charles Keepers Bruner, M.D., Greenfield, Ind.; Rush Medical College, 1886; aged 59; a Fellow of the American Medical Association; once president of the Hancock County, Ind., Medical Society; for several years local surgeon for the Pennsylvania System and the Terre Haute, Indianapolis and Eastern Traction Company; died at his home, May 6, from heart disease.

Cora Sechrist Fletcher, M.D., Cleveland; Woman's Medical College of Pennsylvania, Philadelphia, 1896; aged 45; a specialist in the diseases of the eye and assistant ophthalmologist to the Cleveland General Hospital; a member of the staff of the Cleveland Woman's Hospital; died at her home, about May 13.

Horace Ludington, M.D., Omaha, University of Pennsylvania, Philadelphia, 1855; aged 84; major surgeon of the One Hundredth Pennsylvania Volunteer Infantry, during the Civil War; for several years connected with the Quartermaster's Department of the Army; died at his home, May 16.

Edward C. Thomas, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1892; aged 54; died in the Presbyterian Hospital, Philadelphia, May 13, from the effects of a gunshot wound of the head, self-inflicted, it is believed with suicidal intent, while despondent on account of neuritis.

Alexander Montgomery, M.D., Eau Claire, Wis.; Illinois Medical College, Chicago, 1898; aged 54; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; founder of the Montgomery Hospital, Eau Claire; died at his home, April 11.

Isaiah G. W. Steedman, M.D., St. Louis; Tulane University, 1859; aged 82; a member of the Missouri State Medical Association; colonel in the Confederate service during the Civil War; president of the Curtis Manufacturing Company, St. Louis; died at his home, May 15.

Jonathan R. Umstead, M.D., Quakertown, Pa.; Jefferson Medical College, 1888; aged 52; formerly a member of the Medical Society of the State of Pennsylvania; for twelve years deputy coroner of Bucks County; died at his home, May 15, from typhoid fever.

George Philip King, M.D., Lancaster, Pa.; Jefferson Medical College, 1879; aged 57; a Fellow of the American Medical Association, visiting physician to St. Joseph's Hospital, Lancaster; died at his home, May 14, from cerebral hemorrhage.

Richard Louis Stuart, M.D., Des Moines, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1874; aged 63; formerly a Fellow of the American Medical Association; a member of the Iowa State Medical Society; died at his, May 15.

Clayton E. Spire, M.D., Jordan, N. Y.; Cleveland University of Medicine and Surgery, 1897; aged 40; while driving over a grade crossing in his automobile, May 17, was struck by a New York Central train and instantly killed.

John Harvey Donnell, M.D., Tarentum, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; aged 54; was struck and instantly killed by a Pennsylvania train at a grade crossing in Tarentum, May 16.

Benjamin K. Thomen, M.D., Baltimore, Ohio; Miami Medical College, Cincinnati, 1871; aged 86; for half a century a practitioner of Baltimore; died at the home of his son in Columbus, Ohio, May 6, from uremia.

Robert Wirt King, Gordonville, Tenn. (license, Tennessee, 1889); aged 70; formerly a Fellow of the American Medical Association; a member of the Tennessee State Medical Association; died at his home, April 2.

William Francis Smith, M.D., Malden, Mass.; Tufts College Medical School, Boston, 1914; aged 26; formerly a Fellow of the American Medical Association; died at his home, May 15, from tuberculosis.

Alvah A. Warren, M.D., Pawtucket, R. I.; Baltimore University School of Medicine, 1907; aged 43; a member of the Rhode Island Medical Society; died at his home, March 19, from pulmonary tuberculosis.

Etienne Lartigue, M.D., Gainsville, Fla.; Baltimore Medical College, 1897; aged 46; a member of the Florida Medical Association, and special agent of the state board of health; died at his home, May 11.

Joseph Long Thistle, M.D., Washington, Pa.; Jefferson Medical College, 1886; aged 61; a trustee of Washington and Jefferson College; died in the Washington, Pa., Hospital, May 5, from peritonitis.

Clement T. Guillaume, M.D., Boonville, N. Y.; Eclectic Medical Institute, Cincinnati, 1880; aged 60; for many years a practitioner of Utica, N. Y.; died in Utica, May 10, from a nervous breakdown.

Douglass Howell Morse, M.D., Los Angeles; Johns Hopkins University, Baltimore, 1910; aged 31; a member of the Medical Society of the State of California; died in Los Angeles, May 8.

Lewis Lee, M.D., Potter Valley, Calif.; American Medical College, St. Louis, 1888; aged 60; died in the Harbor Emergency Hospital, San Francisco, April 25, from cerebral hemorrhage.

Aura Roswell Lamb, M.D., Washington, Mich.; Detroit College of Medicine and Surgery, 1888; aged 53; a specialist in ophthalmology; died at his home, April 21, from chronic asthma.

William C. Bode, M.D., Pittsburgh; University of Würzburg, Germany, 1877; aged 69; a member of the Medical Society of the State of Pennsylvania; died at his home, May 19.

J. W. Applewhite, Gustine, Tex. (registration, Texas, years of practice, 1907); aged 76; a member of the State Medical Association of Texas; died May 5, in a hospital in Temple, Tex.

Henry Clay Mitchell, M.D., Hughesville, Mo.; Missouri Medical College, St. Louis, 1898; aged 43; died in Grace Hospital, Kansas City, Mo., April 3, from lobar pneumonia.

Henry Ingle, M.D., Gainesville, Tex.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1888; aged 80; also a dentist; a Confederate veteran; died at his home, May 5.

Aziel Henry Crouch, M.D., Mounds, Okla.; Missouri Medical College, St. Louis, 1891; aged 56; a Fellow of the American Medical Association; died at his home, February 20.

George Milton Bradfield, M.D., San Francisco; Jefferson Medical College, 1890; a member of the Medical Society of the State of California; died recently at Los Angeles.

Joseph C. Watson, M.D., Gary, Ind.; Indiana Medical College, Indianapolis, 1878; aged 57; died in a sanatorium in Rockford, Ill., May 1, from cerebral hemorrhage.

John C. Walker, M.D., Salem, Ohio; Eclectic Medical Institute, Cincinnati, 1881; aged 62; died at his home, May 16, from the effects of an overdose of morphin.

Louis Plumer Posey, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1883; aged 54; died at his home, May 15, from organic heart disease.

Benjamin Janney Rudderow, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1874; aged 63; died at his home, May 17, from acute gastritis.

Alfred Grant Hopkins, M.D., Burlington, Ia.; College of Physicians and Surgeons, Chicago, 1890; aged 77; died at his home, May 5.

George Vader Parmelee, M.D., Salt Lake City; Homeopathic Hospital College, Cleveland, 1878; aged 62; died at his home, May 7.

Richard H. Gillen, M.D., Seattle; Jefferson Medical College, 1871; aged 70; died at his home, April 27, from cerebral hemorrhage.

M. F. Gray, Cove, Ark. (license, Ark., 1903); aged 63; for forty-two years a practitioner of medicine, died in his office, May 16.

Ezra Styles Abney, Blythewood, S. C.; a practitioner since 1870; died at his home, March 19, aged 81, from senile debility.

Michael Francis Cole, M.D., Columbus, Ohio; Homeopathic Hospital College, Cleveland, 1884; aged 60; died at his home, May 1.

John W. Hutton, M.D., Cedar Rapids, Iowa; Washington University, St. Louis, 1883; aged 61; died at his home, May 5.

William T. Matthews, M.D., Charleston, Miss.; Tulane University, New Orleans, 1887; died at his home, April 15.

Daniel B. McLean, M.D., Brumfieldville, Pa.; Jefferson Medical College, 1873; died at his home, May 15.

Correspondence

FIRST MONTH'S SERVICE, MEDICAL RESERVE CORPS

To the Editor:—It was a month ago today that I was directed to report to Capt. Joseph Casper for service as a medical reserve officer of the United States Army. It was not my first experience with government work or army details, but so many changes take place from day to day in the organization and management of every big enterprise that I found many new things to learn. Therefore, I took up the work as a regular novice and tried to learn the details as they came up and anticipate what should be done.

The first thing I learned of great value was the necessity of systematically and methodically doing the thing which must be done many times over and over and doing it in exactly the same way. The task which confronted us was examination of a large number of applicants for the Officers Reserve Corps camp of instruction which is now in progress at the Presidio in San Francisco. The work had to be done, there was a limited force to do it, and the assistants were not then so well trained to render valuable service as they now are. But everybody turned to and stood by until that portion of the task was completed. It is inspiring to work under men who are workers themselves, and about the hardest working man in our force was the officer in charge. The applicants were a fine class of men from all parts of the state and many of them from adjoining states. It was necessary to reject some of them even after they had been passed on elsewhere. This brings me to the point of saying what I have often said before in connection with examination work: that when a family physician sends his patient before a board with a letter, or a statement, he must always remember that practically all members of the board are "from Missouri."

Examination of recruits is not an arduous task. It calls simply for the application of common medical sense which every medical man should possess. There are standards which must be adhered to if the United States is to have an efficient army. For the civilian physician who expects to enter the Officers Reserve Corps it would be good practice to sit down with the head mirror and renew his acquaintance with the method of finding the membranum tympani or the turbinates of the nose, or the deviation of the septum of the nose. The lungs should be carefully gone over, and a familiarity of the sense of touch with the normal body temperature should be cultivated. A little respiratory roughness, a little extra warmth of the skin, verified by the use of a thermometer, may save the government great expense. The heart sounds should be understood and the difference between organic and functional murmurs differentiated. Hernias and relaxed inguinal rings deserve special attention. Getting down to the most important part of the body, that below the shoe tops, except that above the collar, the feet require special consideration. As the strength of the army depends on the condition of the feet of the soldiers in that army, the feet should be most carefully inspected. Let it be remembered that the shape of the normal foot is like a wedge. Almost every applicant to be examined will wear shoes from one-fourth to 1 inch too short. It is hoped that after they enter the service they will wear shoes of the proper length. If the instructions laid down in Colonel Munson's book, "The Soldier's Feet and the Military Shoe," are followed, the feet will be properly shod. It is with great personal sacrifice that this service is being rendered, but it is a work which must be done, and it appears to me that the sooner we get at it, and the sooner we do it, the quicker it will be done, and the sooner we shall become adjusted to the changed order of things.

The officers of the regular medical corps with whom I have come in contact have been most courteous, patient and obliging, and if every civilian physician who enters the service meets with the agreeable conditions which have marked my first month's service, he will look on it as a most valuable experience.

CHARLES CROSS, M.D., San Francisco.

Social Medicine, Medical Economics and Miscellany

THE DISPENSARY ON A WAR BASIS

The Use of the Volunteer Worker

CHARLES HENDEE SMITH, M.D.
NEW YORK

The dispensary problem in New York and in many other large cities is always an acute one. There are so many institutions with outpatient departments that it is never possible to get quite enough physicians to man them properly. The policy of many hospitals has tended to discourage attendance in the outpatient departments, for there has been no close connection with the ward services, no hope of advancement, and no effort to give the dispensary men an opportunity to learn more than they can teach themselves. There are too many patients for the physicians who do attend, and this has resulted in careless, hasty work in the majority of instances. The histories are usually short and incomplete, the diagnoses of the "snap" variety, and the patient receives little or no treatment worthy of the name. Only within the last few years has there been any effort to systematize dispensaries, and to approximate the kind of work done in the wards. This is true even today in only a small proportion of the dispensaries of the city.

The outbreak of the war at once made this situation more acute than ever. The physicians who work in dispensaries are mostly young men, many of whom are foot-loose and able to volunteer for military service. Some have already been called, and many more are members of the Medical Reserve Corps or various hospital units, liable for service at any moment. The war will surely increase the number of patients applying for treatment. The inevitable higher cost of living will increase the relative poverty, and the removal of large numbers of soldiers from the families of the poor will diminish the family incomes even when the soldiers are not the heads of families or sole wage earners. This all means greater congestion and consequent neglect and suffering among the sick poor of the city.

In an effort to meet this situation, a plan has been devised by the Children's Medical Division of Bellevue Hospital, and it is presented here in the hope that it may prove of use to other institutions facing a shortage of medical men.

The outpatient department of this division has been reorganized during the past year, and an effort has been made to raise the standard of work. Special classes have been formed for many conditions which lend themselves to class or group treatment. Among these may be mentioned infant feeding, heart disease, malnutrition, syphilis, enuresis, vaginitis, nephritis, tuberculosis suspects, eczema and allied conditions. Each man has devoted one day a week to the general clinic (which includes all new cases, and old cases of miscellaneous character), one day a week to the infant feeding class, and one day to one of the other special classes. By this arrangement it has been possible to free each man from routine on one of his three days, and give him time to work at a problem. This tends to continue his interest, and also makes possible some advance in the study and treatment of outpatients. By the use of printed forms of various kinds, diet lists, hygiene instructions, and follow up and cross index cards the work had already been improved and facilitated greatly. At the outbreak of the war there were eighteen physicians and two interns working in this department. This gave an average attendance of about nine physicians a day. The number of patients averages about seventy-five (running from fifty to 100), which is not an excessive proportion for each doctor. There are eight paid social service workers in the division, two or three on duty each afternoon in the outpatient department. A clerk, clinic nurse and messenger complete the regular staff. During the winter two or three volunteers have been assisting in the infant feeding room, weighing babies, taking temperatures, and helping with the follow up system.

The war took several of the men at the outset, and several more are waiting to be called. It became evident that something must be done to avoid being forced back into the old methods of hasty and careless work. The possibility of getting other physicians seemed hopeless, and there were no funds available for paying clerks. The volunteers had done such admirable work that it encouraged us to try to get more. Through the physicians working in the division several women were induced to volunteer, and they proved themselves so useful that an appeal was sent out for a large number. Through some of the early volunteers the National League for Women's Service was interested, and later the Social Service Training School of Teachers' College and the alumnae of Miss Spence's School. The event proved what we all believed must be true, that there are many women who are willing and eager to do work of this kind if it can be shown that the work is needed, and that it is a civic as well as patriotic service. Besides helping to care for the sick poor, every volunteer helps to fill the place of a physician who has gone to the army or navy. At present after about six weeks' trial, over thirty women are enrolled, and many have been turned away for lack of room, or referred to other hospitals. A few have dropped out after one or two visits, but the majority have been very regular, and several want to come on more days than they are needed. Each volunteer attends on from one to five days a week according to the time which she has available, and to the needs of the department.

The system which has been evolved is as follows: Six or eight volunteers are on duty each day, and reach the outpatient department somewhat before the hour at which the physicians are due. They start at once to take histories on new patients. By the use of form histories an untrained but intelligent woman can take a perfectly good history after a little instruction and two or three days' experience. The physician who examines the child can amend or add to the history if necessary, but this takes only a short time, as a rule. During the taking of the history the volunteers are urged to discuss with the mother the habits and hygiene of the child, and to suggest to her such matters as the importance of a proper diet, retiring early, cleanliness, fresh air, etc. The volunteer also gives out a diet list and a slip with general rules for the care of the child, and goes over them with the mother, laying stress on the points in which she has found that the child needs attention. This makes the mother feel that the volunteer is not a mere clerk, and gives the latter an interest and sense of responsibility which relieves the tedium of the history taking, and introduces a human element into the relation.

The child is then weighed, measured, and the temperature is taken, all of which can be done by any one with little experience. He is then stripped for examination, and covered with a blanket or overcoat while waiting for the physician. The volunteer is expected to be present during the examination of the child, so that she may know of the diagnosis and see anything of interest which the child presents. The physician writes the physical examination, and by the use of the printed form this takes only a moment. He then tells the mother and volunteer what should be done for the child, gives general and special advice, lays stress on the points which the volunteer has spoken about, and writes the prescription for medicine on a pad; the volunteer then writes out in full the advice given, and copies the prescription on the chart, sees that the mother understands the directions, reiterates the important ones, and tells the patient when to return. This is all time-consuming work which should be done for every patient, if he is to receive the care to which he is entitled, yet most of it must be omitted in a great many cases when the hurried physician is responsible for it all. The chart bears the name of the historian as well as that of the physician, so that the clerk may know which volunteer is interested in the patient on the return visit, and the latter thus has an opportunity to watch the progress of each patient.

Experience shows that each physician can examine and treat as many patients as can be handled by three historians, so that this plan saves about three quarters of his time. Every patient leaves the department with a fairly accurate history, a complete examination, a diet list, hygiene instructions, and with better treatment and advice than can be given by any imaginable system in which the physician would have to do all the work. The enthusiasm of the volunteers is also invaluable, because they are fresh at the work. Late hours, bad diet, tea, coffee, constipation and the other almost universal hygienic errors are all too old a story to the medical mind, yet if any child is allowed to leave a dispensary without effort to correct his faulty habits of life, that dispensary has failed in its duty to the child. We believe that this is true, no matter what the reason for which the child is brought. There are few exceptions to the rule that there is always more wrong with a child than the ailment which has attracted the mother's attention. Children brought for a "cold" are undernourished, and may have grave organic disease. Children brought for heart disease may have half a dozen other physical defects and no heart disease, to say nothing of the certainty that three or four bad habits of living can surely be discovered.

In the special classes the volunteers are also invaluable. They take histories, fill out special return visit forms for the cardiac and malnutrition classes, and assist the social workers in the general work of the classes, such as weighing children, taking temperature, etc. In the infant feeding room the volunteer in charge with one or two assistants weighs the babies, explains making of formulas, and gives demonstrations of bathing, advice about clothing, and talks on the evils of pacifiers, flies, etc. This frees the social service worker from much routine, and enables her to devote more time to real social service work. The volunteers also keep the follow up index cards, and send out postals to mothers who do not return regularly. Without some such system many of the patients will not return, and much of the work done is therefore wasted.

With modifications this plan can be adapted to nearly every class of outpatient work. The printed form history is an important factor in this plan; but nearly all histories must have certain facts on them, and these can be printed, leaving larger spaces for some other facts which perhaps vary in other classes of patients more than in the case of children. Although our appeal for help was made on account of a shortage of physicians caused by the war, we hope that we can continue this plan indefinitely. There certainly is enough work to be done, and enough interest in the work to attract and hold women of the kind who are anxious to do something to help the sick and poor. Many physicians continue in dispensary work for years from the pure human interest in it long after they have ceased to learn anything from the routine. Why should not the women of the country who have idle hours on their hands spend some of them this way?

Since the volunteer system has been started at Bellevue it has also been adopted in some of the departments at the Presbyterian and St. Luke's hospitals, and is being considered by several others. There seems to be no good reason why it should not be developed widely, and its scope increased into further aid to the social service work in the homes of the poor. Volunteers have been used in the hospitals of Boston for several years, but not in quite this way. Our experiment has been so successful that we believe it offers a great help in the solution of the dispensary problem in peace as well as in war.

253 West Seventy-Fifth Street.

Dust in Mines and Metallurgical Plants

The effects of dust on employees is dealt with in Technical Paper 153 of the Public Health Service by P. A. Surg. J. A. Watkins of the service. In a bulletin summarizing the article it is said dust may act injuriously (1) by irritant action; (2) by toxic action, and (3) by mechanical action. Dust may sometimes be both irritating and toxic. An example of irritating dust is that from flint chert or similarly siliceous rocks, the particles of which are hard and sharp, injuring, when inhaled, the delicate lining of the respiratory tract, forming fertile locations for pathogenic organisms such as those of common cold, influenza, pneumonia and tuberculosis. This type of dust is responsible for inflammatory conditions of the nose.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, Montgomery.
ALASKA: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.
ARIZONA: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.
CALIFORNIA: San Francisco, July 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.
COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: Regular: New Haven, July 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.
CONNECTICUT: Eclectic: New Haven, July 10. Chairman, Dr. John W. Fyfe, Saugatuck.
CONNECTICUT: Homeopathic: New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DELAWARE: Dover and Wilmington, June 19-21. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
DISTRICT OF COLUMBIA: Washington, July 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
FLORIDA, Regular: Palatka, June 19-20. Sec., Dr. E. W. Warren, Palatka.
ILLINOIS: Chicago, June 14-16. Sec., Dr. C. St. Clair Drake, Springfield.
INDIANA: Indianapolis, July 10-12. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.
KANSAS: Topeka, June 19-21. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 19-21. Sec., Dr. A. T. McCormack, Bowling Green.
MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 19. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
MASSACHUSETTS: Boston, July 10-12. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
MICHIGAN: Ann Arbor, June 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MISSISSIPPI: Jackson, June 19-20. Sec., Dr. W. S. Leathers, Oxford.
MISSOURI: St. Louis, June 18. Sec., Dr. George M. Jones, 206 Washington St., Jefferson City.
NEW HAMPSHIRE: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.
NEW JERSEY: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, 438 East State St., Trenton.
NEW MEXICO: Santa Fe, July 9. Sec., Dr. R. K. McClanahan, U. S. Naval Hospital, Las Animas, Colorado.
NEW YORK: Albany, Buffalo, New York and Syracuse, June 26-29. Sec., Dr. Willard J. Denno, Education Bldg., Albany.
NORTH CAROLINA: Raleigh, June 19. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.
NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.
OHIO: Columbus, June 11-14. Sec., Dr. George H. Matson, State House, Columbus.
OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. R. V. Smith, Tulsa.
PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-12. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.
RHODE ISLAND: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.
SOUTH CAROLINA: Columbia, June 12. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. Park B. Jenkins, Waubay.
TENNESSEE: Knoxville, Memphis and Nashville, June 15-16. Sec., Dr. A. B. De Loach, Scimitar Bldg., Memphis.
TEXAS: Austin, June 19-21. Sec., Dr. M. F Bettencourt, Mart.
VERMONT: Burlington, July 10-12. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 19-22. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.
WASHINGTON: Seattle, July 3-5. Sec., Dr. C. N. Suttner, Walla Walla.
WEST VIRGINIA: Charleston, July 10. Sec., Dr. S. L. Jepson, Capitol Bldg., Charleston.
WISCONSIN: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.
WYOMING: Laramie, June 27-29. Sec., Dr. H. E. McCollum, Laramie.

Medical School in Santo Domingo

An official document from the Republic of Santo Domingo describes the educational system in that republic. It gives the courses and standards of the National University of Santo Domingo and its faculty of medicine. For admission, a degree, either in letters and science or letters and philosophy, is required, together with a certificate showing that the candidate has passed an intensive examination in physics, chemistry, botany and zoology. The medical course extends over seven years.

Iowa February Examination

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Feb. 6-8, 1917. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Twelve candidates were licensed through reciprocity, March 15, 1917. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett Medical College		(1914)	82.9
Northwestern University		(1903)	81.2
Rush Medical College	(1911) 95;	(1916)	91
University of Pennsylvania		(1915)	87.2
Woman's Med. College of Pennsylvania		(1891)	88.6

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1913)	Colorado
Northwestern University	(1910)	(1914)	Illinois
Rush Medical College	(1893) Nebraska;	(1902)	Illinois
University of Illinois		(1911)	Illinois
University of Michigan Medical School		(1908)	Michigan
St. Louis College of Physicians and Surgeons		(1889)	Missouri
John A. Creighton Medical College		(1914)	Nebraska
Jefferson Medical College of Philadelphia		(1903)	Penna.
Universities of Nashville and Tennessee		(1911)	Georgia
Marquette University		(1914)	Wisconsin

Connecticut March Examination

Dr. Charles A. Tuttle, secretary of the Medical Examining Board of Connecticut, reports the written examination held at New Haven, March 13-14, 1917. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 23, of whom 18 passed, and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University	(1914) 81.1;	(1915)	82.7
Georgetown University		(1915)	78.8
Johns Hopkins University	(1905) 86.4;	(1915) 78.2,	87.3
Cornell University		(1915)	84.4
Fordham University		(1916)	81.4
University and Bellevue Hosp. Med. Coll.	(1914) 88.8;	(1916)	95
Jefferson Medical College of Philadelphia		(1916)	77.7
Medico-Chirurgical College of Philadelphia		(1916)	84.5
University of Vermont	(1899) 76.7; (1913) 78.4, 85.5;	(1915)	79.4
		(1916)	82.6
Royal College of Physicians, Ireland		(1908)	75
FAILED			
University of Maryland		(1916)	*
Harvard University		(1915)	72.3
University of Michigan Medical School		(1906)	69.4
Long Island College Hospital		(1916)	69.3
University of Vermont		(1910)	74.5

* Grade not given.

Minnesota January Examination

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Jan. 2-5, 1917. The total number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1915)	88
Rush Medical College		(1913)	91
University of Illinois		(1914)	80
Marquette University		(1916)	85, 86
University of Christiana		(1892)	76

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1916)	Dist. Colum.
Chicago College of Medicine and Surgery		(1908)	Illinois
Northwestern University		(1915)	Illinois
Rush Medical College		(1914)	Illinois
State Univ. of Iowa Coll. of Medicine		(1907)	Iowa
College of Phys. and Surgs., Baltimore		(1906)	Ohio
John A. Creighton University		(1911)	Illinois
University of Nebraska	(1908)	(1916)	Nebraska
Medical College of Virginia		(1905)	Virginia
Marquette University		(1916)	Wisconsin

Arkansas Homeopathic May Examination

Dr. Scott C. Runnels, secretary of the Homeopathic State Medical Board of Arkansas, reports that one candidate was granted a reregistration license at the written examination held at Little Rock, May 9, 1917, and one candidate was licensed through reciprocity:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeopathic Medical College		(1899)	Wisconsin

Book Notices

ANATOMICAL NAMES, ESPECIALLY THE BASLE NOMINA ANATOMICA ("BNA"). By Albert Chauncey Eycleshymer, B.S., Ph.D., M.D., Head of the Department of Anatomy, University of Illinois, Assisted by Daniel Martin Schoemaker, B.S., M.D., Professor of Anatomy, St. Louis University. With Biographical Sketches by Roy Lee Moodie, A.B., Ph.D., Assistaint Professor of Anatomy, University of Illinois. Cloth. Price, $4.50 net. Pp. 1744, with 28 illustrations. New York: William Wood & Co., 1917.

Anatomy, like many other branches of medical science, is in danger, according to the author, "of being submerged by its own terminology. Over 50,000 names have been given to some 5,000 structures." The purpose of this volume is to present the B N A (Basle Nomina Anatomica) with a view to having the 5,000 names of this nomenclature made official for the structures mentioned and to discard the remaining 45,000 synonyms. The book is divided into three sections. First is a general discussion of anatomic names, in which these names are classified according to the various systems of the body. This section includes a part on explanation of the nomenclature. The second section consists of a series of biographic sketches by Roy L. Moodie. It occupies approximately 175 pages and is of great interest and value. The biographic sketches are short, yet complete. Following each is the title of the particular anatomic work for which the author is particularly noted, and each sketch includes also a list of the anatomic structures with which the name of the author is connected. The third part of the book is an index of synonyms. It includes the 50,000 terms arranged in alphabetical order and thoroughly cross indexed. Certainly no anatomic laboratory or department is complete without this book.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY FOR THE USE OF STUDENTS. By W. D. Halliburton, M.D., LL.D., F.R.S., Professor of Physiology in King's College, London. Ninth Edition. Cloth. Price, $1.75. Pp. 324, with 72 illustrations. New York: Longmans, Green & Co., 1916.

The ninth edition of a student's textbook ordinarily calls for only a formal notice. This work has now reached nearly a quarter of a century of useful life. Published in 1893, its first edition contained much less practical work than the present edition and yet it was at that time considered to present the maximum of the needs of a student of physiology for the highest degree in physiology or in medicine in the United Kingdom. Notwithstanding the present greatly expanded scope of the work, it now contains the minimum of what is considered essential for an ordinary degree. It may, therefore, be said to be an index of the progress of medical education in the English speaking countries during the last quarter of a century. It is interesting to compare the early and late editions in another respect, for it is remarkable what a large amount of the new and important methods have originated on this side of the Atlantic. As compared with its immediate predecessor, this edition is principally notable for the introduction of the urease method for estimating urea, and the Lewis-Benedict method for determining the sugar in blood. Other less important additions are the ninhydrin reaction, and the volumetric process for estimating sulphates.

INCOMPATIBILITIES IN PRESCRIPTIONS. For Students in Pharmacy and Medicine and Practicing Pharmacists and Physicians. By Edsel A. Ruddiman, Ph.M., M.D., Professor of Pharmacy and Materia Medica, Department of Pharmacy, Vanderbilt University. Fourth Edition. Cloth. Price, $2 net. Pp. 317. New York: John Wiley & Sons, 1917.

The drugs are arranged alphabetically, and the principal incompatibilities of each are indicated. Four hundred and fifty prescriptions are given, which contain examples of the principal incompatibilities likely to be encountered. In most cases explanations of these are given on separate pages, although in some cases these have been omitted, the student being expected to recognize the incompatibility. Physicians who prescribe complex mixtures will be able to guard against incompatibilities by reference to this book. The general use of proprietary rather than scientific names for chemical substances is not for the best interest of scientific medicine in a book of this character.

Medicolegal

Presumption of Negligence from Burning of Patient

(*Meyer et ux. vs. McNutt Hospital (Calif.), 159 Pac. R. 436*)

The Supreme Court of California affirms a judgment for $750 damages in favor of the plaintiffs, husband and wife, for injuries caused, as alleged, by the carelessness of the defendant's employees in allowing Mrs. Meyer to be badly burned on the legs by a hot water bottle while she was unconscious from the effects of an anesthetic administered to her before a surgical operation was performed, although there was no direct evidence as to just when or how the injuries were caused. The court says that Mrs. Meyer testified that there were no burns or injuries of any sort on her legs when she entered the hospital, or up to the time when she lost consciousness. When she regained her senses she suffered pain and complained to her nurse, who found blisters on the patient's legs. The injuries were treated as burns usually are and yielded to the treatment. The surgeon who performed the operation testified that she was not burned while in his presence, and the nurse who had charge of Mrs. Meyer before and after the operation said, in her direct testimony, that she put no hot water bag or anything of the sort in Mrs. Meyer's bed. But, while there was no direct testimony to the effect that any servant of the defendant hospital had applied hot water bags or any other instrumentality to produce the injuries on Mrs. Meyer, the court thinks the jury was justified in determining from all of the circumstances that the burns were inflicted while the patient was unconscious and under the exclusive care of the defendant's nurses. The nature of the injuries themselves tended strongly to support this conclusion. Areas of 24 inches on one leg and 15 on the other were affected, and it seems hardly possible that one could be so burned while conscious without realizing it. Negligence like almost any other fact may be established by circumstantial evidence. It was clearly competent for the plaintiffs to prove, by the cross-examination of the surgeon, that, in spite of the lack of necessity for hot applications, they were, as matter of fact, generally used; also, to cross-examine the nurse on the custom of the hospital with reference to warming beds. The doctrine of *res ipsa loquitur* (the matter speaks for itself) was properly applied to the facts of this case. The patient was unconscious. Under its contract with her the defendant corporation owed her a duty of protection which was violated by the use of an instrumentality which produced the painful results which were made manifest when she came out from under the influence of the anesthetic. Proof of the accident carried with it the presumption of negligence. And this is the rule whether the liability is ascribed to the carelessness of experienced nurses or to the defendant's negligence in selecting nurses who were not competent.

Competency of Trained Nurse to Testify that Treatment Was Proper

(*Barsi vs. Simpson (Calif.), 161 Pac. R. 127*)

The District Court of Appeal of California, First District, in affirming an order denying the plaintiff's motion for a new trial after a verdict was rendered in favor of the defendant, says that the sole claim of negligence against the defendant was that, having been employed to reduce a fracture of the plaintiff's left arm between the wrist and the elbow, he did not bring the ends of the fractured bones into position. A trained nurse, who was at the time the superintendent of the operating room of a large hospital, witnessed the performance of the operation on the plaintiff by the defendant, and testified that from her experience as a trained nurse she would say that the defendant's treatment of the injured arm was proper and not subject in any respect to adverse criticism. This court thinks that the question of whether or not the witness was qualified to testify as an expert was a matter within the sound discretion of the trial court; and, there being no showing of a clear abuse of that discretion, the ruling of the trial court will not be disturbed.

Society Proceedings

COMING MEETINGS

Idaho State Medical Association, Sandpoint, June 25-26.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 12-13.
Montana Medical Association, Kalispell, July 11-12.
Oregon State Medical Association, Portland, June 28-30.
Washington State Medical Association, Spokane, June 17-19.

ASSOCIATION OF AMERICAN PHYSICIANS

Meeting held in Atlantic City, May 2-3, 1917

The President, DR. GEORGE DOCK, St. Louis, in the Chair

Studies of Digestion

DR. FRANKLIN W. WHITE, Boston: First, as to the effects of stimuli from the lower bowel on the rate of emptying the stomach: In some persons with partial obstruction in the ileocecal region, the stomach empties very slowly, without any lesion of the stomach being found at operation. Experiments on animals show that when the colon is strongly irritated by injections, the stomach retains food far beyond its normal limits. Evidently, a strong stimulus from the lower bowel is needed to slow the human stomach, for it has been found that the stomach empties within five or six hours in some cases of ileac stasis of two or more days' duration, in most cases with good-sized twelve-hour residue in the ileum, and when the colon is distended by a large enema. Secondly, as to the effect of massage on the colon: Vigorous massage usually mashes up the contents of the colon, but has little or no effect in moving the contents forward. When a full cecum is apparently emptied at once, it has been found that gas has moved forward, and solid contents merely flatten out in both directions. Massage sometimes delays, but usually hastens the passage of colon contents at the end of several hours, evidently by stimulation of slow peristalsis. The effect of this stimulus is small in comparison with that of taking food. A rapid onward mass movement of a large portion of the colon contents has been seen rarely (twice) after massage. These large movements have no direct relation to the force of the massage, but follow gentle palpation.

DISCUSSION

DR. S. J. MELTZER, New York: What about the effect of the reflexes? The retardation may be caused in two ways: first, by inhibiting the movements of the stomach walls, and second, by increasing the contraction of the pylorus. In the first there would be an arrested progress in the gastro-intestinal canal. That the contraction of the pylorus might be increased would not be surprising because we know that obstruction in the gastro-intestinal canal increases peristalsis, and hence the action of the sphincter would be increased.

DR. FRANKLIN H. WHITE, Boston: There is no doubt that the delay is due to the spasm of the pylorus and not to the inhibitive action of the stomach.

Importance of Duodenal Alimentation in Severe Dyspepsia Occurring After Gastro-Enterostomy

DR. MAX EINHORN, New York: Of ten patients with postoperative severe dyspepsia treated by duodenal alimentation, eight made good recoveries, while two required further operative treatment. When patients suffering from postoperative dyspepsia after operations of this nature were placed on duodenal feeding for two weeks, good results usually ensued.

DISCUSSION

DR. JULIUS FRIEDENWALD, Baltimore: I believe that this is a life-saving method, and have used it in many instances. After the operation of gastro-enterostomy, the patient is not cured, or is cured only for a short time. I recall one instance in particular, a man, aged 23, with an ulcer of the stomach which had been treated medically and the condition relieved for only a short time. Gastro-enterostomy was then done, and the patient was relieved for about six months, when he had a return of symptoms of ulcer of the stomach. Duodenal feeding was then resorted to; the patient has now been well for about two years. Duodenal feeding should first be tried before further operation is undertaken.

DR. CHARLES G. STOCKTON, Buffalo: My results with duodenal feeding correspond closely with those of Dr. Einhorn. Some patients suffer after operation with the symptoms which he has described, and are worse after the operation than they were before. In some of these patients the food passes out of the stomach through one opening and back into the stomach through the other. I am convinced that I have seen at least one case relieved after the use of the duodenal tube.

DR. FRANKLIN W. WHITE, Boston: There are cases in which this method does not work well.

Intestinal Bacteria in Children

DRS. WILLIAM WEBER FORD, K. D. BLACKFAN, and M. D. BATCHELOR, Baltimore: An attempt has been made to discover changes in the bacterial flora of children as a result of feeding them artificial foods, particularly protein milk. The stools of breast fed children reveal small gram-negative bacilli, small gram-positive bacilli and micrococci and large gram-positive bacilli. Cultures on plain and dextrose agar give only gram-negative bacilli, *Bacillus coli* and *B. lactis-aerogenes*. The small gram-positive cocci and bacilli can be obtained by transferring material to acid broth. They are aciduric organisms (*B. acidophilus*, etc.). The large gram-positive bacilli are aerobic spore bearers and can be obtained only by heating material to 85 C. and incubating for twenty-four hours. Artificially fed children have shown the same types of gram-negative organisms, the same small gram-positive micrococci and bacilli, but in addition a great profusion of large gram-positive bacilli.

Treatment of Myelocytic Leukemia by Radium

DR. HERBERT ZIEGLER GIFFIN, Rochester, Minn.: We have treated thirty patients with myelocytic leukemia by the direct application of radium element over the spleen. We made applications of from 5 to 10 milligrams of radium in a tube for from three to four hours, with a total exposure of from twenty-four to thirty-six hours. A combination of proper treatment together with exposures to radium seems to be the best treatment for myelocytic leukemia.

DISCUSSION

DR. ALFRED STENGEL, Philadelphia: I have treated about fifty patients with myelocytic leukemia, and the records of forty-two are available. In many of these cases the clinical improvement was far out of proportion to the improvement of the blood condition. Leukocytic leukemia, like pernicious anemia, seems to be a relapsing disease. We have had a number of patients with this condition who have lived four or five years, possibly six years; eight years is the maximum duration of life when this condition is established.

DR. FRANCIS PEABODY, Boston: At the Huntington Hospital our results have been as Dr. Giffin has described. There was a remarkable drop to the normal in the white count, and a decrease in the size of the spleen. In every case that appears to be cured we watch the blood and try to keep the count down to as nearly normal as possible. These patients appear to be well if their blood count is kept down to 20,000 or 30,000. So soon as the blood count rises and the spleen enlarges, further treatment is indicated.

DR. LEONARD G. ROUNTREE, Minneapolis: I had an acute case in a girl who gave a brief five or six weeks' history of her trouble. She was anemic and had a large spleen. She was given a transfusion, and radium applications were used. She died at the end of ten days. An exposure to the radium for twenty-four hours had no effect on the spleen, probably because the patient did not live long enough.

DR. LEWELLYS F. BARKER, Baltimore: I wonder if the mass of bone marrow cells originate in the marrow and collect in depots, or whether they arise from other tissues? I rather favor the view that this condition exists all over the body. Only fatty bone marrow develops the cells. If this is true,

we are then dealing with a tissue disease and not with a bone marrow disease. There is a stimulating effect with a tendency to proliferation; if this is so, how can radium do any good? It destroys a great many cells. Is the destruction of the cells limited to the spleen where the radium is applied, or is it diffused over the body? We are treating the symptoms rather than the disease itself, and should consider all accessory factors as a help in the therapy of this disease.

DR. WILLIAM S. THAYER, Baltimore: I have always regarded this disease as related to pernicious anemia. It sometimes shows a disappearance, too, under treatment with arsenic.

DR. S. SOLIS COHEN, Philadelphia: In my experience the combination of radium treatment with arsenic is followed by the greatest prolongation of life and amelioration of symptoms.

DR. JOSEPH A. CAPPS, Chicago: The Roentgen ray and radium destroy some substances which are poor in leukemic cells. These substances are more or less selective.

(*To be continued*)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Eleventh Annual Meeting, held at Utica, April 24-26, 1917

(*Concluded from page 1657*)

Present Status of Vaccine Therapy

DR. WARREN B. STONE, Schenectady: In the treatment of a moderate number of chronic infections, particularly those produced by the staphylococci, vaccines are of greater use than are other methods at our command. Those who study their cases, who make correct bacteriologic diagnoses and who administer autogenous vaccines, with a proper dosage and at correct intervals, will invariably get better results than those who hazard a guess as to the nature of the offending organism, who obtain a vaccine that may or may not contain the causative organism, and who give a dose every day until the vaccine is exhausted.

DR. RUFUS I. COLE, New York: Any scientific discovery with apparent practical bearing leads at once to a multiplicity of applications, some justifiable, others extremely far fetched, and without scientific basis. The desire to leave nothing undone that might be of any benefit to the patient, combined with lack of time to weigh carefully all the evidence, has led many to employ therapeutic methods, especially so-called biologic therapeutic methods which have little or no clinical evidence to support them, which are not based on sound experimental observations, and which in many cases not only do no good, but are actually harmful. In bringing about this state of affairs, the commercial houses which manufacture biologic products are much to blame. The physician should always be on his guard; he should obtain his evidence, so far as possible, from the original publications of the scientific workers, not from the advertisements of manufacturers. He should try to use those methods that are well established. If we disregard all the chaff and consider only those forms of serum therapy in which the value is well proved, we must believe that this form of therapy has been of the greatest good to mankind. The practicing physician, however, should keep close to earth and employ only that which has been tried and found to be of value.

Treatment of Dysthyroidism by Roentgen Rays

DR. MYRON B. PALMER, Rochester: Provided the proper treatment is given, nearly every patient with dysthyroidism treated with the Roentgen ray should show improvement, and others should be symptom free. Patients who are to be operated on should have at least one treatment four weeks previous to operation, and unless imperative, a second treatment should be given in cases in which there is a high pulse rate. The avoidance of surgery is essential in a large proportion of cases in which there are toxic symptoms. Large goiters causing no symptoms of dysthyroidism should be removed by the surgeon rather than treated with the Roentgen ray.

DISCUSSION

DR. JOHN M. SWAN, Rochester: I believe that Dr. Palmer's results from massive doses of the Roentgen ray are very good. I should like to ask what he does with those patients between treatments. I understand the intervals are from two to four weeks.

DR. DELANCEY ROCHESTER, Buffalo: Does Dr. Palmer employ rest or any drug treatment, diet or other means than the Roentgen ray? How does he treat these patients between times?

DR. ROSALIE S. MORTON, New York: Ninety per cent. of the English soldiers who are subjects of hyperthyroidism yield to Roentgen treatment and go to the depots in a short time. The average number of treatments is eight in seven weeks.

DR. EDWIN MACDONALD STANTON, Schenectady: In 1910 a paper read before the Schenectady Medical Society led to a discussion which brought out the fact that practically every member of the society had treated cases of goiter with good results. Treatment in the cases of hyperthyroidism at Guy's Hospital in London during a long period of years resulted in 80 per cent. ultimate cures.

DR. CHARLES J. HUNT, Clifton Springs: I have studied carefully six cases of dysthyroidism. Within two winters after the occurrence of an acute infection, the chronic infection of long standing was relieved for a lengthy period. In one case a gingivitis of a very purulent type appeared, and the patient developed well marked evidences of hyperthyroidism. Many patients develop such a phenomenon following an acute infection.

DR. MYRON B. PALMER, Rochester: No attention has been paid to rest or diet in my cases. The patients took a moderate amount of exercise. If they had much fever they were kept quiet for one or two weeks, particularly in the severer cases. There are patients who do well by simply being placed in bed, and in this class of patients we should not resort to surgery. The Roentgen ray is not the only treatment for these patients.

SYMPOSIUM ON PEPTIC ULCER

Symptomatology and Diagnosis of Peptic Ulcer

DR. GEORGE R. LOCKWOOD, New York: To make a correct diagnosis is laudable, but to make it hastily is culpable, yet this is constantly being done. The Roentgen ray is of tremendous value, but it has its limitations. In duodenal ulcer it is disappointing, and I am inclined to discard its evidence. The string test is unreliable, and often shows ulcer when none exists, and fails to show it when it does exist. Gastric analysis may or may not be of help. A double test should be used, one for the empty stomach in the early morning for hypersecretion, and test breakfast for hyperacidity. It is shown by charts, however, that hyperacidity is not necessarily a sign of ulcer, for in chronic ulcer 50 per cent. are normally acid. The general characteristics of ulcer are the regularity of hunger pains, and the relief after eating. This is often characteristic of chronic appendicitis also, but it will be found, by carefully charting of the regularity of these pains, before breakfast, lunch, dinner and bed, and the time of relief by food, that in the long run chronic appendicitis varies from the clock-like regularity of ulcer; pain overlaps a meal, or lasts all day, and careful watching and charting will make the differential diagnosis. The only confusion which exists is that in late ulcer there is continuous pain with vomiting of sour acid fluid. This is especially characteristic of ulcer. The diagnosis, however, is not easy to make; it requires time, patience and careful checking up by laboratory data. Only operation makes the final diagnosis absolutely certain, and even then there is the question frequently opened by the pathologist's report.

Practical Pathology of Peptic Ulcer

DR. JAMES EWING, New York: Opinions regarding the frequency with which cancer develops on ulcer of the stomach

vary from 5 to 70 per cent., a discrepancy which suggests that the criteria of this condition are not clearly recognized or employed in diagnosis. The available data bearing on the matter are statistical, clinical, anatomic and microscopic. Statistics show that healed ulcers are common at necropsy; the chief age of incidence of ulcer is between 20 and 30 years, and of cancer between 50 and 60 years; ulcer is much more common in females; cancer is more frequent in males, and the common sites of ulcer and cancer are not identical. Clinical observation shows that a history of ulcer long precedes cancer in the typical cases; that cancer has followed gastro-enterostomy for ulcer no more frequently than after resection of the ulcer, and that about 2 per cent. of ulcers long treated medically develop cancer. The anatomic appearance of undoubted cases of ulcerocarcinoma has usually been characteristic, the cancer beginning at one point of the ulcer and leaving the base free. Microscopically, there are a moderate number of cases of chronic ulcer which show suspicious precancerous changes, but these may not safely be regarded as equivalent to cancer. The great majority of chronic ulcers are free from such changes.

Roentgen Ray in Peptic Ulcer

DR. LEWIS G. COLE, New York: The small, early ulcer can be diagnosed with as great a degree of accuracy by serial roentgenography as a fracture of the long bones can be discovered by a roentgenogram. The Roentgen ray detects all kinds and stages of ulcer.

Medical Treatment of Peptic Ulcer

DR. LUDWIG KAST, New York: It is necessary to be clear as to which patients should be treated medically and which should not. "Surgical with delay" are (1) cases of perforated ulcers, and (2) repeated serious hemorrhages. "Surgical as soon as feasible" are (1) chronic ulcers, needing preparatory, rigid medical treatment; (2) indurated ulcers; (3) penetrating ulcers and hour-glass contractions, and (4) cases offering suspicion of malignancy. "Borderline cases" (1) with no facilities for medical treatment; (2) neurasthenic cases, particularly those dependent on anodynes. The condition in all surgical cases is improved by previous medical preparation. Medical treatment is directed chiefly toward reducing gastric secretion and neutralizing hydrochloric acid as much as possible. Some points in the treatment are: covering and protecting the ulcerated surface by use of bismuth; giving of acid-binding foods; giving of alkalies; checking of gastric secretion; by proper arrangement of diet, avoidance of foods that stimulate gastric secretion. If after several weeks of medical treatment the patient is still dependent on a restricted diet, surgical treatment should be resorted to.

Surgical Treatment of Peptic Ulcer

DR. JOHN B. DEAVER, Philadelphia: Under peptic ulcer I include gastric, duodenal, marginal and jejunal ulcer. While jejunal ulcer is more commonly encountered as a sequel to gastro-enterostomy, it can occur only as a distinct pathologic entity. Gastric and duodenal ulcers comprise two varieties, perforative and nonperforative. The surgeon and the bacteriologist have done a great deal in the treatment of peptic ulcer. The best safeguard against carcinomatous degeneration is excision of the ulcer. Gastro-enterostomy should be advised when obstruction is present. Even then it is not so efficacious as pylorectomy. The so-called internist should be called externist, as he never goes into the abdomen until the postmortem, and then he has some one else to do it for him.

DISCUSSION ON PEPTIC ULCER

DR. FENTON B. TURCK, New York: Most surgeons are agreed that gastric ulcer is of bacterial origin. I have found that bacteria penetrate the intestinal wall and pass into the pyloric region. I have produced thirty-six cases of ulcer experimentally. Injecting the bacteria from the teeth and tonsils into the blood does not cause infection; it is an autolysis, not an infection. In my experiments I have fed the animal with beef and fatty acids, and as a result caused migration of bacteria into the intestinal walls. They pass into the submucosa and increase ferments in the pylorus and cause autolysis. As to the treatment of these cases, the surgeon knows because he sees the conditions. We do not need to theorize from the outside. There is no recurrence after suture of the perforation because immunity is produced by the intestinal flora and an autovaccination takes place.

DR. WILLIAM SKINNER, Geneva: There are many diagnostic points for gastric ulcer. One is discoverable by tactile sense. A slight palpation discloses a peculiar kind of rigidity over the location of the ulcer. In regard to the treatment of gastric ulcers by posterior gastrojejunostomy, I have had an interesting case in which there was a history of ulcer for twenty-one years. A gastrojejunostomy was done with relief of symptoms for six years; then there was a severe hemorrhage, and a pylorectomy was done. The ulcer had been eating out on one side and healing on the other. After the pylorectomy the patient was well two years, and then had another hemorrhage. An ulcer was found on the anterior wall of the stomach, which was excised, and sutured from the inside and the gastrojejunostomy enlarged. The man has recovered and is well.

DR. S. I. HIRSCH, New York: There is no unanimity of opinion that every ulcer should be excised. Surgeons want to know whether it is early carcinoma or not. Consequently the question of diagnosis is extremely difficult. The Roentgen ray has done far more than stomach tubes or string tests. Erosion does not change the stomach sufficiently, and functional changes must be considered in ulcer cases.

Complete Avulsion of Scalp

DR. F. H. FLAHERTY, Syracuse: I have observed five cases. A woman, working in a laundry, had her hair caught in a revolving shaft. The scalp was completely torn from the skull. She was alone at the time of the accident, and was obliged to walk 12 feet to stop the motor. She remained quite conscious and suffered little shock. The scalp was covered with Tiersch grafts. Only autodermic grafts should be used, Tiersch grafts from the thigh being preferable. It is absolutely impossible to replace the scalp, which shrinks into hard, dry skin, and becomes infected. Grafts should be placed on freshly denuded surfaces as soon as possible. If an antiseptic is desired, 50 per cent. alcohol solution is good, if a protective, sterile petrolatum. The same region of the body could provide grafts every six weeks if necessary.

Acute Hemorrhagic Pancreatitis

DR. WILLIAM LINDER, Brooklyn: In three years I have observed thirty-three cases. It is important to think of the possibility of acute hemorrhagic pancreatitis when there is an acute abdominal condition. It is not necessarily a fatal disease; there are more cases of the mild type than of the fulminating type. If recognized early, they do not become serious. Early diagnosis is absolutely necessary to secure good results. The pancreas must be punctured with blunt forceps to drain the very toxic material. Often a cholecystostomy or a cholecystectomy is necessary as well. In one third of my cases I found associated gallbladder disease.

DISCUSSION

DR. JOHNSON, Batavia: There has been a tendency recently to make the diagnosis of acute pancreatitis frequently. The disease is often something else instead. Men nowadays make the diagnosis as a habit. I had one case in which there was a great bulging on the costovertebral angle on the left side; when the abdomen was opened, sloughs of the pancreas came out. It was an acute pancreatitis, followed by a cyst.

DR. PARKER SYMS, New York: I had a case which was not diagnosed until after death. It was associated with other complications. The man presented signs of obstruction, such as distention. The cause of the disease was not surmised. A rightsided section was done and a torsion of the omentum found. This, a surgical entity, occurred only with adhesions of the omentum from an old hernia on the right side. Pancreatitis was undoubtedly the underlying cause of the torsion. There was at that point a great discrepancy between the veins and the arteries, and when the hernia was fixed, adhesions to the omentum occurred and involved the coils of the intes-

tine. At operation, the gangrenous part of the omentum was ablated, and the man was immediately but only temporarily relieved. Signs of obstruction continued, and a cholecystostomy was done without avail. The condition was not recognized until necropsy. There was no evidence of fatty necrosis.

Nephropexy

DR. SAMUEL LLOYD, New York: Floating kidney is a clinical entity. It often exists without symptoms of any kind. Kidneys are movable in the first, second or third degrees, the latter being a distinctly floating kidney, remaining out of place even when the patient is recumbent. In this class, marked symptoms might be noted. Patients often are treated for years by gastro-enterologists, without knowing that the trouble is nephritic in origin. Symptoms are not distinctly referable to the kidney; such symptoms as nervousness, heart disturbance, dyspnea, emaciation, gastric disturbances and constipation are often marked. There might be perinephritis and toxemia. Many of these symptoms are due to chronic parenchymatous nephritis, owing to changes in the circulation of the organ. As regards fixation of the kidney, there need be no recurrence, if proper technic is observed. The kidney must be firmly attached to the lumbar fascia, and as the kidney is posterior to the peritoneum, no intra-abdominal pressure is sufficient to keep it in place. The kidney should be anchored to the lumbar fascia, close to the muscles, and with a freshened surface close to the separated muscles themselves.

DISCUSSION

DR. JAMES VANDER VEER, Albany: There is one thing even better than keeping the patient in bed, and that is to raise the foot of the bed 12 inches and give the hepatic flexure a chance to get back. I do not like to operate on a movable kidney without Roentgen diagnosis.

DR. ALBERT VANDER VEER, Albany: In cases that have come under my observation, decided relief has been given by operation.

Cancer of the Bladder

DR. JAMES A. GARDNER, New York: This is an especially discouraging condition, its only hope lying in early diagnosis. Half the tumors are malignant, many tumors becoming so after being benign for years. Blood in the urine should be investigated at once, and cystoscopy performed, as bleeding at first is more or less intermittent. Blood in the urine and much epithelium is suggestive of bladder tumor. Pain often does not occur till later, when large clots occasion difficulty in voiding. Cystoscopy is also absolutely necessary for early diagnosis, and if benign papillomas are found, fulguration should be tried. If there is suspicion of malignancy, operation must be done. Mortality is lower, recurrence much less, and freedom from recurrence much greater when partial resection of the bladder is performed. A wide resection of the bladder wall offers the best method of treatment in carcinoma of the bladder. It is important to locate the ureters in an operation. An extraperitoneal operation is the one of choice. The integrity of the bladder should be preserved as much as possible. The surface of the growth should be smeared with the actual cautery. If there is involvement of the ureter, it is tied off and transplanted to the point at which there is least tension. If the neck of the bladder is involved, a total resection is necessary. The ureters are then transplanted into the bowel.

DISCUSSION

DR. JAMES VANDER VEER, Albany: Cancer of the bladder should be discussed among laity and physicians to bring patients for cystoscopy early enough. Even well educated physicians give their patients hemostatics or styptics and tell them to come back later, if there is recurrence, and many patients do not come for a year. One such patient had to have transplantation of the whole side of the bladder. The first time bleeding is seen, the patient should be examined cystoscopically. In localized operations of the bladder, we can bring the patient out alive with early treatment; but when the patient is riddled with cancer and general carcinomatosis has set in, it is hopeless.

Sarcoma, Complicating Primary Paget's Disease of the Bone

DR. LEDRA HEAZLET, Auburn: A man, aged 40, in 1913 first had pain and weakness in the feet. He wore arches without benefit. There was swelling of the tibia, and walking was painful. He was treated for rheumatism. He appeared prematurely old. He was well nourished, but anemic; he walked with a limp. His movements were stiff and awkward. He had a tender swelling over the midspine of the tibia. The Roentgen diagnosis was syphilitic osteitis. The blood Wassermann test was negative. He was treated with salvarsan without benefit. In September, 1915, tumor tissue was removed for examination and a diagnosis of giant cell sarcoma was made. Roentgenoscopy of the rest of the skeleton revealed the true nature of the primary bone condition. Lesions of osteitis deformans were found in the skull, long bones, hands and feet. In January, 1916, the patient had an operation for removal of tumor. In June, 1916, he had a pathologic fracture of one femur. This got slowly better and in November, 1916, he had a pathologic fracture of the other femur. Later there were fractures in the right radius and humerus. Death occurred in February, 1917. No necropsy was held.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May, XXI, No. 3

1 Studies on Hemal Nodes in Bovines and Goats. A. W. Meyer, San Francisco.—p. 359.
2 Id. A. W. Meyer, San Francisco.—p. 375.
3 Position of Respiratory Vascular Net in Allantois of Chick. V. Danchakoff, New York.—p. 407.
4 Study of Reaction of Lymphatic Endothelium and of Leukocytes, in Tadpole's Tail, Toward Injected Fat. E. R. Clark and E. L. Clark, Columbia, Mo.
5 *Blood Vessels of Heart Valves. S. Bayne-Jones, Baltimore.—p. 449.
6 Chondriosomes in Cells of Fish Embryos. J. Duesberg, Baltimore.—p. 465.

5. **Blood Vessels of Heart Valves.**—Bayne-Jones summarized his studies as follows: 1. By the injection of carmin gelatin under pressure of 160 to 190 mm. Hg into the coronary arteries, blood vessels are demonstrable in the valves of the normal human heart. 2. The atrioventricular valves receive distinct branches from the annular divisions of the coronary arteries. These vessels pass into the valves at the thickened regions above the insertion of the chordae tendineae and ramify chiefly along the line of closure of the valves. Arteries, veins and an anastomosing capillary bed are recognizable in these locations. 3. The chordae tendineae receive a few arterioles from the vessels of the papillary muscles. These traverse chordae tendineae chiefly beneath the endothelium covering these structures. 4. The semilunar valves receive a definite blood supply from the vasa vasorum of the pulmonary artery and aorta and from the endocardial vessels of the auricles. 5. These vessels afford a definite anatomic basis for the conception that endocarditis may be embolic in its origin.

American Journal of Physiology, Baltimore

May, XLIII, No. 2

7 Excitation of Microscopic Areas; Nonpolarizable Capillary Electrode. F. H. Pratt, Buffalo.—p. 159.
8 *Accuracy of Movement in Absence of Excitation from Moving Organ. K. S. Lashley, Baltimore.—p. 169.
9 Cardioskeletal Quotient. W. L. Mendenhall, Hanover, N. H.—p. 195.
10 *Physiology of Stomach. Alleged Influence of Removal of Salivary Glands on Secretion of Gastric Juice. A. M. Swanson, Chicago.—p. 205.
11 Composition of Saliva in Relation to Incidence of Dental Caries. J. A. Marshall, San Francisco.—p. 212.
12 *Epinephric Content of Blood in Conditions of Low Blood Pressure and Shock. E. A. Bedford, New York.—p. 235.
13 Bile Pigment Metabolism. Bile Pigment Output Influenced by Hemoglobin Injections, Anemia and Blood Regeneration. G. H. Whipple and C. W. Hooper, San Francisco.—p. 258.

14 Id. Bile Pigment Output Influenced by Hemoglobin Injection; Splenectomy and Anemia. C. W. Hooper and G. H. Whipple, San Francisco.—p. 275.
15 Id. Bile Pigment Output Influenced by Hemoglobin Injection in Combined Eck Bile Fistula Dog. C. W. Hooper and G. H. Whipple, San Francisco.—p. 290.
16 *Effects of Epinephrin on Distribution of Blood. Volume Changes and Venous Discharge in Spleen. R. G. Hoskins and R. E. L. Gunning, Chicago.—p. 298.
17 *Id. Volume Changes and Venous Discharge in Kidney. R. G. Hoskins and R. E. L. Gunning, Chicago.—p. 304.
18 *Differential Action of Epinephrin. F. A. Hartman and L. McPhedran, Toronto, Canada.—p. 311.
19 Hydrolytic Study of Chitin. S. Morgulis.—p. 328.
20 Fate of Sucrose Parenterally Administered. S. Kuriyama, New Haven, Conn.—p. 343.
21 *Perfusion of Mammalian Medulla; Effect of Carbon Dioxid and Other Substances on Respiratory and Cardiovascular Centers. D. R. Hooker, D. W. Wilson and H. Connett, Baltimore.—p. 351.

8. **Accuracy of Movement in Anesthetic Limb.**—Active movements of the left knee were studied by Lashley in a subject having a complete anesthesia to movements of this joint. Evidence bearing on the nature of the control of movement in such a condition suggests the following conclusions. Accurate movement of a single joint is possible in the absence of all excitation from the moving organs. The interaction of the various muscles concerned in the movement is not obviously different from that found in normal subjects. In contrast to reflexly controlled movements, the accuracy of movements under such conditions is in direct ratio to their rate, that is, within the limit tested, the quicker the movement the more accurate it is made. The control of accuracy of the movements is relatively independent of their duration; movements of different length do not result from a uniform excitation continued for varying time intervals but from variations in the intensity of motor discharge. Lashley suggests that it is probable that a control of the intensity of motor discharge after its initiation is possible in the absence of excitation from the organs activated. The normal phenomena of fatigue occur when it is highly probable that the chemical sensitivity of the fatigue muscles is reduced.

10. **Removal of Salivary Glands and Gastric Secretion.**—Swanson's results contradict the theory of a hormone in the salivary glands stimulating the secretion of gastric juice. Extirpation of the salivary glands in the dog does not decrease the gastric juice secretion (appetite and secretagogue juice). Extirpation of the salivary glands causes a distinct rise in the acidity of the gastric juice. This increase in acidity is greater than can be accounted for by the slight increase in the rate of secretion. The slight increase in quantity may be due to the absence of the alkaline saliva. After extirpation of the salivary glands, the maximum secretion rate after a meal appears slightly retarded. This may be due to the absence of the water of the saliva, and to decreased psychic secretion, owing to the dryness of the mouth and consequent impaired taste.

12. **Epinephric Content of Blood in Shock.**—According to Bedford increased quantities of epinephrin are thrown into the blood during conditions of low blood pressure and shock. This increased amount of epinephrin found in the blood is accompanied by a hyperactivity of the suprarenal gland and is not simply the result of the release of epinephric material stored in the gland. The epinephric content of the blood increases only after a somewhat prolonged continuation of the conditions leading to shock. The quantity of epinephric material in the blood increases with the prolongation of the period of low blood pressure and shock. Bedford suggests that this increased output of epinephrin into the blood may be a last effort on the part of the organism to resist the forces that are tending toward a fatal degree of low blood pressure.

16. **Effects of Epinephrin in Spleen.**—Epinephrin in all effective dosages, whether injected instantaneously or infused, Hoskins and Gunning found, causes in the spleen a brief dilatation followed by a contraction. Occasionally the contraction is followed by a secondary dilatation after the administration of the epinephrin is discontinued. Aside from the brief preliminary effect in no case was a pure (primary) dilatation observed. The threshhold for splenic contraction is lower than for changes in arterial pressure. Occasionally a quiescent spleen is stimulated by epinephrin to rhythmic contractions. Epinephrin causes a brief increase, then a decrease in the outflow from the splenic veins.

17. **Effects of Epinephrin in Kidney.**—Epinephrin in both depressor and pressor doses ordinarily causes contraction of the kidneys of dogs and a corresponding decrease in the venous outflow. Instantaneous injections and slower infusions of epinephrin give qualitatively similar results. One animal gave renodilatation with smaller and renoconstrictions with larger doses. The threshhold for renal changes and blood pressure changes is about the same. The observations reported on by Hoskins and Gunning as a whole do not support but also do not definitely disprove the theory that in normal animals epinephrin diuresis is due to renal dilatation.

18. **Differential Action of Epinephrin.**—Hartman and McPhedran claim that small doses of epinephrin cause constriction of the vessels of intestine, of kidney, and generally also of spleen. The minimal dose necessary to produce this constriction is in much the same order of magnitude as that required to cause a fall in blood pressure, but it is not necessarily identical with it, nor is it the same for every organ in the same animal. Increase of the dose of epinephrin causes in all cases marked dilatation of the intestine. This dilatation is brought about by doses materially less than those which are necessary to cause a rise in general blood pressure. This dilatation in the intestine is under control of the central nervous system, and is done away with by severing connection with the central nervous system. Epinephrin in the majority of cases has in all doses a constrictor effect on the spleen; in some, minute doses cause first dilatation, which is the initial change of a series of rhythmical splenic waves.

21. **Effect of Carbon Dioxid on Respiratory Center.**—The experiments outlined by the authors appear to prove conclusively that blood with a comparatively high tension of carbon dioxid causes a greater stimulation of the respiratory center than does blood with a lower tension of carbon dioxid but with the same hydrogen ion concentration.

Archives of Internal Medicine, Chicago

May, XIX, Part 1, No. 5

22 *An Experimental Test of Relation of Sewage Disposal to Spread of Pellagra. J. F. Siler, P. E. Garrison and W. J. MacNeal, New York.—p. 683.
23 *Intestinal Eosinophilia; Report of Case. G. D. Barnett, San Francisco.—p. 695.
24 *Significance of Embryonal Fat Cells in Certain Pathologic Conditions. D. Symmers and A. Fraser, New York.—p. 699.
25 *Experimental Appendicitis. J. W. McMeans, New York.—p. 709.
26 *Transient Heart Block—Electrocardiographic Studies. E. B. Krumbhaar, Philadelphia.—p. 750.
27 *Carbon Dioxid Content of Blood and of Alveolar Air in Obstructed Expiration. E. D. Friedman and H. C. Jackson, New York.—p. 767.
28 Study of Blood Sugar. Comparison of Tolerance for Glucose in Diabetic and Normal Subjects. R. Cummings and G. Piness, Los Angeles.—p. 777.
29 Human and Animal Liver After Alcohol. F. A. McJunkin, Milwaukee.—p. 786.
30 Influence of Radiations from Kromayer's Mercury Quartz Lamp on Cerebral Cortex. H. Wago, Tokio, Japan.—p. 801.
31 Reflex Action of Volatile Irritants on Circulation. C. C. Lieb and W. W. Herrick, New York.—p. 811.

22. **Relation of Sewage Disposal to Spread of Pellagra.**—The relationship of improper sewage disposal to pellagra was investigated by the authors in a pellagrous community, Spartan Mills, S. C. As a result of this study the installation of sanitary systems of sewage disposal is recommended as a measure for the restriction of the spread of pellagra in the general population. Subsequent to the installation of a water carriage system of sewage disposal at Spartan Mills, the community has been transformed from a pellagra focus to a community in which pellagra no longer spreads. Old cases of pellagra have continued to recur in this community, although a distinct decrease in them has occurred in the third year after the installation of the sewers.

23. **Intestinal Eosinophilia.**—In the case reported by Barnett the patient had had occasional attacks of diarrhea alternating with constipation for a few months. During the attacks of diarrhea the bowels moved five or six times a day, and he

frequently noticed masses of mucus in the stool and at times blood. The man had an eosinophilia of 47 per cent. A stool following castor oil contained much mucus and red blood. Microscopically a very few ova of trichnuris trichiura were found after extensive search with special methods. The proctoscope inserted 23 cm. showed the mucous membrane of the rectum everywhere covered with glairy mucus, pus and bright red blood. No areas of ulceration were seen. Smears of the pus showed a large percentage of eosinophils. No Charcot-Leyden crystals were seen. A small bit of necrotic tissue found in the stools was sectioned, and showed a chronic inflammation, with large numbers of eosinophils in the mucosa and submucosa.

24. **Embryonal Fat Cells.**—There is a condition in marantic infants attended by such extensive hyperplasia of the so-called primitive fat organs as to resemble a new growth. The body of a 3 months old infant was examined postmortem by Symmers. The fat bodies are cherry-red in color and are composed of embryonal fat cells and a complex system of intercommunicating capillaries. The bodies may be found wherever fat tissues normally exist, but are particularly numerous in the connective tissue planes of the neck and chest and around the suprarenals and kidneys. Symmers and Fraser claim that the glandula insularis cervicalis of Pende, recently described as a new member of the endocrine series, is identical in structure and function with the embryonal fat organs. The authors also report a case of Whipple's disease, a disease of the fat absorption apparatus characterized, histologically, by neutral fats and fatty acids in the lymph spaces of the intestine, mesentery and mesenteric lymph nodes, the tissues showing, in addition, extensive hyperplasia of embryonal fat cells and the presence of foreign body giant cells. The histology is indicative of a chronic productive inflammatory process attended by such extensive hyperplasia of embryonal fat cells as to suggest transformation into a sarcoma (embryonal cell liposarcoma, malignant lipoblastoma).

25. **Experimental Appendicitis.**—The effects of the intravenous injection of micro-organisms derived from several sources were studied by McMeans. Material was obtained from appendixes, from the tonsils of patients having appendicitis, from tonsils and adenoid tissue removed in the children's clinic, from tonsils of fracture patients otherwise apparently healthy, and from pus of an infected hand. In 125 rabbits injected intravenously with a variey of organisms, gross hemorrhages were noted in the appendix sixty-two times. The frequency with which hemorrhage and bacterial emboli are observed without the presence of an inflammatory reaction suggests that a mechanical factor must be considered as well as the direct action of the organisms and their toxins. The thymus, lymph glands of the mesentery, of the inguinal region, glands about the head of the cecum, and also Peyer's patches, were commonly affected in conjunction with hemorrhages distributed variously throughout the organs of the body. The fact that a variety of different organisms have been associated with changes in rabbits' appendixes tends to indicate that a special organism has not yet been found. The production of appendicitis in animals by the intravenous injection of large doses of vigorous bacteria cannot be considered as an indication that these organisms attack the human appendix by way of the blood. McMeans protests against the idea that any organism possesses a peculiar affinity for any given organ when the same organism shows a capacity for the invasion of other organs in a very appreciable proportion of experiments. As the result of a study of the literature, and experimental work, McMeans finds little evidence to support the belief that appendicitis in the human subject is ordinarily caused by a blood infection.

26. **Transient Heart Block.**—Four different types of transient heart block are described, analyzed and discussed by Krumbhaar: (*a*) transient partial A-V block of myocardial origin, occurring during an exacerbation of acute rheumatic carditis, varying with the degree of arthritis, yet responding to atropin; (*b*) transient complete A-V block, brought on by digitalis, and temporarily reducible by atropin to a 2:1 rhythm; (*c*) the development of defective conductivity in the right branch of His' bundle in an old man suffering with arteriosclerosis, chronic myocarditis and anginoid symptoms; (*d*) transient periods of prolongation of the P-R interval (to more than 0.3 second) without adequate cause in a healthy young adult male. He is also subject to paroxysmal tachycardia of auricular (or sinus) origin, which occurs independently of and does not affect the state of the conductive system.

27. **Carbon Dioxid of Blood.**—The high carbon dioxid content of the alveolar air in asthma and obstructed expiration in general Friedman and Jackson believe is due to a circulatory cause. The rise in intrabronchial pressure during the long expiration interferes with the free flow of blood through the pulmonary capillaries and causes a damming back of the blood on the venous side. There is a consequent accumulation of carbon dioxid in the blood with the liberation of carbon dioxid into the alveolar air, chiefly during the short inspiratory phase of asthmatic breathing.

Bulletin of Medical and Chirurgical Faculty of Maryland

May, IX, No. 11

32 Physician's Duty in Present Crisis. C. W. Mitchell, Baltimore.—p. 163.
33 Osler Testimonial Fund. H. B. Jacobs, Baltimore.—p. 168.

California State Journal of Medicine, San Francisco

May, XV, No. 5

34 Some Epidemiologic and Bacteriologic Observations on Paradysentery Infections in California. K. F. Meyer and J. E. Stickel, San Francisco.—p. 139.
35 Sanitary Service of War and Demobilization Period. R. G. de Voe.—p. 146.
36 Is Acute Anterior Poliomyelitis Spread by Direct Personal Contact? J. C. Geiger, Berkeley.—p. 150.
37 Fallacy of Post Vaccination Tetanus Due to Vaccine Virus. J. C. Geiger, Berkeley.—p. 152.
38 Death Due to Status Lymphaticus Following Injection of Diphtheria Antitoxin. W. C. Hassler, San Francisco.—p. 153.
39 Typhus in California. J. G. Cumming.—p. 154.
40 Intestinal Infection in Sacramento Valley. F. F. Gundrum and N. G. Hale, Sacramento.—p. 157.
41 Three Cases of Beriberi. A. C. Reed, San Francisco.—p. 158.
42 Prevention of Quarantinable Diseases on Border and at Ports of Embarkation. W. C. Billings, Angel Island.—p. 160.
43 Acute Poliomyelitis with Special Reference to Myoclonus. B. Oettinger, Long Beach.—p. 168.

Cleveland Medical Journal

April, XVI, No. 4

44 Clinical Classification of Chronic Nephritis. H. A. Christian, Boston.—p. 223.
45 Antrum Surgery. S. M. Weaver, Cleveland.—p. 232.
46 Fracture of Spine without Cord Involvement. W. G. Stern, Cleveland.—p. 251.
47 Cleveland's Rôle in Medical War Relief. R. F. Stone, Cleveland.—p. 259.

Journal of Cancer Research, Baltimore

April, II, No. 2

48 *Effects of Radium on Tissue Growth in Vitro. F. Prime, New York.—p. 107.
49 *Epithelioma Developing in Pellagrous Dermatitis. K. M. Lynch, Charleston, S. C.—p. 131.
50 *Tissue Growth and Tumor Growth. L. Loeb, St. Louis.—p. 135.
51 *Significance of Lymphocyte in Immunity to Cancer. M. J. Sittenfield, New York.—p. 151.
52 Influence of Various Factors in Nutrition on Growth of Experimental Tumors. S. R. Benedict and A. H. Rahe, New York.—p. 159.
53 *Alkalinity of Blood in Malignancy and Other Pathologic Conditions, Together with Observations on Relation of Alkalinity of Blood to Barometric Pressure. M. L. Menten, St. Louis.—p. 179.
54 Inheritance Behavior of Infections Common to Mice. Studies in Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, Chicago.—p. 213.
55 Effects of Nervous System on Growth and Development of Tumors. I. Adler and M. J. Sittenfield, New York.—p. 239.
56 Tumor Immunity in Chick Embryo. H. N. Stevenson, New York.—p. 245.

48. **Effects of Radium on Tissue Growth.**—Prime found that radium in sufficiently large doses will so injure the nucleus of the cell as to prevent further mitosis. This injury to the mitotic power of the cell does not, however, prevent a marked increase in the area of the culture due to an outwandering of cells. This power of the radiumized cells to wander out from the main tissue is limited, extending through two or

at most three generations. When there is a marked outwandering of cells after radiumization, but no mitosis, the tissue will not grow when inoculated into mice. Radium does not, therefore, kill the cells outright, as is shown by the persistence of beating in heart muscle cells, but injures the nucleus in such a manner as to prevent further division, which must eventually result in the death of the cell, if its energy is expended in growth and division and not in a purely mechanical function. The well known high resistance to radium of the cells of the central nervous system, which do not divide in adult life, is presumably correlated with the survival of the heart muscle cells after lethal exposures. The stimulating effects of minimal doses of radium are shown by the profuse outwandering of the cells which occurs after sublethal exposures.

49. **Epithelioma Developing in Pellagrous Dermatitis.**—So far as such an application can be made, Lynch's observation of epithelioma formation in pellagrous dermatitis seems to draw the skin lesions resulting from the action of the Roentgen light, from sun-burn, including the malignant degeneration of the skin in xeroderma pigmentosum, and from pellagra closer together, and to lend support to the belief that the action of light is concerned in the development of the dermatitis in pellagra.

50. **Tissue Growth and Tumor Growth.**—Loeb suggests that the majority, and ultimately perhaps all, of the phenomena observed in tumor growth find a parallel in the growth of normal tissues under special conditions.

51. **Significance of Lymphocyte in Immunity to Cancer.**—A high degree of lymphocytosis, caused either by subcutaneous injections of pilocarpin or by the intravenous introduction of leukocytic cream from rats that had received stimulating doses of Roentgen ray, Sittenfield says, affords neither a protective nor a defensive mechanism against tumor inoculation. Naturally immune rats, which had had their immunity tested by three or four inoculations of Flexner-Jobling rat carcinoma and were then subjected to repeated doses of Roentgen ray, causing in them a very low lymphoid count in the blood, remained refractory to further inoculation of the Flexner-Jobling tumor. Neither increase nor reduction of the lymphoid elements in the blood had any influence on either resistance or susceptibility to tumor growth.

53. **Alkalinity of Blood in Malignancy.**—The general result of Menten's study is that in nearly all the cases of cancer or sarcoma examined, there is to be found an alkalinity of the serum greater than that of the serum of normal individuals. Of the seventy cases examined by Menten only three or four were found which had an alkalinity of the normal amount or less than normal. In all other cases there was some excess of alkalinity and in some of the cancers of the internal organs this was very marked. In one case in which bicarbonate was given there was also a very marked increase in rate of growth of the cancer. This rise of alkalinity in the blood, while generally occurring in cancer, is not specific for cancer. It was observed in several other conditions. On the other hand, in certain heart lesions with dyspnea and various other nonmalignant diseases, the alkalinity is reduced below the normal. In diabetes mellitus, in the state before acidosis, there is an abnormally high alkalinity. High alkalinity is not, therefore, a certain indication of cancer, but its presence in suspected cancer is an added reason for a positive diagnosis. The examination of the alkalinity of the serum may, therefore, be of considerable practical assistance in the diagnosis of this disease.

Journal of Laboratory and Clinical Medicine, St. Louis

May, II, No. 8

57 *Cases of Unusual Aneurysms. P. G. Woolley, Cincinnati.—p. 525.
58 Toxicity of Heterologous and Homologous Serums. C. E. Roser, Ann Arbor, Mich.—p. 536.
59 *Chemistry of Pernicious Anemia. T. L. Squier, Ann Arbor, Mich.—p. 552.
60 Two Cases of Fatal Heroin Poisoning. W. D. McNally, Chicago.—p. 570.
61 Animal Inoculations Supplementary to Introductory Course in Pathogenic Bacteriology. W. H. Manwaring and J. T. Connell, Stanford University, Calif.—p. 573.
62 Technic with Fridericia Apparatus. M. J. Breuer, Lincoln, Neb.—p. 575.
63 Cyanid Poisoning in Case of Typhoid. L. Hektoen, W. S. Haines, Chicago, and V. C. Vaughan, Ann Arbor, Mich.—p. 576.
64 *Improved Test for Indican in Urine. F. C. Askenstedt, Louisville, Ky.—p. 578.
65 Diagnosis of Malignant Tumors by Paraffin Sections of Centrifuged Exudates. F. S. Mandlebaum, New York.—p. 580.

57. **Cases of Unusual Aneurysms.**—Woolley cites cases of aneurysm occurring in the innominate artery; the superior mesenteric artery. In connection with the almost completely calcified splenic artery. Aneurysm associated with a congenital cardiac septal defect in a young infant.

59. **Chemistry of Pernicious Anemia.**—Squier states that pernicious anemia may be considered the result of a gastrointestinal disturbance leading to destruction of mucosa sufficient either to allow undigested proteins to leak through into the blood stream where their parenteral digestion liberates protein poisons, or to the absorption of known hemolytic toxins produced in the course of intestinal putrefaction such as, that is, p-oxyphenylethylamin. In either case the poison has a destructive influence on the intestinal mucosa, as well as the more evident hemolytic effect, and this results in the establishment of a vicious circle. Splenectomy lessens the severity of the disease by increasing the resistance of the reds to hemolytic agents. When the hemolymph glands and accessory spleens take on the splenic function a relapse occurs. By injections of hemolysins, such as saponin, experimental anemias can be produced in animals that are apparently identical both in the blood picture and course with true idiopathic pernicious anemia.

64. **Improved Test for Indican in Urine.**—The qualitative test for indican described by Askenstedt is a simplified procedure of his quantitative test published in 1912, and is offered to those practitioners who can not afford the twelve minutes necessary for a quantitative determination. Dilute the urine until it has a specific gravity of 1.005. For example, if urine shows a specific gravity of 1.017, dilute five parts of urine with twelve parts of water; if its specific gravity is 1.021, dilute five parts of the urine with sixteen parts of water, etc., corrections being made for temperature. An exception is made for diabetic urine, which is diluted until its urea content is 0.5 per cent. Place 10 c.c. of the diluted urine in a test tube and warm over a flame until the lower end of the tube begins to feel hot to the hand. Then add 8 c.c. chloroform and mix by shaking a few times. Ten cubic centimeters of a solution of 0.4 per cent. perchlorid of iron in concentrated hydrochloric acid (Obermeyer's reagent) is now added and, with the tube duly stoppered, quickly extract the indigo by shaking the tube two minutes, holding it in a horizontal position. By releasing the stopper once or twice during the procedure, squirting will be prevented. After this, let the chloroform fall to the bottom of the tube, then pour off most of the supernatant fluid, fill the tube nearly full with water, invert it a few times to wash the chloroform, and let it again precipitate in the tube. If indican is normal in amount, the chloroform will remain white or show a mere trace of blue. Any increase in blue exhibits a proportionate excess of indican. The reading should be made as soon as the chloroform is precipitated, for on standing the chloroform slowly becomes transparent, with an increase in the shade of blue when present.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, XLV, No. 5

66 *Comparative Study of Cases Showing Thalamic Lesions at Necropsy. A. B. Evarts, Washington, D. C.—p. 385.
67 Spinal Type and Family Form of Progressive Muscular Atrophy as Appearing in Adults. G. W. Robinson, Kansas City, Mo.—p. 401.
68 Variations in Sensory Threshold for Faradic Stimulation in Psychopathic Subjects. G. P. Grabfield, Boston.—p. 410.
69 *Case of Anomalous Torsion Spasm. F. X. Dercum, Philadelphia.—p. 420.
70 *Make-Up of Atypical Cases of Manic Depressive Insanity. S. N. Clark, Kankakee, Ill.—p. 424.

66. **Cases Showing Thalamic Lesions at Necropsy.**—Among the last thousand necropsies held at the Government Hos-

pital for the Insane in Washington there were thirty-one cases showing gross lesion of the thalamus. An analysis of these cases made by Evarts shows that lesions of the thalamus are more liable to occur in the later years of life. An early, severe and long continued emotional strain leaves the thalamus susceptible to future trouble. Lesions of the thalamus seldom exist alone. The presence of a partially recovered hemiplegia is not especially diagnostic of thalamic involvement. Sensory and motor disturbances over half the body point more certainly toward a lesion of the opposite thalamus. While the thalamic syndrome is characteristic if present, its absence does not indicate that the thalamus is intact. Hyperkinesis is not so constant as expected, and often it can be accounted for by the arteriosclerosis present, as well as by the simplification of the thalamus. However, no other mental phenomena are so constant as hyperkinesis and the emotional over response.

69. **Case of Anomalous Torsion Spasm.**—The patient whose history is given by Dercum was 33 years of age. He began to present symptoms first at 19 years of age and the latter did not reach their full development until some years later. The torsion is most pronounced in the cervical region. The patient is not Jewish. Finally, the case is complicated by epileptic seizures. Leaving the latter fact out of consideration, the thought arises that possibly this case is an unusual and bizarre outcome of a rotatory tic. In any event the case is not only anomalous but unique.

70. **Atypical Cases of Manic Depressive Insanity.**—Three cases are cited by Clark. All were subject to unusual oscillations of mood which in each individual became so marked that it was necessary to send her to an insane hospital. In the first, the reaction was colored by a slight paranoic tendency; in the second by paranoic and certain hysterical manifestations, and in the third by a paranoic make-up with a dementia praecox like mechanism. Each of the individuals was for a time in a state to which even the lay observer applied the term "insane." Had he studied and expressed his opinion of any one of the patients before the effective oscillation he might have used such descriptive terms as "queer," "fits of temper," etc., but he would not have considered the condition as one which was so closely akin to "insanity" as to need treatment. By a study of such cases one may gain a knowledge of the slighter indications of such types of reaction as paranoiac, dementia praecox, etc., which of themselves when exaggerated may lead to the need for institutional care. There is little hope that education in such cases may be attempted until there is a better understanding, both among the profession and the laity, of the prognosis in the different types of reaction. Clark believes that manic depressive attacks present certain advantages in the study of these types.

Kentucky Medical Journal, Bowling Green

May, XV, No. 5

71 Value of Blood and Urine Examinations in Diagnosis of Nephritis. C. W. Dowden, Louisville.—p. 191.
72 Plea for Compulsory Examination of Students' Boarding Houses and Colleges. V. A. Stilley, Benton.—p. 203.
73 Toxic Exhaustive Psychoses. W. E. Gardner, Louisville.—p. 206.
74 Nonpharmacal Remedies to Increase Efficiency Following Injury. J. J. Moren, Louisville.—p. 208.
75 Appendicitis. A. W. Cain, Somerset.—p. 214.
76 Proper Care and Treatment of Babies' Eyes. J. H. Thorpe, Owensboro.—p. 215.
77 Health Conditions in Pike County. W. J. Walters, Pikesville.—p. 219.
78 Health Conditions in Rockcastle County. A. G. Lovell, Mt. Vernon.—p. 219.
79 Some Things County Health Officer Should Do. C. E. Kidd, Paducah.—p. 220.
80 Cutaneous Horn; Report of Case. A. H. Barkley, Lexington.—p. 222.
81 Present Treatment of Puerperal Infection. J. F. Young, Monticello.—p. 222.
82 Life's Ideals. B. Overby, La Center.—p. 224.
83 Diagnosis and Treatment of Latent Nephritis. J. H. Hohnstedt, Fort Thomas.—p. 226.
84 Our Estimate of Prostatic. C. L. Wheeler, Lexington.—p. 227.
85 Consideration of Some of Present Problems of Syphilis. W. A. Pusey, Chicago.—p. 231.
86 Albee Method in Treating Pott's Disease. W. B. Owen, Louisville.—p. 239.
87 Stiff Joints and Their Treatment. F. Boyd, Paducah.—p. 241.
88 *Fractures In and Near Joints; Diagnosis and Treatment. A. D. Willmoth, Louisville.—p. 242.
89 Acute Urinary Retention from Ball Valve Action of Organized Blood Clot. C. G. Hoffman, Louisville.—p. 248.
90 Tonsils. R. Dade, Hopkinsville.—p. 250.

88. Abstracted in THE JOURNAL, Dec. 2, 1916, p. 1693.

Michigan State Medical Society Journal, Grand Rapids

May, XVI, No. 5

91 Social Insurance. F. B. Walker, Detroit.—p. 200.
92 Hemorrhage During First Half of Pregnancy. L. H. S. DeWitt, Kalamazoo.—p. 205.
93 Treatment of Wounds. R. C. Winslow, Sault Ste. Marie.—p. 209.
94 Hospital Organization and Management in Small Cities. A. O. Hart, St. Johns.—p. 212.
95 Two Cases of Vaginal Cesarean Section for Eclampsia. W. E. Welz, Detroit.—p. 216.
96 Treatment of Chronic Nephritis. N. B. Foster, Ann Arbor.—p. 217.
97 Two Cases of Pulmonary Tuberculosis Presenting Certain Possible Errors in Diagnosis. M. Marshall, Ann Arbor.—p. 221.
98 Transplantation of Thyroid Tissue. H. M. Malejan, Ann Arbor.—p. 222.
99 Relation Between Achlorohydria and Achylia. Q. O. Gilbert, Ann Arbor.—p. 225.
100 Review of Certain Pelvic Cases Showing Value of Vaginal Aspiration as Differential Diagnostic Procedure. H. Henderson, Ann Arbor.—p. 227.
101 After History of Patient with Inoperable Vesicovaginal Fistula where Rectal was Substituted for Vesical Sphincter. R. Peterson, Ann Arbor.—p. 232.

Northwest Medicine, Seattle

May, XVI, No. 5

102 Etiology of Poliomyelitis. H. Greeley, Brooklyn.—p. 129.
103 Id. E. Current and I. A. Smith, Spokane.—p. 134.
104 Progress in Poliomyelitis. J. B. Manning, Seattle.—p. 136.
105 Salpingitis. P. Rockey, Portland, Ore.—p. 141.
106 Treatment of Gonorrheal Pyosalpinx. G. S. Whiteside, Portland, Ore.—p. 143.
107 New Modification of Gastro-Enteric Anastomosis with Auxiliary Saddle Clip Splint. E. O. Houda, Tacoma.—p. 145.
108 Dermatitis Exfoliativa Secondary to Psoriasis. W. Brown, Tacoma.—p. 149.

Ohio State Medical Journal, Columbus

May, XIII, No. 5

109 Clinical vs. Laboratory in Syphilis Diagnosis. M. L. Heidingsfeld, Cincinnati.—p. 306.
110 Medicolegal Significance of Trauma as Etiologic Factor in Exophthalmic Goiter. H. H. Drysdale, Cleveland.—p. 310.
111 Effects of Obesity on Pregnancy and Labor. W. D. Porter, Cincinnati.—p. 316.
112 Pathology of Tuberculous Hip and What It Teaches. S. D. Foster, Toledo.—p. 318.
113 Some Graver Forms of Chorea. G. T. Harding, Jr., Columbus.—p. 320.
114 Diagnosis and Treatment of Paresis and Tabes with Special Reference to Application of Intradural Remedies. J. D. O'Brien, Canton.—p. 322.
115 Clinical Value of Fractional Analysis of Gastric Secretion. H. Feil, Cleveland.—p. 327.
116 Anchored Cast for Fractured Clavicle. R. R. Kahle, Columbus.—p. 329.

Rhode Island Medical Journal, Providence

May, I, No. 5

117 Present Status of Abdominal Cesarean Section. F. S. Newell, Boston.—p. 111.
118 Rupture of Urinary Bladder; Report of Two Cases. G. A. Eckert, Providence.—p. 116.
119 Appendicitis as Sequel of Throat Infections. A. Corvese, Providence.—p. 118.

Southern Medical Journal, Birmingham

May, X, No. 5

120 *Management of Early Stages of Hypertensive Cardiovascular Disease. W. S. Thayer, Baltimore.—p. 367.
121 Diagnosis of Pellagra. M. L. Graves, Galveston, Texas.—p. 377.
122 Treatment of Pellagra. J. W. Babcock, Columbia, S. C.—p. 379.
123 *Early Recognition of Pulmonary Tuberculosis. W. J. Durel, New Orleans.—p. 391.
124 Public Health Facts and Their Presentation. R. K. Flannagan, Richmond, Va.—p. 398.
125 Control of Contagious Diseases. C. V. Reynolds, Asheville, N. C.—p. 402.
126 Advances in Public Health Work in South Carolina During Past Year. J. A. Hayne, Columbia, S. C.—p. 406.
127 County Unit Plan in Public Health. M. M. McCord, Rome, Ga.—p. 408.

128 Hysterectomy for Fibroids. H. A. Royster, Raleigh, N. C.—p. 412.
129 Railway Surgeon of Today. S. Leigh, Norfolk, Va.—p. 417.
130 Differential Diagnosis of Surgical Conditions of Upper Abdomen. C. M. Rosser, Dallas, Texas.—p. 421.
131 Some Inconsistencies in Surgical Technic. J. S. Horsley, Richmond, Va.—p. 423.
132 Indications for Removal of Faucial Tonsils. A. B. Mason, Waycross, Ga.—p. 433.
133 Experiences with Beck-Mackuen Tonsil Operation. C. M. Miller, Richmond, Va.—p. 436.
134 Ophthalmologic Clinic. H. H. Briggs, Asheville, N. C.—p. 440.

120. **Hypertensive Cardiovascular Disease.**—The essential points in the treatment of hypertensive cardiovascular disease in its early stages are enumerated by Thayer as follows: The influences that are likely to aggravate a hypertension are undue mental or physical strain or excitement, heavy smoking, immoderate eating. These influences may best be eliminated by relatively simple physical and psychical means. Gain the patient's confidence, endeavor to encourage him, to relieve his fears and to make him appreciate that the essential thing in life for him is moderation in all things—eating, drinking, tobacco, mental or physical effort. Give the patient careful, detailed advice as to his daily habits. Search for and endeavor to remove local sources of irritation, errors of refraction, sinus disease, gastro-intestinal disturbances. Try to bring it about that he may take vacations of sufficient length and may learn to seize the opportunity for short interruptions in his life's routine. Teach him to take simple calisthenic exercises and encourage outdoor sports when his physical condition allows it. If such exercise be impossible or seem inadvisable, endeavor to arrange for regular massage and hydrotherapy. Do not attempt medically to treat hypertension in itself. Endeavor especially to prevent the patient from developing an undue interest in his own blood pressure.

123. Abstracted in The Journal, Dec. 23, 1916, p. 1967.

Texas State Journal of Medicine, Fort Worth

May, XIII, No. 1

135 Wrist Injuries; Operative Treatment. R. W. Knox, Houston.—p. 6.
136 Toxemias of Pregnancy. G. H. Lee, Galveston.—p. 11.
137 Operative Treatment of Fractures. R. L. Ramey, El Paso.—p. 15.
138 Renal Calculi. J. Becton, Greenville.—p. 17.
139 Abuse of Vaccines. I. S. Kahn, San Antonio.—p. 19.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

April XXI, No. 11

1 Roentgen Rays in Diagnosis of Chronic Appendicitis. R. T. Pettit.—p. 345.
2 After Technic of Opaque Meal. R. Knox.—p. 349.
3 Vesical Calculus and Calcified Hydatid Cysts. H. Harris.—p. 363.

British Medical Journal, London

May 5, I, No. 2940

4 *Intramuscular or Subcutaneous Injection of Neosalvarsan. L. W. Harrison, C. F. White and C. H. Mills.—p. 569.
5 Life History of Bacteria. E. C. Hort.—p. 571.
6 *Tetany and Functions of Parathyroids. D. N. Paton, L. Findlay, A. Watson, D. Burns, J. S. Sharp and W. Wishart.—p. 575.
7 Simultaneous Ligature of Arterial and Venous Trunks in War Surgery. E. M. Cowell.—p. 577.
8 *Effects of High Explosives on Ear. J. G. Wilson.—p. 578.
9 *Prevention of Pediculosis. J. A. Gunn.—p. 579.
10 *New Treatment of Bronchial Asthma. A. G. Auld.—p. 580.

4. **Subcutaneous Injection of Neosalvarsan.**—In order to compare the effects of the two methods the authors treated two parallel series of cases of syphilis (*a*) by intravenous injections of salvarsan (or "substitutes"), and (*b*) by deep subcutaneous or intramuscular injections of neosalvarsan (or "substitutes"). The results obtained by salvarsan agreed substantially with those by each of its substitutes and the same applies to neosalvarsan and its substitutes. The intramuscular or subcutaneous injection of neosalvarsan and its substitutes was found to be superior in immediate therapeutic effect to that of the intravenous injection of salvarsan and its substitutes. Spirochetes disappear from syphilitic lesions just as rapidly after the first intramuscular as after the first intravenous injection, and the Wassermann reaction is more quickly influenced.

6. **Tetany and Functions of Parathyroids.**—The authors say that the symptoms of tetany are due to some change in the nerve cells of the cord, and the increased excitability of the neuromyon is caused by an action on the nerve endings. A comparison of the symptomatology of idiopathic tetany, postoperative tetany in man, tetania parathyreopriva and guanidin poisoning in animals leads to the conclusion that all these conditions are of the same nature, and that the first three are due to the development of guanidin in the body as the result of some interference with the action of the parathyroids, which normally control the guanidin metabolism, and by so doing probably influence the tone of the muscles. There is a close association between idiopathic tetany in man and that following removal of the parathyroids; in both the symptoms are due to an increase of the guanidin in the body.

8. **Effects of High Explosives on Ear.**—The majority of cases reported on by Wilson were observed from twenty hours to a week after injury. Over 200 patients exhibited nerve symptoms ascribed to high explosives. Of these, fifty complained of deafness of varying degree. Of these fifty, seventeen showed demonstrable signs of injury to the internal ear traceable to the explosive. Of the others, the deafness in many had been temporary and no objective signs of disturbance of equilibrium could now be seen. The persisting defect of hearing was due in some to old middle ear inflammation, in others to blockage of the external canal from wax or some other cause. Of the seventeen cases, seven patients had symptoms of nerve deafness without perforation of the membrana tympani, ten had deafness with signs of recent perforation; six had definite middle ear trouble previous to the concussion; of the other eleven, with no previous history of ear trouble, six had recent perforation; twelve complained of vertigo and had observable signs due to it, the others had no complaints or symptoms of equilibrium disturbances.

Wilson concludes that: exposure to high explosives may produce rupture of the membrana tympani. The rupture in the membrana tympani tends in most cases to spontaneous closure. Concussion of the internal ear with nerve deafness and equilibrium disturbances occurs with or without rupture. The concussion may pass off leaving an injured nerve mechanism demonstrable by (*a*) nerve deafness of a varying degree; (*b*) defect of equilibrium. The treatment of recent perforated membrane which gives most satisfactory results aims at leaving the blood clot over the perforation intact. Wilson urges that all the cases ought to be kept in bed at least ten days to allow effects of the concussion to subside. High explosives may cause a definite injury to the ear and its central connections. Apart from such injuries there were frequently seen cases of deafness or ear disease in which removal to the base was unnecessary, and cases in which delay in treatment involved in transportation to the bases has aggravated the disease and delayed in the recovery. In such cases an otologist ought to be available.

9. **Prevention of Pediculosis.**—Gunn's plan is to dip the undervests, which are made of buttermuslin, in a solution of naphthalene and sulphur, 1 per cent. of each in benzol. The benzol evaporates in a few minutes and leaves the garments impregnated with sulphur and naphthalene in minute particles. Undervests so treated do not cause any irritation when worn next the skin, and they retained the naphthalene and sulphur sufficiently long for practical purposes. By this method those substances not merely are deposited on the surface of the garment, but actually penetrate the fiber. When benzol became unobtainable, the second grade of petrol was used instead. The latter does not seem to be quite such a good solvent, especially for sulphur; but in either case it is well to allow at least twenty-four hours for solution, the substances being used in fine powder. The solution can be made with sufficient accuracy by using an ounce and a half each of naphthalene and sulphur to 1 gallon of benzol or petrol.

10. **Treatment of Bronchial Asthma.**—This communication refers to a particular treatment which Auld has been applying in certain selected cases of bronchial asthma. The patients have been free from all disease, other than the bronchial affection, and although more or less emphysema and bronchial catarrh have been present, they have not been of a high degree, or such as to create dyspnea in the intervals of freedom (more or less) from the attacks. The method Auld employs is immunization by the subcutaneous injection of a water solution of peptone. To being with, ⅓ gm. of peptone dissolved in about 5 c.c. distilled water at blood heat is injected at an interval of three or four days during the first week. The next week two injections, each of ⅔ gm., are similarly given, and in the third week two injections of 1 gm. in 7 to 10 c.c. water. In certain cases this may be sufficient; severer cases may require 1 gm. weekly or biweekly for three weeks more. No apparent constitutional reaction follows, and, properly carried out, there should be little or no local reaction. In several cases of moderate asthma the symptoms have become perfectly quiescent, while others have greatly benefited. In one case three months have elapsed without any recurrence. Sometimes the effect is very rapid, the patient experiencing relief after one injection. In cases in which attacks of great severity occurred every two or three months, a few weeks' treatment beforehand has caused the attack to abort.

Journal of Laryngology, Rhinology and Otology, London

April, XXXII, No. 4

11 Cerebral Symptoms After Nasal Operations. St.C. Thomson.—p. 113.
12 Causation and Prevention of Educational Deafness. M. Yearsley.—p. 117. To be continued.
13 Lumbar Puncture in Mastoid Disease. A. Ryland.—p. 125.

Lancet, London

May 5, I, No. 4888

14 *Twenty-Five Cases of Tetanus. H. R. Dean.—p. 673.
15 *Intramuscular vs. Intrathecal Route in Treatment of Tetanus by Injection of Antitoxin. D. Bruce.—p. 680.
16 *Intrathecal Route for Administration of Tetanus Antitoxin. F. W. Andrewes and T. J. Horder.—p. 682.
17 *Comparison of Subcutaneous with Intravenous and Intrathecal Administration of Tetanus Antitoxin in Experimental Tetanus. F. Golla.—p. 686.
18 Statistical Note on Analysis of Cases of Tetanus in British Expeditionary Force. M. Greenwood, Jr.—p. 687.
19 *Bacillus Resembling B. Tetani. R. S. Adamson and D. W. Cutler.—p. 688.
20 Case of Tetanus Treated by Intrathecal and Intramuscular Injection of Antitoxin. J. Gow.—p. 689.

14. **Treatment of Tetanus.**—All the twenty-five patients whose cases are reviewed by Dean had had suppurating wounds, but in the majority of cases the wounds were not more serious, and the suppuration had not been more considerable than in the average case sent home to a hospital. In four cases the wounds were of a comparatively trivial nature. In nine cases the wounds at the time of the onset of tetanus had completely or almost completely healed. Dean states that if every wounded soldier, irrespective of the size or condition of the wound, was given a prophylactic injection on his arrival at home there would in all probability be a still further reduction in the number and severity of cases of tetanus. Compound fractures are a particular source of danger, and were present in eleven of twenty-five cases of tetanus. In three of the twenty-five cases the disease ran an extremely short and mild course. These were the only three patients who had received a prophylactic injection after their arrival in England. One result of prophylactic injection is to prolong enormously the incubation period, with the result that tetanus may occur after the wounds have completely healed, and the patient has been transferred to a convalescent hospital. Under these circumstances the earliest signs are readily overlooked. The pain associated with the early and local symptoms may lead to a diagnosis or rheumatism or muscular rheumatism.

The earliest signs may consist of clonic or tonic contraction of muscles in the immediate neighborhood of a wound, usually in the nearest flexor group. The signs may remain localized for many days, and it is characteristic of some cases occurring in inoculated patients that the period of onset is enormously prolonged. After a longer or shorter interval generalization occurs. The muscles of the jaw, neck and abdomen become stiff. There is profuse perspiration and the reflexes of the lower limbs are exaggerated. In many cases the pulse rate may be very rapid and the temperature normal. On the other hand, even in inoculated persons and after a very long incubation period, the disease may begin suddenly with spasm of the muscles of the jaw and neck. Of five mild cases treated by intramuscular and subcutaneous injections of serum five recovered. Of fourteen cases treated chiefly by intravenous injections thirteen recovered. Of five cases treated by intrathecal with or without other injections three recovered. One patient who was given an intravenous and subsequently an intrathecal injection died. If the signs are well localized and are not spreading rapidly, Dean says, intramuscular injections afford an adequate method of treatment. In severe cases, and in those in which signs are generalized, an intravenous injection (30,000 units) under deep chloroform anesthesia should be given. After such injection the further progress of the disease is usually arrested, and definite improvement may be expected two to seven days later.

The essential principle of serum treatment is to give a very large dose of antitoxin at the earliest possible moment. This object can be most easily attained by the intravenous route. In four cases serum treatment was confined to a single intravenous dose of 30,000 units. In three other cases no serum was given subsequent to the intravenous injection. In these seven cases recovery was as rapid as in six other cases in which subsequent injections were given. The serum of patients was shown to contain free antitoxin at various intervals up to thirty-nine days after an intravenous injection of 30,000 units.

15. **Tetanus Treated by Injection of Antitoxin.**—Experiments conducted by Bruce on monkeys exhibit the effect of a single injection of antitetanic serum on a single precurrent dose of tetanus toxin. They show a difference between the results obtained by the intramuscular and intrathecal methods respectively. The contrast seems sufficiently marked to be significant, although the experiments are at present few in number. The results are distinctly in favor of the efficacy of the intrathecal as against the intramuscular method.

16. **Intrathecal Route for Tetanus Antitoxin.**—Andrewes prefers the intrathecal route, but he would like to see the effect of really adequate doses (20,000 to 30,000 units) intrathecally given at the very onset of such cases.

17. **Tetanus Antitoxin in Experimental Tetanus.**—The results obtained by Golla in a series of animal experiments show the indubitable superiority of the intravenous and intrathecal routes over the subcutaneous. Such superiority is attributed to the slow absorption of tetanus antitoxin injected subcutaneously.

19. **Bacillus Resembling B. Tetani.**—In the course of the bacteriologic examination of cases of septic and gangrenous wounds Adamson and Cutler noticed on nine occasions in films, and have four times isolated, once from a blood culture taken after the death of the patient, an anaerobic bacillus closely resembling in appearance the *B. tetani*. Two of the four patients from whom the bacillus was isolated had developed tetanus. The bacillus is a strict anaerobe. It is characterized by the production of large terminal spores which are quite round. The average length of the bacillus is between 6 and 7 micron. In width it varies between 1 and 2 micron. These measurements do not include the terminal spore. The spore itself is quite round and varies from 1.7 to 2.2 micron in diameter. The bacillus is motile, but the movement is never rapid and quickly disappears in the presence of air. Old cultures do not show any motility. The bacillus grows well on agar and glucose agar. The organism ferments glucose, lactose and maltose with the production of a slight amount of acidity, but no clotting of the serum or gas production. Gelatin is not liquefied and no indol is produced in broth cultures. The bacillus is gram-negative, though young cultures, especially in broth, may be gram-

positive. Inoculations of pure or mixed cultures into guinea-pigs have failed to produce any symptoms suggesting tetanus.

Practitioner, London

May, XCVIII, No. 5

21 Gunshot Fractures of Arm. C. H. Fagge.—p. 401.
22 *Treatment of Secondary Hemorrhage. J. Taylor.—p. 413.
23 Convalescence of Dysentery and Its Complications. A. Howell. —p. 419.
24 Shell Shock Stammering and Other Affections of Voice and Speech. C. MacMahon.—p. 427.
25 Outbreak of Cerebrospinal Fever at Reading, 1915 to 1916. R. Donaldson.—p. 436.
26 Trench Fever—Mainly Its Clinical Manifestation. J. M. A. Costello.—p. 456.
27 Treatment of Septic Gunshot Fractures of Long Bones by Means of Steel Extension Appliances. R. E. Humphry.—p. 467.
28 Acidosis, with Special Reference to Children. F. Hewat.—p. 477.
29 Prostatic Enlargement and Its Treatment. J. H. Nicoll.—p. 487.
30 Continuous Counter Irritation as Therapeutic Measure in Rheumatoid Arthritis, etc.; Details of Technic. W. J. Midelton.—p. 491.

22. **Treatment of Secondary Hemorrhage.**—Beyond the ordinary cleansing and drainage of wounds, Taylor considers that little can be done to prevent secondary hemorrhage. Several of the medical officers, however, observed that bleeding seemed to be more frequent in cases in which sodium hypochlorite solutions was being used. There were more cases of hemorrhage from the wards where it was being used as a routine. Taylor suggests that it is possible that it has a digestive effect on the softened walls of the vessels.

Sei-I-Kwai Medical Journal, Tokyo

April, XXXVI, No. 4

31 Immunoreaction of Gonorrheal Patient Serum. T. Watabiki.—p. 19.

Bulletin de l'Académie de Médecine, Paris

April 24, LXXVII, No. 17, pp. 537-554

32 Organic Arsenic Associated with Quinin in Treatment of Malaria. A. Gautier.—p. 544.
33 Tardy Cephalic Tetanus with Postoperative Reactivation. G. Gross and L. Spillmann.—p. 548.
34 Trench Hemeralopia. Aubaret.—p. 552.

Journal de Radiologie et d'Electrologie, Paris

January-February, II, No. 7, pp. 433-496

35 *Localization of Foreign Bodies in the Eye. (Corps étrangers de l'oeil.) J. Belot and H. Fraudet.—p. 433.
36 Extraction of Foreign Bodies under Intermittent Screen Control. Sauvé.—p. 451.
37 Electricity in the Reeducation of Neuropathic Troubles in the Wounded. A. Laquerrière.—p. 459.
38 *War Wounds of the Nerves. J. Limouzi.—p. 468.
39 Electric Treatment of Cicatricial Adhesions. Drevon.—p. 475.
40 Advantages of Slow Interrupters in Radioscopy. A. Zimmern.—p. 479.
41 Exact Centering of the Tube Not Necessary for Roentgen Localization. G. A. Audrault.—p. 484.
42 Sliding Gage for Radioscopic Localization by Haret's Method. J. Tison.—p. 486.

35. **Localization of Foreign Body in the Eye.**—Belot and Fraudet emphasize the advantages of rapid radioscopy and of radiography in five positions according to a geometric system they have devised and here describe with twenty illustrations and a large plate. With this system they were able to locate minute scraps even of aluminum, stone or glass, which are relatively transparent for the Roentgen rays. In one instance Belot thus localized a fragment from a test tube; the particle of glass was 1 mm. long by ½ mm. wide and thick. They say localization with the stereoscopic technic is possible only when the eye is incapable of any movement. The preliminary radioscopic examination, after the patient has sat for twenty minutes in the absolutely dark room, serves to locate the foreign body in one quarter of the orbit and may locate it with sufficient precision. If not, they proceed to radiography. As the eyeball revolves on its transverse or vertical axis, if the foreign body changes its place proportionally to the displacement of the periphery of the eyeball, then the foreign body must be in the eyeball itself or the muscles in contact with it. If the foreign body is in the parts outside of the eyeball, its displacement with different movements of the eyeball occurs according to geometric principles. Study of the type of displacement shows at once the muscle involved. In twenty-five cases in which this technic has been applied the foreign body was found exactly at the point in the operative cases. An error of a few millimeters in localization would be negligible elsewhere, but the eye is unable to stand any groping. Even with intermittent screen control, compasses, etc., we have no guarantee of success, but the system here described is incapable of failing, it is asserted, provided the eyeball is movable and vision is not lost in the other eye. All that is required is to outline a curve, drawing the outline on transparent paper placed over the five radiographs in turn. The tracing thus obtained locates the foreign body with precision.

38. **War Wounds of the Nerves.**—Limouzi declares that after a war wound of the nerve has healed it should be given three months of thorough medical treatment, massage, hydrotherapy, mechanotherapy, electricity, hot air, etc. Then if the clinical signs are growing worse or are stationary while the reaction of degeneration is growing worse, or this is stationary while the clinical symptoms are growing worse, then operative measures are called for. They are optional when both are stationary, but it is better to refrain from operative measures if one or the other or both are improving or if only one is stationary. The final outcome after suture of a nerve is still somewhat dubious, but the favorable results after freeing a nerve from compression by cicatricial tissue, etc., are beyond question. He exclaims that as the wounded have no desire to return to the firing line as a rule, and often are not particularly interested in regaining full earning capacity, this "inhibition of good will" handicaps treatment of neuropathies in many cases. He says that he has had only about a dozen in all among his cases of this kind in which the men devoted all their energy, will power and courage to get cured as quickly as possible.

Lyon Médical

April, CXXVI, No. 4, pp. 157-204

43 *Sudden Death from Nervous Phenomena of Pleural Origin. Piéry. —p. 157.
44 Treatment of Capillary Bronchitis in Infant by Inhalation of Steam. H. Rondet.—p. 164.
45 *French Pharmaceuticals. B. Lyonnet.—p. 195.

43. **Sudden Death from Nervous Phenomena of Pleural Origin.**—The man's chest had been pierced by a bullet. It had entered at the base of the neck on the right side and emerged at the lower part of the posterior thorax, between the middle of the margin of the scapula and the spine. There was no hemoptysis nor oppression, merely a slight rise in temperature for a week, and signs of a small hemothorax with probable pneumothorax. The sixteenth day the respiration transiently became accelerated, the pulse still normal. The man then lost consciousness, with stertor and anal incontinence, and he died in half an hour. Necropsy revealed that the bullet had fractured the fourth rib, a small piece falling back like a hinge into the pleural cavity. Whether the fatality was due to a pleural reflex or gaseous embolism—the only plausible explanations—it teaches the lesson that after a wound of the chest the man should be kept in bed for weeks. Also the wisdom of a preliminary injection of morphin to ward off danger of a possible pleural reflex action in the course of inducing an artificial pneumothorax, or when a man wounded in the chest has to be moved. In this case the first symptom of trouble—the acceleration of the respiration—was observed as the man was placed on a litter and wheeled into another room for roentgenoscopic examination. It was applied reclining. The man died in half an hour after his return to bed.

45. **French Pharmaceuticals.**—Lyonnet refers to the international exposition of articles of all kinds that has been held twice at Lyons since the war began. At the first of these "foires d'échantillons" there were only nine firms exhibiting pharmaceutical products of domestic manufacture, but this year thirty-two firms exhibited chemical, medical and pharmaceutical products. He enquired of each exhibitor what he was making new, and whether he was producing any pharmaceuticals formerly imported. The responses, he says, were interesting and encouraging for the future as he describes in

detail. "Benzonaphthol has been scarce; at one time none could be procured, but now it is being produced in large quantities. A number of preparations, arsenobenzol, novarsenobenzol, allocaine and other equivalents for drugs formerly imported show," he reiterates, "that French manufacturing chemists are trying to make up for their forty years of neglect of this field, although certain firms are devoting their entire output to the chemicals needed for munitions, and others are afraid to venture too much."

Paris Médical

April 21, VII, No. 16, pp. 309-324

46 *Amebic Dysentery of Suprarenal Type. R. D. de La Rivière and Villerval.—p. 310.
47 Case of Supposed Gonorrheal Meningitis. A. Blind and R. Ricard.—p. 312.
48 Radiogram Showing Four Months Fetus in Utero. E. A. Weil.—p. 314.
49 War Wounds of Urinary Organs. M. Devroye.—p. 315.

46. **Suprarenal Form of Amebic Dysentery.**—Rivière and Villerval report a case of amebic dysentery which developed in successive "pushes," the second being much more serious than the first. The special feature of the case was the evident injury of the suprarenals, the weakness being extreme, with very low blood pressure and white dermographism. The ameba evidently produces some toxin that makes its influence felt on the suprarenals in particular. They say that emetin should be begun early in amebic dysentery and continued long after the disappearance from the stools of the ameba and especially of its encysted forms. With suprarenal manifestations epinephrin is indicated, its action here being as pronounced as in microbian infections.

Presse Médicale, Paris

April 12, XXV, No. 21, pp. 209-216

50 *Examination of Coagulating Power of Blood as Preliminary to Operations. P. E. Weil.—p. 209.
51 Malarial Fever Consecutive to Relapsing Fever. Duchamp.—p. 210.
52 Cutting One Stump to Form Peg to Slip into Other Stump. (Autoenchevillement.) J. Calvé.—p. 212.
53 The Therapeutic Element in Action of Dakin's Solution. (La chloramine.) B. Desplas and A. Policard.—p. 213.

50. **Determination of Coagulating Properties of the Blood as Aid in Surgery.**—Weil remarks that certain complications following operations seem to be the consequence of abnormal conditions of the blood permitting hemorrhages or thrombosis. Aside from hemorrhage due to defective technic, really menacing hemorrhage occurs only with liver disease or a tendency to hemophilia. Postoperative thrombosis is rare, and is encountered as a rule only after certain special operations, such as removal of the appendix or of a uterine fibroma. It occurs without infection and in the fibroma cases only when there has been much loss of blood before. He insists that it is possible to detect the predisposition beforehand by determining the coagulating power of the blood. The physician should inquire as to the personal and family history in respect to hemophilia and thrombosis, with examination of the skin for traces of extravasation, phlebitis, etc., and test the coagulating time of the blood by distributing a little blood in tubes of a uniform caliber. This is generally instructive enough for the purpose.

But the actual coagulating power of the blood must be determined. For this he applies M. Bloch's coagulometric technic: 1 c.c. of blood from a vein is drawn into 4 c.c. of an isotonic solution (sodium citrate 1 gm.; sodium chlorid 7 gm. and distilled water 400 c.c.). A set of test tubes contains from 4 to 3 c.c. of an isotonic solution of sea salt (seven per thousand). To each of these tubes is added a 5 per cent. solution of calcium chlorid in amounts of 0.1 c.c.; 0.2 c.c.; 0.3 c.c.; 0.4 c.c., and 0.5 c.c. Then 0.2 c.c. of the citrated blood is added to each tube. Each should contain 4 c.c. of fluid. In twelve to fifteen hours, the coagulation process is complete. The citrate prevents the blood from coagulating by inactivating the calcium in the blood. Adding traces of calcium restores the coagulating power. He estimates this by the ratio between the amounts of calcium and of citrate: Control tube 1, no calcium; tube 2, 4; tube 3, 2; tube 4, 1.33; tube 5, 1; tube 6, 0.8. Time is not regarded. In normal conditions, coagulation begins in tube 3, index 2 (threshold of coagulation), and finishes in tube 5, index 1. In children under 10, it usually begins with index 4 and ends with index 1.33. With a predisposition to hemorrhage, both threshold and finish are retarded. This technic reveals also any excessive tendency to coagulation. Further information can be obtained by pricking the ear with a lancet and counting the half minutes before the blood stops spontaneously. With blood drops 1 cm. in diameter, hemostasis occurs normally in from two and a half to three and a half minutes. The physiologic or pathologic condition of the capillaries is revealed by slight constriction of the arm, such as is applied for venesection, which may induce a punctate hemorrhagic appearance below, showing that the capillaries are extra fragile.

To profit by the information derived from these tests, he advises subcutaneous injection of 20 or 40 c.c. of normal human or animal blood serum when the blood does not coagulate normally. This corrects conditions in acquired hemophilia so that operative hemorrhage need not be feared. But with familial hemophilia, the operation should be postponed until the condition can be corrected by injections of blood serum every two months for a year. It is thus possible to modify the blood so it will coagulate in thirty or forty-five minutes, instead of three, six or twelve hours as before. Calcium chlorid by the mouth or in injections has never improved the state of the blood, in his experience. The type of blood anomaly in which coagulation is not much retarded, but there is no retraction of the clot, is the substratum of a true hemorrhagic diathesis, sometimes inherited. The hemorrhages are more liable to occur spontaneously than with hemophilia, as in acute purpura. Weil gives a subcutaneous injection of 20 or 30 c.c. of human blood forty-eight hours before the operation. This supplies the hematoblasts which are lacking in these cases. It is useful likewise in the hemorrhagic tendency with liver disease.

When the tests show excessive coagulability of the blood, thrombosis menaces, and ether and chloroform should be avoided as they injure the blood and may bring on thrombosis. In such a case blood serum should never be injected, and it must be remembered that losses of blood enhance the coagulating power of the blood. The blood can be rendered less coagulable by citric acid. Chantemesse prescribes it in the daily dose of 12 or 18 gm. of citric acid diluted in a large amount of water. Weil adds that sodium citrate in similar doses might answer the purpose. Subcutaneous injections of saline or glucosed isotonic physiologic solution might be useful, or a 47 per thousand solution of sugar by the drip method. In conclusion he remarks that it seems logical to utilize the anticoagulating action of herudin, the active principle of the heads of leeches, but he does not know of its application in the clinic.

Progrès Médical, Paris

April 14, XXXII, No. 15, pp. 123-130

54 Psychotherapy in Wartime. G. L. Duprat.—p. 123. Commenced in No. 14, p. 113.
55 Pathogenesis and Treatment of Ciliary Blepharitis. A. Cuénod.—p. 125.

April 21, No. 16, pp. 131-138

56 Deformity of the First Left Rib. A. Clerc, R. Didier and J. Borrie.—p. 131.
57 Mencière's Iodoform-Balsam Mixture for Wounds on the Firing Line. Delestre.—p. 133.
58 Intravenous Injections of Colloidal Sulphur in Treatment of Chronic Articular Rheumatism. G. Jeanneney.—p. 134.
59 Phosphorus Alleged to Have Certain Properties of Radium. F. de Courmelles.—p. 136.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 21, XLVII, No. 16, pp. 481-512

60 *Influence of Loss of Certain Organs on Development of Experimental Teratoid Tumors. A. Katase.—p. 481.
61 Iontophoresis of Heavy Metals. H. Koller.—p. 485. To be continued.

60. **Experimental Teratomas.**—Askanazy has previously reported the results of his experiments in the production of tumors in rats by injection of a suspension of macerated fetal tissues. Katase here reports further series in this line of

experiences, but the rats had had previously the spleen or one kidney removed or both testicles or the thyroid. He also used rats with goiter. Among the conclusions tentatively drawn from the results observed are that the spleen seems to favor the growth of fetal tissue while it checks the growth of transplanted rat cancer tissue. No influence from the testicles in either direction was apparent. Removal of one kidney seemed to promote the growth of the teratoid tumor.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 29, XXXVIII, No. 25, pp. 385-400

62 *Variety of Initial Symptoms with Epidemic Cerebrospinal Meningitis. G. Pisano.—p. 388.

April 1, No. 26, pp. 401-416

63 *Abscess in Preperitoneal Cavity. G. Onano.—p. 401.

62. **Mistakes in Diagnosis of Epidemic Meningitis.**—In the first of the three cases related, the symptoms at first indicated merely a traumatic purulent ophthalmia suggesting danger of involvement of the meninges. In the second case, malarial fever, probably of the pernicious type, was diagnosed, and in the third, left purulent otitis media, threatening likewise involvement of the meninges. All these patients complained of intense headache, but at different points in the head; dermographism was pronounced and the temperature high. Pisano exclaims that these three symptoms alone should have suggested the proper diagnosis or at least have called for lumbar puncture to aid in differentiation. The first and third patients recovered but the second died. His disease had run along for four days without suspicion of meningitis, and hence without specific serotherapy. Baccarani has recently published some cases of what he calls *meningite ritardate*, in which the symptoms at first led to the diagnosis of typhoid or rheumatic sepsis. There was intense headache in all his cases, but as it was not restricted to the back of the head, it was not ascribed to meningitis. In Pisano's cases the meningitis was not suspected until the sixth, fourth or fifth day of the disease.

63. **Abscess in Cavity of Retzius.**—Onano comments on the difficulty of differentiating an abscess in the preperitoneal cavity, as it suggests various abdominal affections. In the case reported the abscess was secondary to one in the right foot. The intervening lymphatics showed nothing pathologic.

Policlinico, Rome

April 22, XXIV, No. 17, pp. 537-568

64 *Immediate Intervention for War Wounds. G. Pisano.—p. 537.
65 Bridge Plaster Casts for Compound War Fractures. A. Ascarelli.—p. 545.
66 Abscess of the Spleen. G. Morelli.—p. 550.

April, Medical Section No. 4, pp. 145-188

67 *Case of Cerebrospinal Sclerosis. A. Murri.—p. 145. Commenced in No. 3, p. 97.
68 War Wounds of Brain and Spinal Cord. G. Mingazzini.—p. 172. Continuation.

64. **Immediate Intervention for War Wounds.**—Pisano advocates the definite operation at once, deprecating the old way of first aid, then new examination and dressing by each surgeon through whose hands the wounded man passes in the clearing station, on the train and in the base hospital. He knows of instances where the wound was thus dressed five times within twenty-four hours. In his service now, close to the firing line, 3,171 wounded have been given treatment at once, including 172 extremely severely wounded. The mortality was less than 3 per cent. Thorough surgical treatment was applied in 9 per cent. He comments on the ease with which projectiles can be extracted when this is done at once, before they have had a chance to sink by gravity deep into the tissues. In one case a large clot of dirt had been driven completely into the left thigh. In only 399 cases had the wounds been made by bullets. Among the advantages of the early definite operative treatment are that there is no need then to rush the patients away. The benefits are so great for the wounded that they outweigh the danger of being shelled occasionally.

67. **Case of Cerebrospinal Sclerosis.**—Murri devotes about fifty pages to this case as the patient was under attentive observation in the clinic for six years, and the necropsy findings confirmed the diagnosis in every respect. The sphincters were normal throughout, which was explained as the corresponding part of the spinal cord was found apparently intact. A plate of microphotographs is given, and the incompleteness of the symptoms is emphasized. Although the trouble was of ten years' standing, yet there was no complete paralysis of any nerve, no complete atrophy of any muscle. The absence of pains, paresthesias, sensory hallucinations, convulsions and vertigo can be explained only by the extreme slowness of the process. There were no waves of improvement at any time such as are generally observed with such affections. The case teaches further that it is not necessary to wait for pronounced symptoms for the diagnosis. The tremor of the tongue, partial facial paralysis, the peculiar monotonous tone of voice, the scanning speech and the absence of the pharyngeal reflex persisted unmodified during seven years or more. No other affection but multiple sclerosis would induce such slight modifications as these but so persistent and so insidious. Murri suggested in 1911 that the basis of multiple sclerosis might be a "diathesis of connective tissue." The fibrosis in this case seemed to have spared completely the thyroid, pituitary body and the suprarenals.

Riforma Medica, Naples

April 7, XXXIII, No. 14, pp. 365-392

69 The Profession after the War. (Il "dopo guerra" per i medici.) L. Ferrannini.—p. 365.
70 Influence of Vaccination on Course of Typhoid and Paratyphoid. P. Guizzetti.—p. 366. Commenced in No. 13, p. 338.
71 Traumatic Fibrous Growth in Joint. (Della cellulo-dermite autocontusiva degli arti.) A. Mori.—p. 371. To be continued.
72 *Case of Pneumococcus Peritonitis. C. R. Belgrano.—p. 378.
73 Welfare Work for Tuberculous Soldiers. (Per i feriti della tubercolosi.) A. Ferrannini.—p. 381.

72. **Pneumococcus Peritonitis.**—The girl of 13 had presented abdominal symptoms for ten days, with pain, fever, pulse 120, diarrhea and scanty urine, but agglutination tests were negative and the blood seemed to be sterile. An exploratory puncture showed pus and pneumococci in the peritoneum, and it was cleaned out through a median laparotomy, after which prompt recovery followed. The abdominal symptoms had been preceded by coryza and labial herpes, but otherwise the girl had been in good health and she has been well since.

Brazil-Medico, Rio de Janeiro

April 7, XXXI, No. 14, pp. 113-120

74 Endamebas of Dysentery. H. de B. Aragão.—p. 113. Conclusion.
75 Itch. (O micuim.) E. von Bassewitz.—p. 115. To be continued.
76 *Heliotherapy in Brazil. A. Moncorvo, Jr.—p. 116. Conclusion. Commenced in No. 5, p. 37.

76. **Heliotherapy in Brazil.**—Moncorvo gives a long list of Brazilian physicians who have been systematically utilizing sun baths in treatment and prophylaxis of late years, and describes his own experience in the special service for heliotherapy which has been added to the dispensary connected with the Instituto de Proteccão e Assistencia of Rio de Janeiro. The extremely gratifying results already achieved with it, he says, encourage wider extension of the scientific application of sun baths in a long series of affections, particularly in tuberculosis of the bones, skin diseases, atonic ulcers and secondary anemia of various origins. He relates that heliotherapy dates from antiquity, the Egyptians practicing it among others. In modern times Sydenham was the great precursor of Finsen, but Bonnet of Lyons, in 1845, demonstrated the benefit from sun baths in tuberculous bone affections. Moncorvo mentions, along with Rollier and Turck, Monteunis and Byssaia-Barreto as having published notable works in recent years on heliotherapy.

Cronica Medica, Lima, Peru

March, XXXIV, No. 645, pp. 77-116

77 Arequipa Mineral Springs in Peru. (El balneario de Jesus.) E. Escomel.—p. 80.
78 Abortive Case of Adams-Stokes Syndrome. E. Odriozola.—p. 92.
79 Case of Malta Fever in Peru. J. M. Chiriboga.—p. 98.
80 *Clinical Study of Uremia. (Azohemia.) M. A. Schreiber.—p. 100.

80. **Uremia.**—Schreiber remarks that pruritus may be the first symptom to attract the patient's attention to the reten-

tion of nitrogen in the blood, but usually the uremia merely accompanies retinitis, somnolency, digestive and other disturbances pointing to the chronic nephritis. In one of his patients the reds numbered only 1,680,000 and the whites 7,000; he had profuse hemorrhages from stomach, nose and lungs. The urea content of the blood was 3.1 and 4.06 gm. at a two week interval. Two other patients had pericarditis in the course of severe uremia, but it was a necropsy surprise in one case and in the other was detected in the course of clinical examination, not having caused any appreciable symptoms. The blood contained 4 gm. of urea. The close connection between the uremia and the high blood pressure was evident in all but two of his cases of chronic nephritis.

Prensa Medica Argentina, Buenos Aires

March 30, III, No. 30, pp. 317-328

81 Mental Disturbances with Heart Disease. M. R. Castex and J. C. Vivaldo.—p. 317. To be continued.
82 Answer to Criticisms of Normal Beef Serum in Serotherapy of Anthrax. R. Kraus, J. Penna and others.—p. 318.
83 Spontaneous and Transmissible Tumor in White Rat. A. H. Roffo.—p. 320.
84 The Oculocardiac Reflex. S. B. Amadeo.—p. 323. Continuation.

Semana Medica, Buenos Aires

March 15, XXIV, No. 11, pp. 315-342

85 Nematode Parasite of the Frog. S. E. Parodi.—p. 315.
86 Gastrulation in Mammals. M. Fernandez.—p. 318.
87 Prophylaxis of Venereal Diseases. J. A. Lopez.—p. 321.
88 Welfare Work for Young Infants. (El problema de la tutela higienica de la primera infancia.) E. Cacace.—p. 331.

Siglo Medico, Madrid

April 21, LXIV, No. 3306, pp. 265-284

89 *Aspiration Technic for Extraction of Cataract. I. Barraquer.—p. 266.
90 Intraspinal Treatment of Syphilis of the Nervous System. G. R. Lafora.—p. 267. Continuation.
91 Present Status of Plastic Surgery. Goyanes.—p. 278. Commenced in No. 3304, p. 226.

89. **Vacuum Aspiration Extraction of Cataract.**—Barraquer emphasizes that anatomically speaking a cataract is a cyst, and should be treated as such. He uses for extraction of the cataract a little device that acts on the principle of a cupping glass. It is applied directly to the cataract, with aspiration from an electric motor, the vacuum aspiration under complete control. Any kind of cataract, he says, can be extracted in this way gently and absolutely thoroughly, even the minutest scraps of opaque tissue coming away, and all without the least pressure on the eyeball or vicinity, and without the necessity for introducing any sharp instruments inside the eyeball. He has applied it for thirty-three ripe senile cataracts, twenty-four not yet ripe, and five overripe, and also was able to extract by this means a scrap of glass inside the lens in one case. The success was prompt and complete in every case but two; in these the capsule had been lacerated before so that aspiration could not proceed according to the normal technic. He suggests that it might be possible by this means to improve the lens in cases of extreme myopia. With cataract, he adds, there is no need to wait for it to ripen.

Russkiy Vrach, Petrograd

XVI, No. 4, pp. 73-96

92 Pathogenesis of Addison's Disease. A. I. Yushtchenko.—p. 73. To be continued.
93 Expediency of Ligating Vein in Operating on Wounded Artery. (O . . . perevyazki . . . veni pri prekrashtchenii toka krovi v. . . arterii.) V. N. Savvin.—p. 78.
94 *War as the Struggle for Existence of Nations. G. M. Yusifoff.—p. 80. Commenced in No. 3 p. 49.
95 *Benzin for Isolation of Typhoid Bacilli. V. I. Nedrigailoff.—p. 83.
96 Etiology of Gas Phlegmon. A. E. and V. E. Burovikh.—p. 84. To be continued.
97 Experimental Cholesterinemia and the Disturbances It Induces in the Organism. N. N. Anichkoff.—p. 89. To be continued.

94. **War as the Struggle for Existence of Nations.**—Yusifoff discusses the causes of war from the standpoint of biology, as also the question of the possibility of perpetual peace.

95. **Benzin in Isolation of Typhoid Bacilli.**—Nedrigailoff comments on the tendency of physicians to keep in the hospitals unduly long those convalescing from cholera, typhoid and dysentery for fear that they may develop into carriers. It would be better from every point of view to be able to sift out the carriers by early and repeated bacteriologic examination. This is possible with cholera, as only cholera vibrios grow luxuriantly in peptone water. But until lately, he says, we have not had any reliable means to differentiate typhoid germs in the stools of carriers. The various technics to date can be applied only to minute quantities of the material, and this minute quantity may not happen to contain any of the germs. This renders extremely interesting the technics proposed comparatively recently which permit the use of large quantities of stool. One of these is Vasilevsky's application to feces of the method of detecting typhoid bacilli in water by addition of an agglutinating serum. By this means he never failed to find typhoid bacilli in the stools when any were to be found in the blood.

Bierast differentiates typhoid and colon bacilli by their different response to the action of benzin, and Nedrigailoff has found this surprisingly effectual in permitting the growth of typhoid bacilli from the stools of typhoid patients and convalescents while the proliferation of other bacilli seems to be checked by it. A mixture of equal amounts of cultures of typhoid and of colon bacilli in a little bouillon were mixed with an equal volume of benzin and kept at room temperature for fifteen hours. Endo agar was then inoculated from the mixture. The control dishes showed the usual colonies of colon bacilli growing luxuriantly, while in the benzin dishes there were only a few scattered colon bacilli colonies in the midst of numerous colonies of typhoid bacilli. Hall, Schusch and others have confirmed Bierast's statements.

Nedrigailoff used 3 or 2 c.c. of benzin to 7 or 8 c.c. of the mixture of stools and bouillon (in the proportion of a teaspoonful of feces to 2 c.c. of bouillon). Success depends on the lively and long continued shaking up of the small vial. It is shaken up vigorously by hand for five or ten minutes, and then this is repeated after an interval of fifteen or twenty minutes. The vial is then set aside, protected from the light, for eight or ten hours, at room temperature. The material to inoculate the Endo agar in the Petri dish is taken from the sediment with a Pasteur pipet. He applied this technic also in differentiation of the *Staphylococcus aureus,* the proteus and the pyocyaneus. The proteus was the only one of these that showed any growth by the tenth hour; the others showed none until after the twentieth. The test was applied to stool from ten persons who had recently passed through typhoid. Typhoid bacilli were thus detected in three cases, paratyphoid B in one, and the findings were negative in the others. Control tests confirmed these findings.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 24, I, No. 12, pp. 881-976

98 *Familial Splenomegaly of Gaucher Type. C. De Lange and J. C. Schippers.—p. 890.
99 Varying Efficacy of Ergot Preparations from Different Sources. (Secale-praeparaten.) W. S. van Leeuwen.—p. 904.
100 *Isolated Traumatic Paralysis of Suprascapular Nerve. G. C. Bolten.—p. 913.
101 *Chronic Essential Pruritus Cured by Cold Sponging. (Hydrotherapeutische behandeling van een geval van huidjeuk.) J. C. Mom.—p. 918.

98. **Familial Splenomegaly of Gaucher Type.**—This article states that the two operative cases reported bring to twelve the number of cases of Gaucher's splenomegaly on record in which the spleen was removed. Nine apparently recovered after the splenectomy, that is, 75 per cent., although in the two cases reported here only about three months have elapsed since the operation. Of the seven children in this family, one died at the age of 2, probably a case of the same affection, and the second child, a girl, an unmistakable case, succumbed at 11 to gastric hemorrhage. The sixth and seventh children, girls over 7 and 5, presented typical cases and improved after splenectomy to such an extent that they are listed as cured. The left lobe of the liver was materially enlarged in the three cases. The spleen in the two operative cases showed deep clefts; in one so deep as almost to divide it into lobes. The microscopic findings differed from those on record, pos-

sibly because the disease was in an earlier phase. The literature on the subject is reviewed, and it is emphasized that splenectomy is the only measure that offers the least chance of a cure so far as is known to date. No benefit has been reported from roentgenotherapy, iron or arsenic. The spleen in some of the cases on record weighed from a fifth to a half as much as the whole body, but one of the spleens in the personal cases here reported was the smallest on record (170 gm.), and the other (470 gm.) the third smallest. Several American cases are included in the list. The latest of the cases (1914) summarized was in a boy of 14; the spleen weighed 1,320 gm. Its enlargement had been verified by a physician nearly eight years before.

100. **Isolated Paralysis of the Suprascapular Nerve.**—The young man had fallen in playing tennis, striking on his right elbow and knee. There was some pain in the shoulder for a time but it then subsided and the only disturbance left was difficulty in writing. The young man had had syphilis but it has been apparently thoroughly treated and the Wassermann reaction was negative. The symptoms indicated an isolated paralysis of the suprascapular nerve innervating the supraspinatus and infraspinatus muscles, with some atrophy of both. Two years after the accident the man was able to write only when standing at a desk, the arm extended to the utmost and raised up forward. Any attempt to lift up the arm sideways caused spasms in the upper arm. Electric high frequency treatment brought some improvement then, but the long interval precluded much benefit from any treatment.

101. **Hydrotherapy for Essential Pruritus.**—Mom's patient was a robust man and the pruritus was so severe that it kept him awake at night. Exclusion of all causes showed it to be chronic true pruritus of the skin. No benefit was derived from the whole array of dermatologic and other measures until, as a last resort, the man was told to sponge his whole body with cold water every morning on rising; then, without waiting to dry himself, to get back into bed and stay there until thoroughly warm. In a week of this simple hydrotherapy the man was cured. The pruritus that had tormented him for years, subsided completely and there has been no recurrence during the six months to date. Mom explains the striking effect in this and similar cases as due to the vasoconstriction from the cold water, followed by the dilatation from the warmth in bed, modifying the vasomotor nerves and possibly aiding in the expulsion of irritating substances in the sweat glands.

Hospitalstidende, Copenhagen

April 18, LX, No. 16, pp. 369-392

102 *Carcinoid Tumors of the Appendix. P. V. Tuxen.—p. 369.

102. **Tumors in the Appendix.**—Tuxen refers to tumors which resemble cancers in appearance but their course is benign. Since Letulle's first description, in 1897, about 250 cases have been published. The average age is between 20 and 30, but Mayo found a tumor of this kind in a girl of 5, and Elting in a man of 81. Tuxen has encountered eight cases of cancer in the appendix and only three typical carcinoid cases; he describes the whole eleven cases in detail. The cancers were in four men, 19, 20, 34 and 38 years and four women between 22 and 27. The three carcinoid patients were men of 18, 21 and 48. The appendix was removed in each case for acute or chronic appendicitis. In four other cases a small tumor was found in the small intestine after death from other cause, and the microscopic findings in these tumors seemed to be identical with those in the appendix carcinoid cases. He reproduces the microscopic findings in one case, and reviews the literature on this type of nonmalignant submucosa tumors in the appendix and small intestine.

Hygiea, Stockholm

April 16, LXXIX, No. 7, pp. 321-368

103 *Simulation and Aggravation of Morbid Conditions in Relation to Insurance, Workman's Compensation, Escaping Military Service, etc. F. Klefberg.—p. 334.

103. **Feigned Sickness and Factitious Affections.**—Klefberg expatiates on the way in which factitious affections are becoming every day more and more important as legislation on social insurance, workmen's compensation, etc., is constantly extending its scope, to say nothing of affections induced to escape military duties. He quotes Collies' remark: "To most medical men, simulation of disease presents a difficult, almost an insoluble puzzle." He urges the training of specialists in this line, commenting on the importance of unmasking the first case, as otherwise a crowd of imitators follow. Training is especially necessary in affections of the eye, ear and nervous system which are most often reproduced by malingerers. Training is also necessary to keep from seeing a malingerer in every claimant for an indemnity. He cites two typical cases to show the ease with which physicians are hoodwinked, and describes a number of tests useful to disclose simulation. They include Müller's suggestion to test the alleged tender point with a second finger applied so near the first that the subject gets only one impression from them. Alternating the pressure permits control of the patient's statements. With much tenderness or severe pain, the pulse is liable to become accelerated, the face flush or grow pale, or the pupil dilate or contract. Klefberg has seen this occur not only with pain in the limbs, lumbago, etc., but also in appendicitis, pleurisy and neuralgia. Applying the induced current may prove instructive, telling the patient that the pains will be increased when the electrode reaches the painful area, but shutting off the effective current without his knowledge. When told to stoop over from the hips the malingerer usually holds his spine straight and stiff, while there is always a curve in the natural spine at the neck, even with lumbago, sciatica, etc., inducing incurvature lower down. The pain with sciatica is increased by lifting the other leg to a right angle or otherwise moving it, but the simulator never thinks of complaining of pain when the sound leg is exercised. With true sciatica, standing with both soles flat on the floor, the heel on that side is lifted during a squatting exercise. Illustrations are given of these and a number of other tests. If the findings are negative with even those summarized here, the suspicion of simulation is justified.

A sympathetic understanding with the patient is important although the possibility of malingering must be borne constantly in mind. Instructive data may be obtained by watching how the patient comes into the room, sits down, disrobes, etc., before the actual physical examination. No relative or friend must be with the patient; if he insists on having an outsider with him, the physician must insist on its being some impartial person, possibly a representative of the party financially involved. Neglect of this precaution is liable to have disagreeable consequences, if nothing more than complaints of "brutal handling." Klefberg warns further that the subject is very liable to mix in with the symptoms he is having an account of those he has had, thus obscuring a clear picture of the status presens. The importance of refraining from questions liable by suggestion to influence the answers cannot be reiterated too often. Disrobing, especially taking off the shoes and stockings, must be done without help, and all bandages removed. For examining the legs or feet, the patient should stand on a stool, stepping up with the affected leg first.

The more honest the patient, the clearer and prompter his replies. The malingerer either has an overprofuse flow of words or is unusually taciturn. A difference is also manifest in the way they locate the pain or tenderness. The honest subject places his finger directly on the spot and usually presses on it for a moment or longer; the malingerer points with a circular movement that includes quite a large area, seeming to avoid contact with the skin. He may also writhe when the examiner touches him at all. In such cases he should be blindfolded during the examination. The honest man is anxious to know how soon he can get to work again, while the simulator has no interest in this question. The latter is also liable to refer several times to his "own doctor." It is unnecessary to warn against paying the slightest credence to what he says in regard to the statements of other doctors. In conclusion, Klefberg reiterates the importance of diverting the attention away from the part alleged to be affected.

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TUBERCULOSIS AND WAR*

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The student of history is struck by the fact that disease and pestilence have always been more destructive factors in exterminating human life during war times than all ancient and modern firearms. During previous wars, dysentery, bubonic plague, cholera, typhus, typhoid, smallpox, beriberi, etc., were the main war diseases. Scientific camp sanitation, however, has succeeded in controling most of these pestilences. But now new medical problems have been confronting the army medical services of the nations at war. Among the last may be mentioned trench nephritis, epidemic jaundice, gas poisoning, the soldier's heart, and functional nervous diseases. However, during the present European conflict the most important problem confronting the part of the medical profession charged with the prevention of disease is said to be the prevention of tuberculosis, which is alleged to be menacing the soldier in the field as well as the civil populations of the warring countries.

Our present conception of the pathogenesis and prognosis of tuberculosis shows that this disease may be a factor during war as follows:

1. While examining recruits for the army and navy, the problem arises at once, Should all who show signs of pulmonary disease be rejected?
2. Is active service in the field liable to wake up dormant tuberculous lesions?
3. Are soldiers and sailors excessively exposed to tuberculous infection?
4. What are the effects of war conditions on the incidence of tuberculosis among the civil population?

EXAMINATION OF RECRUITS

It is clear that those who present symptoms and signs of active and progressive tuberculosis will be easily recognized and eliminated. The symptoms of the disease, cough, expectoration of sputum containing tubercle bacilli, fever, tachycardia, emaciation, etc., coupled with unmistakable physical signs, are sufficient in practically all such cases to show that the candidate is unfit for military service entailing great hardships. But there are several classes of persons who are not so clearly differentiated. Among them are to be mentioned: (1) Those showing inconclusive symptoms and signs of lung lesions; (2) those who have been patients in sanatoriums or hospitals for consumptives and were discharged as cured, or with arrested disease; and (3) those having other pulmonary diseases, especially the various forms of bronchitis, asthma, emphysema, etc.

The class of persons commonly known as "suspects" is apt to prove the *bête noire* of the military examiner, just as it has been to physicians in civil practice. Among them are found persons who cough more or less, expectorating sputum which is microscopically negative; they may or may not have lost in weight recently, and perhaps give a history of anorexia, hemoptysis, etc., and state that some physicians have considered them tuberculous, while others disagree. In fact, some will bring proofs that they have been "under observation," or actually patients in tuberculosis clinics for months. On physical examination there may be found some signs suggestive of a localized lesion in one of the lungs — some impairment of resonance, harsh, cogwheel or rude breath sounds, prolonged expiratory murmur, dry, or even moist râles, etc. To reject all presenting these symptoms and signs would be unjust, because it is well known that only a small proportion of them are really tuberculous, while the vast majority are troubled with some nonspecific affections of the upper or lower respiratory passages which are not in the least disabling, and which may in fact be cured when the person is subjected to the regular life in a military camp.

A few points which may prove useful in attempts at differentiation of these cases from those affected with active tuberculous disease are: The examiner will be on safe ground if he relies more on symptoms than on physical signs, or even roentgenography. In other words, it is best to investigate whether or not the person has fever, and if he has not, especially after some exertion, the chances of his being actively tuberculous are remote. The pulse is another excellent indication as to the nature of the affection. Active tuberculous disease with a pulse rate of less than 75 per minute is rather uncommon, and one with a pulse rate of less than 70 is extremely rare. In doubtful cases we must study the stability of the pulse. One suffering from active tuberculosis, even having a slow pulse, shows a pronounced increase in the rate after moderate exertion. It may be stated that a pulse uninfluenced by exertion is an indication that the person examined is not affected with active tuberculous disease.

Changes in resonance and in breath sounds, elicited over a limited area of the chest, if found anywhere below the third rib anteriorly, or the fifth dorsal spine posteriorly, are not of tuberculous origin, provided there are negative findings over the apexes. Distinct signs of catarrhal conditions found over the lower parts of the chest, indicating pathologic changes in

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the bronchi or lungs, unilateral or bilateral, are almost invariably indications of nontuberculous disease, bronchitis, pulmonary emphysema, bronchiectasis, etc., or they may be the result of old and healed pleural adhesions.

Of course, positive sputum is conclusive proof of active tuberculous disease. But in the case of conscription, when the aim is the detection of slackers, it must not be lost sight of that there are many malingerers. The sputum should be collected in the presence of some reliable person. Borrowing sputum containing tubercle bacilli, or even buying it, is not unknown in civil life in New York. There is no question that slackers may resort to this subterfuge.

Those giving a history of having been patients in sanatoriums should not be rejected because of this fact alone. My reasons are the following: A large number have been cured, and participation in active warfare is no more liable to reactivate the tuberculous process than life in a large industrial city, and work in any industry, but few. In fact, experience of medical men in the European armies during the present war has clearly shown that a large proportion of these persons get along very well; as well as other soldiers. In England, Sir William Osler[1] says: "I saw the history sheet of a man who had been for years in attendance at a tuberculosis dispensary with bilateral disease, but he slipped in, stood his training, and was actually sent to France." Dr. Osler is of the opinion that some tuberculous persons may be taken into active field service. In a recent paper, Dr. G. S. Banks[2] speaks of a number of insured tuberculous subjects, formerly in receipt of sanatorium treatment, who have joined the military or naval forces. Of sixty-four such persons, fifty-seven were on military and seven on naval service (mine sweeping):

Of the total, 58 were suffering from pulmonary disease, and of these 34 had received sanatorium or hospital treatment for various periods. One man actually enlisted while he was a patient in the tuberculosis wards of the City Hospital. Out of the 64 who enlisted, 19 have recently been in active service—14 at the western front and 5 on mine sweepers. Among 6 men discharged from the services, one had enlisted no fewer than three times before being finally discharged, and three had been discharged from one branch of the service and then enlisted in another.

That these soldiers were not affected with the so-called "doubtful" or incipient types of the disease is shown by the fact that:

Out of 48 pulmonary cases, one was of the first, 12 of the second, and 35 of the third stage (Turban). Twenty of the 43 whose sputum had been examined gave positive results. Of the 14 cases at the western front, of whom 3 were known to have had tubercle bacilli in the sputum, 4 were glandular, 10 pulmonary, and of the 10, 6 were in the second stage and 4 in the third. From the fact that out of the 14 men accepted for foreign service only one had broken down in health, and that only temporarily, the conditions of life in the field are not unfavorable to the maintenance of the general health of the tuberculous patients if the disease is not active or advanced.

Similar experiences have been recorded by French and German physicians. Thus, Lanzenberg[3] insists that we must not reject all recruits presenting auscultatory signs of tuberculosis because of this fact alone:

The men in the active service and territorials were enlisted without any medical examination, and undoubtedly there were many tuberculous among them. But the number who broke down among them owing to pulmonary diseases has been much smaller than we might anticipate in civil life. Moreover, it is well known that many who were discharged for these causes were malingerers. In general, emaciated individuals have gained in weight and in many cases attained striking and surprising physical development, especially as regards the capacity of the chest, despite the rough conditions of life.

He cites these facts in support of his contentions:

At the medical service of the Place de Paris, through which hundreds of wounded and convalescent soldiers pass daily, the physicians are often asked to change the services of injured or temporarily incapacitated soldiers, thus having been rendered unfit for the branch of the service to which they belonged. In the vast majority of cases it is a question of transferring men from the infantry to the aviation or automobile corps. These men are subjected to the minutest physical examination. My colleagues and myself in this service have been struck by the frequency with which the examination of the lungs reveals signs considered pathognomonic of tuberculosis. Yet they have been for a year or eighteen months in active service in the field. When they are asked as to how they withstood the hardships of the front, these men, almost always ignorant of the pathologic condition in their lungs, almost invariably answer that they had not been sick up to the day when they were wounded. The interesting part of these facts lies not so much in the great frequency with which they may be observed, as in the conclusion they imply, namely, that the exclusion of all tuberculous patients and suspects would be an unjust measure which might deprive the country of many useful soldiers.

The experiences of the German military medical service have been substantially the same. Goldscheider[4] says that many of the suspects and doubtful cases of tuberculosis of military age have been placed on garrison duty, and most of them have later been found fit for active service. Blömel[5] examined many soldiers who were rejected because of tuberculosis, and found that 80 per cent. were nontuberculous. Many had been patients in sanatoriums, and presented proofs to that effect. He urges that:

On the whole, the fact that one was at one time an inmate in a tuberculosis sanatorium should not per se be sufficient to free him from military service, because a certain proportion, fluctuating between 8 and 15 per cent. of sanatorium patients, were never *sick* with tuberculosis. Furthermore, patients in the incipient stage of the disease, who make up 50 per cent. of the population in some institutions, manifest strong tendencies to healing of the lesion in the lungs, and one to two years after their discharge they may be considered healthy.

On this point Roepke[6] also agrees. He says that clinically cured tuberculous subjects, who stand the training period well, may be sent to the front. It is understood that the lesion has healed well. Persons with stationary, closed tuberculosis may be utilized for garrison duty. But active, progressive tuberculosis, even in the beginning of the disease, should be a cause for rejection. It is mainly a difference between active and inactive cases.

That sanatorium patients have often made good soldiers has also been found by many French physicians. Burnand[7] says that in France:

1. Osler, William: The Tuberculous Soldier, Lancet, London, 1916, **2**, 220.
2. Banks, G. S.: Lancet, London, 1916, **1**, 323.
3. Lanzenberg, Armand: Des tuberculeux et de leur situation militaire, Paris méd., 1916, **6**, 268.
4. Goldscheider: Ztschr. f. Tuberk., 1915, **25**, 37.
5. Blömel: Die Fehldiagnose Lungentuberkulose bei Beurteilung der Felddiensttauglichkeit, Med. Klin., 1915, **11**, 884.
6. Roepke: Tuberkulose und Krieg, Ztschr. f. Medizinalbeamte, 1915, p. 313.
7. Burnand, R.: Phthisie caséeuse guérie par un pneumothorax, Paris méd., 1916, **6**, 168.

The present war has supplied a large number of examples showing the remarkable resistance of certain consumptives against the hardships of the campaign. Many sanatorium patients, responding to the urgent appeal to their patriotism, escaped from the institutions and went to war during August, 1914. The majority have kept up very well under military life, even better than would be anticipated.

He reports a case of acute progressive tuberculosis treated by artificial pneumothorax, the patient going to the front and doing very well. Rist[8] reports a similar case, the patient reporting from the trenches periodically for refills of the pneumothorax.

German physicians, reporting on the ability of exsanatorium patients to fulfil military duty during war time, believe that they thus prove the immense value of institutional treatment of phthisis. Leschke[9] followed up the records of patients discharged from the sanatorium in Leipzig, and found that 241 were taken into active military service during the first year of the present war. Of these, forty-four were sputum-positive on admission, and ten also on discharge; 187 were considered in the first, forty-eight in the second, and six in the third stages of the disease.

Similar reports are available for the Austro-Hungarian, Russian and Italian armies. Fagiuoli[10] observed many instances in which camp life seems to have given the finishing touch to a treatment started in institutions or at home, and the men, after remaining in the field for some time, are found healthy and free from any signs suggestive of active tuberculosis.

Facts such as these, which can be multiplied considerably, should dissipate our preconceived notions about the fitness of tuberculous patients for work, or for military service. Many who have been treated in sanatoriums may be safely taken into the army; others with latent or even quiescent disease, provided the temperature, pulse, respirations, etc., are around normal, should be given an opportunity to serve their country, if there are no other valid reasons for rejection. Considering that all soldiers are not immediately sent to the front, but must undergo a more or less long period of training, doubtful patients may be sent into the training camp, and if life under military conditions proves harmful, they may then be mustered out. I feel confident that the proportion which will have to be discharged from a selected group of such former tuberculous patients will be comparatively small.

We must bear in mind that a large proportion of patients in sanatoriums for incipient cases, and some even in hospitals for advanced cases, have never been proved tuberculous by the acid test — tubercle bacilli in the sputum; in some institutions over 60 per cent. are sputum-negative on admission. It is an uncontrovertible fact that evidence to the effect that one was a patient in a sanatorium is not conclusive proof that he ever suffered from active tuberculous disease.

A history of a previous attack of pleurisy, dry or with effusion, should not bar one from serving his country during war. While it is true that the vast majority of pleurisies are tuberculous in origin, and a large proportion of these patients develop active phthisis in later years, still not all do develop the disease. If otherwise found healthy, the average person who has passed through an attack of pleurisy is fit for military service. It may incidentally be mentioned that phthisis developing after an attack of pleurisy is usually mild in character, and the prognosis is very good indeed.

A former attack of pneumonia also should not be considered as a cause for rejection, if the patient has recovered and is otherwise healthy. Not only is pneumonia etiologically not at all related to tuberculosis, but one who has survived an attack is no more predisposed to phthisis than the average of the rest of the population.

Chronic bronchitis, pulmonary emphysema, asthma, bronchiectasis, etc., if the heart is found in good condition, and there are no disabling symptoms, such as dyspnea, tachycardia, loss of weight, etc., should also not be considered causes for rejection from military duty. Indeed, the outdoor life, the regular hours, the nourishing food, etc., of modern wars will be beneficial for most of the sufferers from these chronic diseases. This same is true of almost all chronic pathologic processes of the upper respiratory tract.

EFFECT OF ACTIVE SERVICE ON DORMANT TUBERCULOUS DISEASE

The facts just cited would seem to indicate that military service in the field is no more liable to reactivate dormant or quiescent tuberculous lesions than any other civil occupation requiring muscular exertion, walking, exposure to the vicissitudes of the weather, etc. Since we know that the vast majority of tuberculous patients may, and should, return to work as soon as the disease has been brought under control, we cannot say that military duty is in all cases an exception. Modern sanatoriums have of late realized this fact and have shown a tendency to put their patients to "graduated labor," and some even just to work; and the percentage of recoveries is not lower than those attained in institutions in which perfect rest is indiscriminately enjoined, even though it is forgotten that the patients are thus encouraged to remain loafers after their discharge.

One simple way to inquire into the problem is to find out whether or not army and navy life during peace times increases the morbidity and mortality from tuberculosis much above the proportion which might be expected in the male population between 20 and 30 years of age. Of course, it must be borne in mind that during peace the men are carefully selected before admission and weaklings are rejected, while during war many who otherwise could not be enlisted slip in.

It appears that the morbidity and mortality from tuberculosis in the European armies, in which the men are worked quite hard during peace time, has not been excessive, despite the fact that the soldiers and sailors are exposed to many of the factors favoring the development of tuberculosis as we understand at present the etiology of this disease. According to Valery Havard,[11] the death rates in the armies during peace times have been as follows: Great Britain (1909), 0.31; France (1907), 0.76; Prussia and Bavaria (1907), 0.20; Austria (1909), 0.45; Russia (1908), 0.58; Japan (1909), 0.34. In the United States Navy and Marine Corps the death rate averaged 0.58 for the years 1905-1906; for the years 1910-1911 it was 0.33 and 0.59, respectively. For the three years 1909-1911, tuberculosis in our army caused annually 16 per cent. of all the deaths from disease.

8. Rist, E.: Presse méd., 1914, **22**, 692.
9. Leschke, Erich: Die Tuberkulose im Kriege, München. med. Wchnschr., 1915, **62**, 363.
10. Fagiuoli: Tuberculosi in guerra, Gaz. d. osp., 1916, **37**, 438.
11. Havard, Valery: Manual of Military Hygiene, New York, 1914, p. 47.

For all adults from 20 to 29 years (men and women), the nearest class corresponding to the military age, tuberculosis caused 35 per cent. of all deaths (official census).

During war no material increase has been noted in the morbidity and mortality from tuberculosis, as far as historical records go. The present European war also has not shown, so far, any tendency in this direction. Thus Sir William Osler[1] states that:

> Of 1,000,000 enlisted men between the ages of 18 and 40, the proportion to develop tuberculosis is probably much smaller than if these man had remained in civil life . . . . The circumstances of the soldier's life, as a rule, do not weaken but strengthen the body's resistance.

Dr. Osler is quite emphatic on this question; he says:

> I do not think we are to look for a greater increase in the number of cases in the portion of the community which has undertaken military service. We are not going to double our tuberculous population, and are not to expect 70,000 deaths instead of 50,000 annually.

That Osler's prediction was correct is seen from an editorial published as late as Feb. 17, 1917, in the *Lancet*,[12] after the experiences in warfare had extended over two and one half years. Says that writer:

> Camp and trench life has not been productive of more breakdowns than would have occurred in civil employment. It is amazing that in a citizen army running to millions the incidence of breakdown from tuberculosis all told should have been only in the lower thousands. A rough calculation of breakdown from the same cause among the men of military age in industrial occupations would give a vastly higher total.

H. Hyslop Thomson[13] speaks in the same direction, and A. M. Fauntleroy,[14] of the United States Navy, after making careful medical and surgical observations behind the allied armies in France, reports that "tuberculosis of the lungs is of rather infrequent occurrence."

The German experience is not different. Goldscheider[15] says that, as far as he could ascertain from personal observations, the winter campaign at the western front caused an amazingly small number of cases of tuberculosis; other physicians inform him that this has also been their experience. He has not seen a single case of tuberculous infection. In a discussion on the subject before the medical society of Hamburg, Germany, August Predöhl,[16] the historian of tuberculosis, stated that he found that tuberculosis has not increased among the soldiers in active service. Among 5,000 medical and surgical patients treated in the military hospital under his care, only eighteen showed symptoms and signs of active tuberculosis. In another hospital, Rassmann encountered only seventeen tuberculous among 3,000 soldiers. In Russia, Savvin,[17] having under his care 100,000 sick and wounded soldiers in the military hospital of Moscow, found that among 26,524 medical cases, not including those suffering from acute infectious diseases, the following number were affected with various pulmonary diseases of the respiratory tract: laryngitis and tracheitis, 181; bronchitis, 2,153; emphysema, 209; pleurisy, 636; fibrinous pneumonia, 197; catarrhal pneumonia, 411, and pulmonary tuberculosis, 955. Pulmonary tuberculosis was thus found in only 0.96 per cent. of the total number of patients; among those suffering from medical diseases (not from injuries) 3 per cent. were found tuberculous. The author advises that the last figures are in all probability the more correct, because in a surgical clinic tuberculosis is apt to be overlooked. He observed the significant fact that during the first few months of the war tuberculosis was more frequently found than during the later months, which points to the conclusion that many of those who were ill with the disease were ill before they were drafted. On this point most authorities agree. Grau[18] found on careful inquiry that in 39 per cent. of cases of tuberculosis the soldiers have suffered from the disease before they were drafted into the war; similar observations have been recorded by Moritz[19] and others.

How unlikely tuberculosis is to develop in soldiers on active duty is clear when we consider the rarity of surgical tuberculosis in wounded and injured soldiers. We know that tuberculous disease of the bones and joints frequently follows in the wake of injuries in civil life; yet it is extremely rare to find that contusions or wounds acquired in warfare have become tuberculous. On this point all authorities agree, though some cases have been reported during previous wars as well as the present war. Moreover, it was observed during the Franco-Prussian War that gunshot injuries to the lungs only rarely produced pulmonary tuberculosis.[20] Tonnissen[21] found in fifty-six lung injuries no case of tuberculosis; Roepke, Helm[22] and others confirm this from their own observations.

It thus appears that the life in the open air, the good and nourishing diet, the regular hours, and the removal of the deleterious features of city and industrial life of modern times, which the soldier enjoys, are rather of benefit, and outweigh the hardships which go hand in hand with active warfare in the battlefield. At any rate, tuberculosis is no more liable to develop in soldiers than in the civil population. It has also been observed that other diseases of the respiratory tract, such as pneumonia, bronchitis and tonsillitis, and also acute articular rheumatism are not excessively frequent.

EXPOSURE OF SOLDIERS TO TUBERCULOUS INFECTION

The foregoing shows clearly that there is no more danger of tuberculous disease in active army life than in civil life — perhaps even less than in many branches of urban and industrial life of modern times. When considering the problems of tuberculous infection, it must be borne in mind that recent research has clearly shown that the adult human being has almost invariably been infected before he reached adolescence, and that in adults infection hardly ever, if at all, coincides chronologically with the development of disease. Practically all who suffer from tuberculous disease have been infected during childhood, the virus remain-

12. Tuberculosis and the War, Lancet, London, 1917, **1**, 268.
13. Thomson, H. H.: Brit. Jour. Tuberc., 1917, **11**, 44.
14. Fauntleroy, A. M.: Report on the Medicomilitary Aspects of the European War, Washington, Government Printing Office, 1915, p. 55.
15. Goldscheider: Ztschr. f. Tuberk., 1915, **25**, 36.
16. Predöhl, August: Ztschr. f. Tuberk., 1915, **24**, 372.
17. Savvin, V. W.: Russk. Vrach, 1917, **16**, 26.
18. Grau, H.: Krieg und Lungentuberkulose, Ztschr. f. Tuberk., 1915, **24**, 351.
19. Moritz: Ueber Lungentuberkulose im Kriege, Ztschr. f. ärztl. Fortbildung, 1915, **24**, 321.
20. Kriegssanitätsbericht von 1870-71, **3**, 556.
21. Tonnissen: München. med. Wchnschr., 1915, **61**, 89.
22. Helm: Tuberkulose während des Krieges, Ztschr. f. Tuberk., 1915, **24**, 1.

ing dormant for years, until some exciting cause reawakens the bacilli into activity, or reduces the natural resisting forces within the body, and the bacilli are permitted to multiply, producing active or progressive lesions. It appears that over 90 per cent. of civilized humanity have thus been infected, and exogenic reinfection with tubercle bacilli cannot take root. On the other hand, endogenically, by metastasis, dormant lesions may become active and cause more or less serious disease. To be sure, we know at present that privations, exposure to the inclemencies of the weather, injuries, overexertion and like adversities are often instrumental in reactivating the dormant virus, or in reducing the inherent immunity of the body; during warfare these factors are more likely to act than in civil life. But it appears to be the fact that all these adversities have never been instrumental in increasing the tuberculosis morbidity and mortality, as is evidenced by the history of the wars of which we have reliable records, including the present one.

All through history we find enumerated and carefully described the horrors of war, among which medical horrors played no small rôle. In his exhaustive history of the epidemics resulting from wars, Prinzing[23] says:

> Until comparatively recent times, the most serious human cost of war has not been losses from disease in the armies, but losses from epidemics disseminated among the civil populations. It was the war epidemics and their sequelae, rather than direct military losses, that accounted for the deep prostration of Germany after the Thirty Years War. Such epidemics were also of the gravest consequences of the Napoleonic Wars.

It is noteworthy that in the descriptions of the diseases affecting armies in the field in Prinzing's work, as well as in various old and recent books and monographs on military hygiene, hardly any mention is made of tuberculosis as a factor during or after wars. We find details of dysentery, typhus, typhoid fever, smallpox, beriberi, bubonic plague, cholera, etc., and in more recent books, like that of Arthur F. Hurst's,[24] on trench nephritis, epidemic jaundice, gas poisoning, soldier's heart, functional heart disease, etc., but no mention is made of tuberculosis.

It cannot be said that there has been a conspiracy among medicomilitary writers, historians and observers to ignore the factor of tuberculosis in war. There is no doubt that if tuberculosis were actually an appalling war menace it would have been observed and recorded; surely during the Civil War in this country, the Franco-Prussian War of 1870-71, the Russo-Japanese War of 1905 and the first two years of the present war, it would not have been overlooked. I therefore believe that I am safe in concluding that tuberculosis is not more likely to occur in soldiers during active warfare than in civil life.

That the cases occurring in the armies are not necessarily due to infections in the barracks and trenches has been proved in another way. Osler[1] puts it tersely when he says that "in the majority of cases the germ enlists with the soldier." Mönckenberg[25] performed necropsies on eighty-five soldiers, and found tuberculous lesions in twenty-seven, or 31.76 per cent. In only five cases could tuberculosis be considered the cause of death, while in the rest it was only an incidental finding. He considered tuberculous only those lesions which showed caseous and calcareous changes of the lungs, pleura or thoracic glands, while scars of the lungs or pleura, even when localized in an apex, were not counted. Had he counted the latter changes, because they are undoubtedly tuberculous, he would have found over 90 per cent. of tuberculosis, as has been recorded by others. Schroeder,[26] from observations of German soldiers during the present war, emphasizes that exposure to tubercle bacilli plays no significant rôle in the causation of active tuberculosis in the German army. He has not seen a case of primary tuberculosis acquired in the campaign. The same has been recorded for the English and Russian armies, as has already been mentioned.

EFFECTS OF WAR CONDITIONS ON THE INCIDENCE OF TUBERCULOSIS AMONG THE CIVIL POPULATION

Viewing the problem from any angle, it appears that we cannot look for any change in the tuberculosis morbidity and mortality among the civil population because of the war. The hardships to be sustained by the dependents whose breadwinners will be drafted into the army will undoubtedly be significant from an economic standpoint; the increased cost of living will increase these hardships. But as far as can be ascertained among the European belligerent nations at present, it appears that the morbidity and mortality from tuberculosis has not increased during the past two years. As already mentioned, no previous war has increased the tuberculosis morbidity and mortality. As has been shown by Reiche,[27] in Hamburg, where excellent vital statistics have been kept, no increase in the tuberculosis mortality occurred during and after the Franco-Prussian War of 1870-1871. The same was true in the United States after the Civil War.

It appears, however, that in France there have lately been issued urgent appeals for funds to help the *invalides blessés par la tuberculose* — wounded by tuberculosis — as L. Landouzy[28] has called them. From a careful inquiry into the facts as presented in the appeal, it seems that while there are many thousands of soldiers who had to be mustered out because of tuberculous disease, the proportion is not higher than could be expected among men engaged in industrial pursuits. For instance, it has been shown that there are about 100,000 tuberculous ex-soldiers in France at present. This number is undoubtedly appalling. But when we consider that there have been about 6,000,000 or perhaps more soldiers engaged in this war fighting for France, the percentage is no higher than could be expected under any circumstances among people living under modern conditions. The urgent call for the control of tuberculosis was not heeded in France before the war with the same energy as it was in other countries, as England, Germany and the United States. Now that the invalided soldiers who valiantly fought for their country need relief, the French begin to feel that something must be done.

Indeed, figures published by Rénon[29] show clearly that tuberculosis has not increased among the civil population of France since the war began. The tuber-

23. Prinzing, Friedrich: Epidemics Resulting from Wars, Oxford, 1916.
24. Hurst, A. F.: Medical Diseases of the War, London, 1917.
25. Mönckenberg: Tuberkulosebefunde bei Obduktionen von Kombattanten, Ztschr. f. Tuberk., 1915, **24**, 33.
26. Schroeder, S.: Betrachtungen über die Tuberkulose zur Zeit des Krieges, Ztschr. f. Tuberk., 1915, **24**, 337.
27. Reiche: Ztschr. f. Tuberk., 1915, **24**, 372.
28. Landouzy: Le guerre et la tuberculose, Paris méd., 1916, **6**, 59.
29. Rénon, Louis: La defense sociale contre la tuberculose pendant la guerre, Paris méd., 1916, **6**, 64.

culosis mortality rates, despite the lack and excessive cost of food, have apparently not changed. "The war has had no effect at all, judging by vital statistics, hospital and private practice," as Rénon puts it. There is no reason to believe that conditions in this country will be different.

RECAPITULATION

The medical history of wars shows that the incidence of tuberculosis among soldiers and noncombatants has not been more excessive than could be expected normally among persons of military age. The morbidity and mortality from this disease have not increased during and after former wars. It is not to be expected, therefore, that during the present war the number incapacitated by tuberculosis among the nations at war should increase. In fact, available evidence, published by those who, because of their exceptional opportunities for observation of soldiers in the field, are competent to express an opinion on the subject, shows clearly that tuberculosis has not changed the rates of morbidity and mortality in England, France, Germany, Italy, Russia and other countries. The large number of tuberculous men among the veterans is only absolute; when considered in relation to the large number of the men engaged in the battlefield, the proportion is quite small.

In evaluating the fitness for military service, examiners should not reject persons because of history of past attacks of tuberculosis, or of having been patients in sanatoriums. A substantial proportion of sanatorium patients have never been sick with phthisis; a larger proportion have been affected with the abortive form of the disease and have completely recovered; and many who had suffered from the chronic forms of phthisis recover to such an extent as to be considered completely cured and fit for any task, including military service. Only symptoms of active disease, especially fever, tachycardia, dyspnea, emaciation, excessive cough and expectoration should be considered causes for rejection. The experiences of military physicians and others in the field in Europe have demonstrated that many soldiers who had suffered from tuberculosis before the onset of the war have made brave and good warriers, and have returned from the field healthier than when they enlisted for service. Nor has it been observed that active military duty is more liable to reactivate latent or dormant tuberculous processes; many affected with quiescent disease have done well.

The problem of tuberculous infection of soldiers need not be considered seriously. Despite the large number of tuberculous soldiers in the European armies, those entitled to an opinion have not seen cases of tuberculous infection acquired while serving during the present war. The reason is known at present: Most adults have been infected with tubercle bacilli during childhood, and have thus been immunized against exogenic reinfection with the same virus, and they are just as safe in the army as in civil life. In the vast majority of tuberculous cases discovered among the soldiers, it was ascertained that they had been affected with the disease before enlistment. Reactivation of old, dormant lesions occurs in civil life; it is doubtful whether it is more likely to occur in military life.

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THE CONTINUOUS BATH IN MENTAL DISEASE *

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The value of the prolonged neutral bath for producing quiet and sleep in certain nervous conditions, hysteria, mild excitements and anxiety states has long been recognized. Brierre de Boismont in France, and Scholz in Germany employed a modified continuous bath for excited patients many years before Kraepelin's observations and emphatic approval brought this method into more or less general use. More than seventy years ago Dr. Isaac Ray visited the important hospitals for the insane in Great Britain, France and Germany, and the following reference is gleaned from his tour notes. "Nothing seems to be so much relied on, especially in France, for subduing inordinate excitement, as the warm bath protracted for an hour or two." [1]

About twenty years ago, Kraepelin noticed that confused, restless and debilitated patients were greatly benefited by several hours spent in a warm bath. He gradually increased the treatment time to an entire day, and finally the unsatisfactory condition of his excited patients during the untreated or night period led him to attempt the experiment of a really continuous or *Dauer-bad*. Patients are now frequently kept in the baths for weeks, or even months, without any untoward results.[2]

THE CONTINUOUS BATH ROOM

The chief requisites for the treatment room are ample space, sufficient light and air, and mechanical facilities for the shutting off of sound communication with the outside world. There are in the Pennsylvania Hospital for the Insane two large sunny bath rooms, each containing three extra size tubs, and equipped with heavy plate glass double windows and doors, and ventilating devices. With the doors and windows closed, the rooms are practically sound proof. The temperature of the water is controlled from a temperature table, and the nurse, who is in constant attendance, takes half hour readings from an ordinary bath thermometer. The patients are clothed in a loose fitting, one piece garment, permitting great freedom of movement. There is an observation window facing the the hall through which every part of the bath room can be readily be seen. An electric button enables the attending nurse to signal for assistance in case of emergency.

The continuous bath room of the future will probably be developed along somewhat more esthetic lines. Since certain patients are under treatment for many hours, days and sometimes weeks, the room must necessarily be used not only as a bath, but also as a living apartment. The introduction of books, magazines, a few games and puzzles, and possibly a picture or two on the walls, will perhaps help to modify its rather monotonous appearance. There is also a distinct need for more individual bath rooms, in which certain types of patients, who are either annoying to others or themselves easily disturbed, may be placed under treat-

* Based on a contribution by the author to Dr. J. Hendrie Lloyd's article, "The Modern Treatment of Insanity," in Musser and Kelly: Practical Treatment, Volume IV.

1. Ray, Isaac: Observations on the Principal Hospitals for the Insane in Great Britain, France and Germany, Am. Jour. Insan., April, 1846.

2. When the time of the bath is protracted beyond the usual period, but does not exceed two hours, it is generally spoken of as "prolonged." When it occupies more than two hours it is referred to as "continuous."

ment. Partial segregation may be accomplished by the use of screens.

PHYSIOLOGIC EFFECT OF THE CONTINUOUS BATH

The effect of the *Dauer-bad* on the physiologic processes of the human economy is but little understood. Our own observations of the body temperature, pulse rate and respirations, recorded over a period of six months, showed practically no variations from the normal. The blood pressure is not essentially influenced. There is some experimental and considerable empiric evidence to prove that the continuous bath acts as a mild hypnotic agent, and that unlike drugs, it induces physiologic fatigue without the sacrifice of mental capacity. Busch and Plant[3] tested a series of normal persons in a prolonged bath, lasting two hours and given at a temperature of 35 C. (95 F.). There was no decline of physical endurance or of mental functioning, although a general feeling of tiredness was produced, extending over a period of several hours. Adler[4] demonstrated an average reduction of 750,000 red cells in the blood count. As all his patients presented a polyerythrocythemia associated with cyanosis, which was markedly improved by the ten hour bath, a redistribution of the surface circulation is suggested. It is extremely likely that the excretory function of the skin and kidneys is stimulated. This is an exceedingly important consideration, as a large percentage of patients, for at least a week following admission, present problems principally of checked secretional activity.

EFFECT OF THE CONTINUOUS BATH ON STATES OF MENTAL EXCITEMENT[5]

The estimate of just how much any isolated therapeutic measure contributes toward recovery from such a complex pathologic condition as is presented by insanity must of course be purely speculative. It would be unfair and incorrect to say that the continuous baths cure or even definitely shorten the course of any psychosis. That they constitute an extremely valuable and efficient method of controlling excited states cannot be denied. Probably the best results were obtained in conditions of confusion and restlessness, frequently associated with considerable physical debilitation. The infective-exhaustive group furnishes a good illustration of this type. After five or six hours in the tubs the majority of such patients became quiet and drowsy, and often fell into a sound slumber shortly after being placed in bed. Some clinicians advocate sleeping in the tubs; we feel that when a somnolent state is reached, transference of the patient to bed is desirable.

Abnormal mental exhaustion is closely simulated by extreme bodily fatigue, and while in the latter, Nature readily supplies the sovereign remedy, namely, sleep, in the former it must be produced by some artificial method, as the pathologic condition of the nerve system precludes the possibility of a normal response to physical weariness. Hypnotic drugs given in doses sufficiently large to be effectual are chiefly objectionable because they place an additional burden on the already overtaxed excretory system. Moist packs are unsatisfactory principally on account of the resistance they offer to the motor restlessness, which is such a frequent accompaniment of the apprehensive, confusional state. On the other hand, the continuous bath relies for its therapeutic value solely on water, a nonresistant medium which favors rather than retards excretion, and whose action approximates the physiologic steps between the production and onset of normal fatigue and sleep, in that it is gradual and sedative rather than rapid and hypnotic.

The manic phase of manic-depressive insanity responds to the continuous bath in something more than half of all cases. With some observers the experience has been that the excitement is allayed only during the treatment time, and then continues as before. In frank mania the brain is in some sense comparable to a highly sensitized receptive plate, which is receiving an endless flow of stimuli from the environment, through the route of the special senses, and is attempting to react to them in terms of psychomotor and vocomotor activity. Just what percentage of the sensory stimulations are referable to the tactile sense, and what proportion of the latter finally finds expression in ideas and spoken words and movement, is of course a matter of pure conjecture. It seems reasonable, however, to say that the continuous bath, at least, reduces the sum total of accidental and other surface contacts to a fairly low level. It dispenses with the irritation arising from constricting clothing and surrounds the body of the patient with water, a medium whose physical characteristics, especially the temperature, can be artificially maintained at a constant and uniform degree. Thus a nonirritating sheath is interposed between a large area of the skin surface and touch-contact with the environment. Wholly apart from the possibility of a directly favorable therapeutic result is the important consideration that in the baths the destructive tendencies of maniacal patients are checked, and the distressing untidiness becomes a much less serious factor in the management of the case.

In dementia praecox the baths were employed mainly for the relief of the episodic excitements of the catatonic form, in which they were moderately successful, and to combat various vasomotor disturbances in which their effect was highly beneficial. Not only was cyanosis improved, as Adler demonstrated, but the tendency to coldness and sweating of the extremities, oiliness and coarsening of the skin texture, and in one case, marked dermographia, were all much lessened. In paresis the baths are valuable not only in controlling the disturbed periods, but also in maintaining an active, healthy condition of the skin, which especially in the late stages of the disease is prone to trophic degenerations. The most unfavorable cases for tub treatment are the apprehensive, agitated states which occur in the involutional and presenile depressions and the senile dementias. Gross[6] found that apprehension dictated by delusions was made worse. Although the *Dauer-bad* is probably the best and most rational method of controlling excited mental states, yet it should never be regarded as a specific remedy. It may possibly have some effect in shortening the course of restless, confusional states of infective-exhaustive origin, but here again too many factors are operative, and an accurate estimate of each remedial measure is clearly impossible.

3. Busch and Plant: Allgemeine Therapie der Psychosen von A. Gross, in Aschaffenburg's Handbuch der Psychiatrie, Part 4, p. 144.

4. Adler, H. M., and Ragle, E. H.: Note on the Influence of Hydrotherapy on the Red Blood Cell Count in the Insane, Contributions from the Psyhcopathic Hospital, 1913, p. 67.

5. Based on observations covering a period of three years, during which time about 300 patients, exhibiting various kinds and degrees of mental excitement, were treated in the continuous bath.

6. Gross, A.: Allgemeine Therapie der Psychosen, Aschaffenburg's Handbuch der Psychiatrie, Part 4, p. 148.

ADVANTAGES OF THE CONTINUOUS BATHS

The selection of a method for the control of the excitement factor in both acute and chronic mental disease is practically limited to the employment of hypnotic drugs or the use of various hydrotherapeutic agencies. When we consider that the disturbed periods are a matter not merely of hours or days, but of weeks or more often months, the principal objection to drug restraint at once becomes manifest. In every field of medicine it is now a clearly established principle that resort to hypnotic drugs is purely a temporary measure, and that unless the condition under treatment is both hopeless and chronic, their continued use must be regarded as both dangerous and unscientific.

Of the remaining hydrotherapeutic possibilities, exclusive of the continuous tubs, the hot and cold moist packs are perhaps most representative. They have two rather serious objections, in that the temperature cannot be definitely controlled, and even more important, they include the element of mechanical restraint. In the majority of cases, continuous tub treatment is easily the method of choice. It requires less preparation and may be continued for longer periods of time. The temperature of the water may be readily varied and can always be ascertained to the exact degree. The body is effectively cleansed, an important consideration in untidy patients. A wide range of motor activity is permitted under the best conditions, which probably contributes materially to the production of normal fatigue and sleep. No restraint is necessary, and to use it is to defeat the purpose for which the bath is given. If mechanical means are required to keep a patient in the tubs resort would better be had to some other form of treatment. Furthermore, as no device, however carefully tested, can be regarded as perfect in its operation, there is always the danger of an inflow of dangerously hot water to be considered. An unfortunate instance in which the patient was scalded to death, probably because she was mechanically prevented from leaving the tubs, has recently been reported.[7]

UNTOWARD EFFECTS AND CONTRAINDICATIONS TO CONTINUOUS TUB TREATMENT

The untoward effects of bath treatment in properly selected cases were practically nil. At times there were fleeting vasomotor disturbances usually manifesting themselves as deep flushings of the face and chest. They disappeared after a short time and apparently had no especial significance. Occasionally we have noted ephemeral rashes and skin exfoliation. Anointing the body with lanolin has been advised. Gross[8] observed an epidemic of furunculosis among the patients using the same bath room, which abated only after the use of the room was discontinued. We have had several cases of discharging ear, usually a canal furunculosis, following the baths, and are now trying the plan of plugging the ears with cotton saturated with liquid petrolatum. Probably thorough drying of the ears is the most important prophylactic measure. Kraepelin regards any existing ear disease as a contraindication. Most clinicians interdict the baths during the menstrual period. After the menses have been well established, however, there seems to be no good reason why a greatly excited patient should not be given moderate tub treatment. Advanced cardiac and pulmonary disease constitute prohibiting conditions, but even markedly arteriosclerotic patients have not shown any ill effects.

A PLEA FOR THE WIDER USE OF BATH TREATMENT

Perhaps the fact that the continuous baths were first employed in mental disease and have found their most general application in this field has led to their neglect in the treatment of certain other conditions, which although not generally classed as insanity, nevertheless present similar problems. Patients with delirium tremens, for instance, are generally referred to the general hospital, where the method in vogue is usually mechanical restraint plus hypnotic and stimulating drug therapy. Alcoholic delirium is essentially a toxic psychosis in which the psychomotor excitement, although more intense, does not differ materially in its characteristics from that of the deliriums of certain fevers, of high grade infective-exhaustive states and of so-called "delirious" mania. There is, in all, the same imperative need of rapid and free elimination to reduce the toxicity and sleep to prevent exhaustion. Hypnotic drugs not only are frequently ineffective, but if they are to succeed at all, must be given in large and dangerous doses. At the Boston Psychopathic Hospital,[9] ten unselected patients with delirium tremens were treated in the continuous tubs with the addition of moist packs and eliminatory measures, without a single fatality. Fifty cases selected at random in series of ten from five general hospitals, in which the method used consisted of mechanical restraint, hypnotic and stimulating drugs, showed a mortality of 26 per cent. In this connection it may be remarked that in several instances we have found the prolonged bath a valuable adjunct to the Lambert-Towne treatment in helping to combat the marked restlessness, which commonly makes its appearance on the second day.

On the family physician, who generally first sees the acute mental case, devolves the exceedingly difficult problem of caring for the patient during the longer or shorter interval which precedes admission to the hospital. Certain of the objective manifestations of acute insanity, insomnia, motor restlessness and vocal activity appeal to the laity in the light of fundamental disorders of the mind, and there is a naive but insistent clamor for an immediate exhibition of the magic hypodermic, which will soothe the troubled spirit and produce sleep. The physician cannot well avoid the moderate employment of hypnotic drugs, but he can limit their use by resorting to other measures. A prolonged and even a continuous bath can be safely given in an ordinary bath tub, provided an efficient nurse is in attendance. Mental disease in itself is serious enough without the addition of a complicating drug toxemia.

A few cases of "postoperative mania" suggest that continuous tub treatment is frequently a practical method of caring for the surgical patient who develops acute mental symptoms. If there is actual danger of mechanical violence to the wound, the principle of nonrestraint may have to be sacrificed as the lesser of two evils. The active, untidy surgical and mental patient is under infinitely better conditions in the bath,

7. White, William: Dangers of the Continuous Bath, Am. Jour. Insan., January, 1916, p. 481.
8. Gross, A.: Allgemeine Therapie der Psychosen, Aschaffenburg's Handbuch der Psychiatrie, Part 4, p. 146.
9. Gregg, Donald: The Treatment of Deliria in General Hospitals and in Hospitals for the Insane, Contributions from the Psychopathic Hospital, 1913, p. 65.

in which comparative asepsis can be maintained without great difficulty, than when confined to a room in which even the most diligent care cannot prevent a septic environment. The bath has been repeatedly recommended for the decubitus which is often a serious feature of the late stages of paresis. I have seen an obstinate ulcer of the foot on which the usual medication, and even repeated scarification, made no impression yield readily to a continuous bath of physiologic sodium chlorid solution.

Perhaps the principal disadvantage of the baths is their cost, both as to installation and operation. Furthermore, the intensive nursing required is a matter of considerable expense. Careful and intelligent care, before, during and after the bath, is the only certain method of avoiding accident and of realizing the fullest possible value of the treatment. Probably if the amount saved under the conditions of the bath, in caring for the untidy and destructive patient, could be computed, the importance of these factors would be materially lessened.

CONCLUSION

It seems conservative to assert that the continuous bath is the most satisfactory method we have of treating the fairly large group of excited states which are encountered in many of the psychoses.

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DEVELOPMENTS IN THE PARAFFIN TREATMENT OF BURNS AND OTHER OPEN WOUNDS*

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Further experience in the laboratory and reports of clinical applications are showing pretty clearly that some of the current endeavors in the paraffin treatment of burns are proceeding in directions that are not likely to lead to improvements; they have also indicated the directions in which further experimentation is desirable, and have already led to certain improvements that appear of sufficient practical importance. All of these considerations may justify the publication of this note.

PHYSICAL CRITERIA

The important qualities of paraffin for burns, as mentioned in my previous paper,[1] and in that of Leech[2] are the properties of pliability, ductility, low degree melting point, hardness and adhesion. I should be inclined to rate the importance of these properties in the order given; but all the properties must be within certain limits.

I have devised methods for testing these properties. These were described in the paper of Leech. They do not entirely eliminate the personal factor; but they are sufficiently quantitative for practical purposes, and are so simple that they can be easily applied. The factor of adhesion has not yet been measured quantitatively, but is probably of slight practical importance.

The Addition of Other Waxes, Etc., to Paraffin.—In my previous paper, I expressed the opinion that simple paraffin would accomplish everything that could be accomplished by any of the mixtures, and that the most promising direction for improvement would be in the choice of the paraffin itself, rather than in additions. Further experience has established the correctness of these predictions. There has now been considerable experience with simple paraffin, and with various mixtures.[3] This has shown that they are clinically indistinguishable. A review of my own data on the effect of other waxes added to paraffin shows that the essential properties were not improved by such additions, except that asphalt does make the waxes a little more adherent.[4]

The addition of rosin, which is advised in so many of the published formulas (evidently because of the misleading statements concerning the composition of "Ambrine"), is distinctly detrimental. The rosin appears insoluble in paraffin, and therefore never makes a good mixture. The addition of oils lowers the melting point, but practically destroys the ductility and pliability.

The effects of the various additions are deduced from my first pages as follows:

Asphalts sometimes improve pliability and ductility and lower melting point.

Naval pitch improves pliability, not ductility, and raises the melting point.

Rosin raises the melting point and diminishes ductility, but has no effect on pliability.

Beeswax, spermaceti, stearic acid, linseed oil, Venice turpentine, olive oil, castor oil, theobroma and Japan wax raise the melting point, and diminishes ductility and pliability.

Petrolatum diminishes pliability and ductility, but makes no change in the melting point.

Liquid petrolatum[5] lowers the melting point and diminishes ductility and pliability.

PHYSICAL IMPROVEMENTS IN PARAFFIN

The paper of Dr. Leech shows that several refineries produce paraffins that surpass greatly for these properties the ordinary pharmacopeial paraffin. A glance at his paper shows those brands that are most useful. I am of the opinion that paraffins intended for the treatment of burns, etc., should comply with certain specifications as follows:

Paraffin for Films.—Paraffin for use on burns, etc., should be solid, but more ductile and pliable than the official paraffin, and have a rather lower melting point. When intended especially for this purpose, it should be liquid at or below 50 C.; a thin film, when prepared and tested by the methods described in the paper of Dr. Leech, should be pliable at 28 C., and ductile at 31 C.

I would recommend that in future only paraffins complying with these specifications be used in the treatment of burns. A number of these are enumerated in Leech's paper, and apparently there is no difficulty in refineries producing other brands should they be desired. I believe that these should have the preference over the more complicated and rather inferior mixtures, whether these are proprietary preparations or published formulas, unless a definite advantage can be shown for the latter. As I have previously said,

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* From the Pharmacological Laboratory of the Western Reserve University, School of Medicine.

1. Sollmann, Torald: Suggested Formulas for Paraffin Films, THE JOURNAL A. M. A., April 7, 1917, p. 1037.

2. Leech, P. N.: "Ambrine" and Paraffin Films, THE JOURNAL A. M. A., May 19, 1917, p. 1497.

3. The clinical applications were made by Dr. J. R. Beiter of Canton, Ohio, who expects to report his observations in more detail.

4. Dr. Leech and I have both noticed that the addition of even traces of asphalt to paraffin greatly lowers its surface tension, so that when the melted mixture is poured on warm water it forms a thin, even film, whereas simple paraffin tends to collect into rather thick drops.

5. The brand of liquid petrolatum used throughout these experiments was "Stanolind Liquid Paraffin."

all the experience I have gathered goes against any such advantages, and I consider experimentation along that line as entirely unpromising. For cosmetic purposes, it may be advantageous to give a flesh tint to the paraffin, by the addition of a trace of scarlet red or sudan.

ADDITION OF ANTISEPTICS, ETC.

A number of the published formulas contain added antiseptics, such as resorcin; betanaphthol; epithelial stimulants like sudan red; and aromatic oils like eucalyptol. The last is added confessedly as a mere perfume, and doubtless performs that purpose to some degree. The others — the antiseptics and stimulants — must be absolutely useless. Solid paraffin is used familiarly as a hermetic seal for chemicals. It has been found perfectly successful for that purpose, and it does not lose its efficiency when the substance is incorporated with it. In other words, the film of solid paraffin encloses the added antiseptic, etc., tightly and nearly as hermetically as if it were inclosed in a rubber bag. Only an infinitesimally thin layer at the very surface can diffuse into the wound.

I have shown this by adding resorcin or phenol to melted paraffin, and pouring this in films of about 2 to 3 mm. thickness. The films were then immersed in water.

With resorcin, 0.2 per cent., in paraffin:[6] (0.2 per cent. in paraffin, 2 parts, liquid petrolatum, 1 part), after five days the water contained no trace of resorcin.

With 1 per cent. phenol (carbolic acid) in paraffin: In two and a half hours there was a very faint trace, which did not increase in five days. The wax when melted with water showed an abundance of phenol.

LIQUID-SOLID PARAFFIN SEQUENCE

Perhaps the greatest difficulty in the use of the paraffin treatment is in the application of the first coat of the melted paraffin. This is apt to be painful if the paraffin is at all overheated — and this is often difficult to avoid in practice. The use of a brush with melted paraffin is apt to be somewhat painful, and spraying apparatus for melted paraffin are not very satisfactory.

We have found that these disadvantages can be avoided by applying for the first coat liquid petrolatum in place of the melted paraffin.

Otherwise, the application is quite as usual: The cotton film is laid on the liquid petrolatum; then the melted paraffin is painted over the cotton, etc.[7]

Clinically, this method is highly satisfactory. The liquid petrolatum is entirely painless, and protects the wound against excessive heat from the melted paraffin. The liquid petrolatum could be easily applied with an ordinary oil atomizer. However, this is not at all necessary, a thin layer being easily applied with a cotton swab. Dr. Beiter expresses himself as especially enthusiastic over this modification.

Use of Antiseptics, etc., with Liquid Petrolatum.—The use of the liquid petrolatum for the first coat has the further advantage that it promises the effective application of anesthetics, antiseptics or stimulants to the wound. These would simply be dissolved in the liquid petrolatum (or if insoluble in this, in olive oil). I have not yet given this method a clinical trial, but have worked out a series of solutions which are very promising. These will be enumerated in the next section, so that they may be tried more extensively, and in this way any improvements in the treatment of burns may be hastened. It is scarcely necessary to call attention to the fact that under the present circumstances prompt improvements in these directions would be especially desirable.

6. In these experiments, the "Parowax" brand of paraffin was used.

7. It would probably be a considerable convenience if manufacturers of absorbent cotton would market for this purpose rolls consisting of single layers, of the proper thickness, and about 6 inches wide.

COMPARISON WITH OTHER METHODS OF TREATMENT

Almost all surgeons who have had occasion to employ the paraffin treatment express themselves with various degrees of enthusiasm as to its advantages over the older methods of treatment. However, no exact comparisons have been published, so that it is difficult to say how much, if any, of the present enthusiasm is due to novelty. It would be desirable that actual comparisons be made between these methods, by those who have the opportunity and sufficient interest. Such experiments are already being started by several workers; but their value is likely to be proportional to the number of workers engaged; again, especially because early results are particularly valuable.

I subjoin a list of comparisons that seem to me especially desirable:

I would suggest either plain paraffin, or the liquid-solid paraffin sequence as a standard of comparison. This would be applied, together with the methods to be compared, to adjacent or centralateral areas. If applied to adjacent areas, the wound should be divided by imaginary lines into zones about 2 inches wide (oriented by marking the skin outside of the wound). It is important that the methods applied to the same patient should not be so numerous as to interfere with the practicality of the application. If it is at all possible, photographs should be taken.

LINE 1.—*Local Anesthetics.*—This appears one of the most promising improvements. I would suggest that the following be tried out, generally dissolved in liquid petrolatum, and applied by the liquid-solid sequence:

Chloretone, from 1:200 to 1:1,000 (soluble in about 200 parts of liquid petrolatum).
Orthoform-New, a 1 per cent. suspension made by dissolving the orthoform in a little alcohol and shaking with olive oil. The orthoform is but little soluble in either liquid petrolatum or olive oil.
Camphor, from 1:100 to 1:20 (it is completely soluble in 20 parts of liquid petrolatum; incompletely in 10 parts).
Menthol, 1:10 (completely soluble).

LINE 2.—*Antiseptics and Epithelial Agents.*—These may have a field, especially in the later stages, or with slowly healing ulcers. I would suggest the following:

Eucalyptus oil, 2 per cent. (completely soluble).
Resorcin, 1 per cent. in olive oil (nearly insoluble in liquid petrolatum).
Betanaphthol, 1:400, dissolved in a little alcohol and shaken with liquid petrolatum (it is nearly insoluble in liquid petrolatum).
Gentian violet, 1:5,000 suspension (dissolved in a little alcohol and shaken with the liquid petrolatum; it is nearly insoluble in liquid petrolatum).
Scarlet red, 0.5 per cent. suspension in liquid petrolatum (only slightly soluble).

LINE 3.—*Comparison of Paraffin with Astringents and Washes.*—This and the following represent comparisons of the new with the older methods, to arrive at a definite judgment of their relative advantages:

Picric acid, saturated solution.
Solution of aluminum acetate, N. F., diluted ten times.
Boric acid, 2 per cent.
Sodium bicarbonate, 2 per cent.
Lime water.
Magnesium sulphate, 5 per cent.
Potassium sulphate, 1 per cent.
Tincture of myrrh, diluted with 8 parts of water.

LINE 4.—*Comparison of Wax Treatment with Other Fatty Methods.*—

Petrolatum, applied on gauze.
Fisher-gauze and cotton.
Liquid petrolatum gauze and cotton.
Carron oil on cotton: Cotton film, paraffin and cotton.
As the preceding, sesame oil being used in place of linseed oil, in making the lime liniment.

LINE 5.—*Comparison of the Waxes.*—While present experience does not incline me to attach much importance to modifications of the paraffin by the addition of other waxes, any one interested in this phase of the subject may find the following most promising:

Paraffin.[8]
Paraffin with Texas asphalt, 1 per cent.
Paraffin with spermaceti, 10 per cent., or paraffin-stearic acid, ten per cent.
Paraffin with theobroma, 10 per cent.
Paraffin with liquid petrolatum, 10 per cent. (paraffin 90, liquid petrolatum[5] 10).
Paraffin with liquid petrolatum, 33 per cent. (paraffin 67, liquid petrolatum[5] 33).
Formula published by Leech:

Paraffin (M. P. by U. S. P. method 47.2 C.).....97.5 gm.
Asphalt varnish .....from 3 to 5 drops
Olive oil .....1.5 c.c.

CONCLUSIONS

Several refineries prepare paraffins of low melting point that are superior in their physical properties to any of the mixtures on the market.

The addition to paraffin of waxes, resins, etc., as also of antiseptics, etc., is superfluous.

Further improvements are not to be sought along these lines.

The difficulties of the paraffin method are greatly reduced by employing liquid petrolatum instead of melted paraffin for the first coat. Further improvements may be attempted by the addition of antiseptics, stimulants, and especially anesthetics to the liquid petrolatum of the first coat.

Systematic comparison of these improved methods with the older methods is desirable.

PARAFFIN IN THE TREATMENT OF WOUNDS AND BURNS

OBSERVATIONS ON VARIOUS PREPARATIONS

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The successes claimed for "Ambrine" in the treatment of burns promised a large field in industrial accidents and therefore prompted extensive trials. Owing to my inability to obtain "Ambrine," various paraffin compounds were used — formulas containing eucalyptus, resorcin, betanaphthol, resin, cera flava, olive oil, and scarlet red, in ordinary paraffin. My series of cases represents over 4,000 wax dressings on every conceivable burn, and many lacerated wounds.

Prior to the employment of the wax treatment of burns we had employed the usual methods — various ointments, various aqueous solutions, the bath treatment, exposure to the air, and picric acid.

Our technic in the use of waxes was as follows: All burns were carefully cleaned at our emergency hospital by well trained men, any blebs were opened, and all the skin that could be taken off with ease was removed. The burned area was dried either by exposure to air or by gently wiping the surface with cotton pledgets dipped in ether. Over the involved area a thin film of the wax was painted. (The wax is kept constantly in a water bath, so that it is at all times ready for instant use.) Over the wax film a thin layer of cotton or a split piece of sheet wadding was placed and a second film of wax was painted, sealing it to the skin at the edges of the cotton dressing. Over this a heavier cotton dressing was applied and then the bandage. We found that if the injured surface was wet or damp the first paraffin film would not adhere.

We began with the various paraffin mixtures enumerated above; but we failed to see any differences, except some disagreeable features with the resin mixtures. For example, the undissolved resin sank to the bottom of our warming receptacle and injured the brush with which the wax was applied, making the application to the injured surface painful. We therefore discarded all drugs in our wax and used the commercial "Parowax," applied as above. This was sometimes tinted pink with scarlet red simply for cosmetic reasons.

The question of melting point was at first an important one, because to apply a hot solution to a large area of denuded nerve endings usually brought a prompt and energetic reaction, and to wait until the wax cooled to the extent that a film formed over it meant that it would cool below the liquid state before it could be applied. However, the water bath or household double boiler holds the melting point very well.

A suggestion made to me by Dr. Torald Sollmann has eliminated the importance of melting point temperature entirely, and greatly simplified the dressing as well as adding to the comfort of the patient at the time of the dressing, and in no way changing the results. His suggestion was that the wound be painted with liquid petrolatum, further treatment proceeding as with the wax. In this method a layer of liquid petrolatum and then the cotton or sheet wadding are placed over the injured area before the warm paraffin is painted on the dressing. This method has been followed in all of our recent cases and is greatly appreciated by the patients, who are the court of last appeal. It is essential that the dressing adhere at least to the skin about the edges of the dressing; otherwise the secretions are pouring out over the intact skin and excorciating it, soiling the dressings and making a disagreeable odor.

ADVANTAGES OF THE WAX TREATMENT OF BURNS

1. It is an inexpensive dressing; a pound of wax and a pint of liquid petrolatum, together costing about 65 cents, will dress many burns. It replaces the gauze which at this time is quite expensive.

2. It is a comfortable dressing because it is firm and smooth, and the granulating surface does not grow through it as with the gauze. The paraffin is hard enough to make the dressing somewhat rigid and acts as a splint.

3. It is a cleaner dressing than any I have used because the wound discharge is not permitted to soak through the impermeable wax covering, soiling all the linen that comes in contact with the patient. As the secretions are sealed up, there is no noticeable odor about the patient, which was a disagreeable factor with former methods of treating these injuries.

8. For these experiments "Parowax" could be used. This brand of paraffin, however, melts a little higher than 50 C. It would seem, therefore, that the more suitable grades of paraffin, such as are described in the recent report of the Association's chemical laboratory should be employed in the preparation of these mixtures.

4. Superficial burns heal more readily under the wax treatment than with any other method with which I am familiar. This is due to but one fact: Under former methods of application of solutions and oily substances, no matter what their kind, the granulations penetrated the meshes of the dressing in contact with the wound, and on removal at redressings, these granulations were destroyed, regardless of the care with which the dressing was done or the method employed in the removal of the dressings in contact with the wound. The paraffin film method does not adhere to the injured area, and therefore does not injure the granulation tissue and the epithelium that is attempting to cover in the denuded area. Early in the course of the burn, if it is an extensive one, the entire sealed surface of the dressing will be filled with fluid so that it is merely lifted off. Later, as the wound heals, the secretion diminishes, and the granulations begin to grow, the epithelial islands appear as white points at the site of hair follicles, and from these islands the epithelization takes place rapidly because the epithelium is not injured in the dressings and redressings.

5. Deep burns do not repair any more rapidly under this method than any other method. There is no difference in the scars of burns treated by the wax method and any other method. If the true skin is destroyed, the end-result is scar tissue or an ulcer. If scar tissue replaces the destroyed tissue, it performs as does scar tissue that develops under any and all forms of treatment, and as scar tissue has performed since the beginning of time. We have tried treating two sides of a body burned to about the same degree, with the wax method, the solution method, and various other methods, and have been unable to detect any difference in the end-result, as to scar.

6. The wax method is much more comfortable at dressing time than any other method with which I am familiar, for the purely mechanical reason that the granulations do not grow through it, and it is lifted off painlessly. To those who have to do with burned men this means a great deal. The pain endured by the patient as the dressings were removed under previous methods of treating burns left an unpleasant impression to carry with one on the day's rounds.

7. We think there are fewer furuncles on our burned patients since the wax has been used, but nephritis is quite as common.

DISADVANTAGES

1. Some patients refused to be treated with the wax when we were applying the warm wax directly to the injured area, because of the pain. These complaints are no longer heard since the liquid petrolatum has been used for the first coat.

2. Owing to the fact that this method has received so much favorable comment in the lay press, as to negligible scars, perfect comfort on application and other extravagant statements, the man who uses it for the first time will probably be disappointed.

3. This method is a time consumer; it requires more care and patience than do the dressings by other methods.

Winds.—Winds are annoying, uncomfortable and objectionable. Wind is likely to fill the air with dust. It interferes with the satisfactory regulation of the body heat. It robs the body of its heat by conduction, if damp, by evaporation if dry. A wind also requires on the part of the individual physical resistance which is exhausting to all but the robust. —Asst. Surg.-Gen. J. W. Trask, *Public Health Reports.*

XANTHOCHROMIA AND OTHER CHANGES IN THE CEREBROSPINAL FLUID

THEIR FREQUENCY IN CHRONIC SURGICAL SPINAL DISEASES, AND THEIR SIGNIFICANCE*

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This study is based on an analysis of the cerebrospinal fluids of ninety-two patients with chronic spinal diseases who were operated on by one of us (C. A. E.) at the New York Neurological Institute, at Mount Sinai Hospital, and at other institutions.

In all of the patients, the diagnosis, made from the clinical symptoms and signs, was substantiated or corrected by the operative findings and by the examination of material removed at the operation, and in a few cases, at necropsy.

Eighteen different conditions are included among the cases, and are arranged in Table 1 in the order of frequency.

TABLE 1.—CONDITIONS FOUND IN NINETY-TWO PATIENTS

Condition	Number of Cases
Extramedullary tumor	20
Multiple sclerosis	15
Intramedullary tumor	12
Pachymeningitis	9
Meningomyelitis	6
Varicose veins of cord	5
Syringomyelia	5
Tumor of conus and cauda equina	4
Neuritis of cauda equina	4
Old fracture of vertebrae	3
Myelitis	2
Transverse myelitis	1
Tuberculoma of cord	1
Aneurysm of spinal vessels	1
Foreign body (knife blade) in cord	1
Hematomyelia	1
Spondylitis	1
Tuberculous spondylitis	1

In all of the cases the spinal fluid was examined for increased protein or globulin and for its reaction to Fehling's solution, and a cell count and Wassermann test were made. The color of the fluid and the presence or absence of spontaneous clotting were carefully noted.

For the globulin estimation, the butyric acid ammonium sulphate method was used. The larger number of the examinations were made in the laboratory of the New York Neurological Institute by Dr. D. M. Kaplan; some were made in the laboratory of Mount Sinai Hospital by Dr. D. J. Kaliski.

THE FREQUENCY AND SIGNIFICANCE OF XANTHOCHROMIA

A few months ago, Sprunt and Walker[1] made a report on 100 cases of yellow spinal fluids, reports of which they had collected from the literature, and described five cases which they themselves had observed. According to these authors, the yellow spinal fluids may be divided into two main groups:

1. Those in which the color is due to dissolved hemoglobin or its derivatives, and which as a rule do not coagulate spontaneously and contain only a small amount of globulin. Such fluids usually are associated with brain tumors in contact with the meninges or ventricles.

These cases are not considered in this paper.

2. The larger and more important group comprises those cases showing the so-called Froin's syndrome, in which the

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1. Sprunt, T. P., and Walker, J. E.: The Significance of Xanthochromia of the Cerebrospinal Fluid, Bull. Johns Hopkins Hosp., 1917, 28, 80.

fluid is transparently clear, yellow, coagulates spontaneously, contains large amounts of globulin, may or may not show pleocytosis, and gives no positive tests for hemoglobin.

As we shall show, the complete Froin syndrome was observed in less than one third of our patients with yellow spinal fluids.

Among the cases of chronic disease which form the basis of this paper, there were fourteen with yellow fluid.[2] Ten were cases of extramedullary tumor, two were gummas, one occurred in a patient with varicose veins of the cord, and one in a patient with neuritis of the cauda equina. Including with the cases of extramedullary tumor the two syphilitics, twelve, or 85.7 per cent., of the patients with yellow fluid had spinal cord tumors — a proportion that is higher than in previously reported series of cases.

The color varied from a light canary yellow to a deep chrome. The most deeply colored fluids were observed in the patients with large tumors of the conus and cauda equina, and in a patient with a small growth of the conus and an apparently encapsulated collection of fluid in the lowermost part of the spinal canal.

We have never observed any yellowness in the fluid which was withdrawn by aspiration from the spinal cord itself.

We are not prepared to say that the yellowness is due alone to compression of the cord and stasis of the spinal fluid. If there were no other factors involved, yellow fluids should have been frequently observed in other cases of slowly progressive spinal compression, such as old fractures and intramedullary growths.

Of twenty-four patients with extramedullary spinal tumors, ten, or about 41 per cent., had yellow fluids. It is of interest to note that xanthochromia was not observed in any of the twelve cases of intramedullary growth or in any patient with an extradural neoplasm.[3]

As far as we have been able to determine, yellow fluids are not characteristic of any particular kind of intradural new growth, although, as we have already stated, they regularly occur in the so-called giant tumors of the conus and cauda equina.

In all but one of the patients with yellow fluid, the disease (tumor, ten cases; gumma, two cases; varicose veins of the cord, one case; neuritis of the caudal nerves, one case) was located in the lower dorsal or lumbar regions. In three of the patients the fluid obtained by puncture a few weeks after the removal of the growth was clear and of normal color.

In two patients with extramedullary tumors the spinal fluid gave a positive Wassermann reaction; in only one of these was there a definite syphilitic history. In these patients intensive specific treatment failed to check the rapid advance of the symptoms. At the operation, in each case, there were no evidences of syphilitic involvement of the cord or meninges, but in each a small tumor which proved to be a neurofibroma of the arachnoid was removed.

We have had occasion to observe two additional cases with yellow fluid, both of which had positive Wassermann reactions and typical symptoms of cord compression. These patients were not operated on, as they improved rapidly under active specific treatment, one of them becoming practically well within six weeks.

2. Two of these patients were not subjected to operation.

3. I. Strauss (Proc. Am. Neur. Assn., 1912) has, however, reported a case of spondylitis with bone abscess, in which the fluid was light yellow.

It is our opinion that in such conditions if extensive specific treatment should fail to give amelioration of the symptoms within a reasonable period, an exploratory laminectomy should be done. We consider this advisable not only because of the possibility of the existence of a nonsyphilitic tumor in a syphilitic patient, but also because a gumma which is not rapidly reduced by specific treatment should be removed by surgical means before the spinal cord has been too badly damaged by it.

SPONTANEOUS COAGULATION

Although spontaneous clotting of the cerebrospinal fluid is often observed in acute spinal diseases, and after recent trauma of the spine with intradural hemorrhage, it is rare in the slowly progressive spinal diseases which may have to be subjected to operative interference. Thus it was observed in only seven of our ninety-two cases, and every one of these patients had an extramedullary new growth. It was encountered in seven of our twenty-four cases of extramedullary tumor (29.2 per cent.). It occurred in every one of the patients with tumors of the conus and cauda equina (four patients, 100 per cent.) in whom fluid was obtained by lumbar puncture.[4]

We have observed spontaneous clotting only in yellow fluid, but in this connection, it is well to remember that the cases of our series were all examples of slowly progressive disease.

INCREASE IN GLOBULIN

The cerebrospinal fluid contained an excess of globulin in fifty-six of the ninety-two patients. All but one of the patients with spinal cord tumors had an excess of globulin in their fluid (thirty-six out of thirty-seven, or 99 per cent.). This increase was found in every one of the extramedullary growths. In fourteen of the twenty-four extramedullary tumors the excess of globulin was well marked, and in three the protein content was so high that spontaneous coagulation occurred.

Increase of globulin occurs as well with tumors within the substance of the spinal cord. Thus the globulin in the cerebrospinal fluid was increased in twelve of thirteen cases of intramedullary tumors, and in four of these patients there was a marked excess.

Excess of globulin is relatively rare in pachymeningitis (33 per cent. of our cases). In six cases of meningomyelitis, only three showed an excess of globulin. This was most surprising, because one would expect that in chronic inflammatory processes of the meninges, the globulin content of the fluid would be regularly increased.

A distinct excess of globulin was observed in three patients with signs of cord compression after an old vertebral fracture, in two patients with swollen cords from toxic myelitis, in cases of transverse myelitis, aneurysm of the posterior spinal vessels, Pott's disease, and in a case of knife blade in the spinal cord.

The globulin was not increased in multiple sclerosis (fifteen cases), in neuritis of the cauda equina (four cases), in a case of hematomyelia, in one of spondylitis, etc. (Table 2).

These results show that an increase of globulin (Phase 1 of Nonne) is found in many organic diseases of the spinal cord, but that a negative globulin test is not infrequently encountered in organic spinal disease.

4. In many of the large tumors of the conus and cauda which fill up the lower part of the spinal canal, no fluid can be obtained by lumbar puncture.

THE CELL COUNT

As can be seen by Table 2, the number of cells to each cubic millimeter of the spinal fluid varied within wide limits.

In general, extramedullary tumors, varicose veins of the cord, and neuritis of the cauda equina (!) gave the lowest cell counts, although the large tumors of the conus and cauda equina always gave a very high count. It is of interest that in intramedullary growths a pleocytosis was frequently observed. The same increase occurred in pachymeningitis, meningomyelitis, toxic myelitis, and in Pott's disease.

We have made no mention of the pressure of the cerebrospinal fluid because our records are not complete in this respect. We have found so many variations in the cerebrospinal fluid pressure in spinal diseases that we have not laid much stress on the pressure under which the fluid escaped from the needle. Nor have we found that the presence of substances which reduce Fehling's solution has any diagnostic value. In all but one of our cases the Fehling test was positive.

Excluding the giant tumors of the conus and cauda equina, the highest number of cells to the cubic millimeter in extramedullary growths was 8; in intramedullary growths, the highest number of cells was 26.

As none of our patients with multiple sclerosis had an excess of globulin in their fluid, this absence of globulin may be a useful diagnostic aid in the differentiation between multiple sclerosis and spinal cord tumor, in the occasional patient in whom the diagnosis is difficult.

The absence of an increase in globulin and the low cell count in the cases of neuritis of the cauda equina may be of value in distingishing these cases from tumors in that location.

In the cases of pachymeningitis and meningomyelitis, the findings were less constant, a protein excess and higher cell count being more often seen in the latter; both conditions gave, as a rule, a higher cell count than extramedullary cord tumors.

TABLE 2.—FINDINGS IN NINETY-TWO CASES

Condition	No. Cases	Wassermann Reaction, Cerebrospinal Fluid	Globulin Excess	Globulin Negative	Average Cell Count	Maximum Cell Count	Minimum Cell Count	Xanthochromosis	Spontaneous Coagulation	Reduction of Fehling's Solution
Extramedullary tumor	20	18— 2+	20	0	2	8	0	6	3	20
Multiple sclerosis	15	15—	0	15	1.4	4	0	0	0	15
Intramedullary tumor	12	12—	11	1	9.5	26	0	0	0	12
Pachymeningitis	9	9—	3	6	3.7	30	0	0	0	9
Meningomyelitis	6	6—	3	3	14.3	31	0	0	0	6
Varicose veins of cord	5	5—	3	2	2	4	0	1	0	5
Syringomyelia	5	5—	2	3	11.8	59	0	0	0	5
Tumor of the cauda equina	4	4—	4	0	79.2	79	6	4	4	4
Neuritis of the cauda equina	4	4—	0	4	.3	20	0	1	0	4
Old fracture of vertebrae	3	3—	3	0	2	4	0	0	0	3
Toxic myelitis	2	2—	2	0	31.5	32	31	0	0	1
Tuberculoma of the cord	1	1—	1	0	5	5	5	0	0	1
Tuberculous spondylitis	1	1—	1	0	30	30	30	0	0	1
Aneurysm of spinal vessels	1	1—	1	0	59	59	59	0	0	1
Spondylitis	1	1—	0	1	0	0	0	0	0	1
Foreign body in cord	1	1—	1	0	5	5	5	0	0	1
Hematomyelia	1	1—	0	1	0	0	0	0	0	1
Transverse myelitis	1	1—	1	0	3	3	3	0	0	1
Totals	92	90— 2+	56	36	....	..	..	12	7	91

THE DIAGNOSTIC VALUE OF CHANGES IN THE CEREBROSPINAL FLUID

The presence of "Froin's syndrome" [5] in the cerebrospinal fluid (yellowness, an increased number of lymphocytes, and a rapid coagulation) has been in our experience characteristic only of the large tumors of the conus and cauda equina, which were described by Collins and Elsberg.[6]

The syndrome of Nonne[7] (excess of globulin without cell increase) is more often found in tumors of the cord at other levels. But a combination of the features of the fluids described by Froin and Nonne—yellowness, no increase or only a slight increase of cells and an increase of globulin—while not as frequent as Nonne's syndrome, is more characteristic of extramedullary compression by tumor and is quite rare in any but extramedullary tumors.

Xanthochromia and spontaneous coagulation point rather to a disease in the lower dorsal or lumbar regions as do very high cell counts.

For the differentiation between extramedullary and intramedullary tumors, the cell count may be of value.

While the diagnosis of a spinal cord disease was never made entirely from the changes in the spinal cord, the findings were a valuable aid in enabling us to arrive at a correct diagnosis.

CONCLUSIONS

1. Xanthochromia is strongly suggestive of spinal cord tumor, in the lower dorsal and lumbar regions.
2. The combination of yellowness, high protein content, spontaneous coagulation and pleocytosis (Froin's syndrome) is characteristic of the large endotheliomas or sarcomas which surround the conus and roots of the cauda equina.
3. Nonne's syndrome (increase of globulin, without increase of cells) is suggestive of extramedullary spinal cord tumor.
4. Increase of globulin without increase of cells plus yellow discoloration of the fluid make the diagnosis of extramedullary spinal cord tumor very probable.
5. The changes in the fluid may be a valuable aid for the differentiation between spinal diseases in which operative interference may be necessary.
6. The diagnosis of a spinal disease should never be made from the spinal fluid findings alone; the results of the examination of the fluid obtained by lumbar puncture should be used only as a diagnostic aid.

64 East Fifty-Eighth Street—Neurological Institute.

5. Froin: Gaz. d. hôp., Paris, 1903, p. 1005.
6. Collins and Elsberg: Am. Jour. Med. Sc., 1914, **147**, 493.
7. Nonne: Deutsch. tschr. f. Nervenh., 1913, **47**. 436.

EFFECT OF INGESTION OF COFFEE, TEA AND CAFFEIN ON THE EXCRETION OF URIC ACID IN MAN*

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The widespread use of coffee as a beverage, together with the marked physiologic effects attendant on the ingestion of caffein, either directly or as one of the constituents of coffee, naturally led physiologic chemists to investigate the fate of caffein in the body. As far back as 1850, Lehmann[1] reported that after caffein had been administered in the food, no trace of it as such was found in the urine. Experiments reported by later investigators show widely varying results, but most of them indicate that after coffee has been drunk or caffein administered with the diet, only a very small part of the ingested caffein appears unchanged in the urine.

In the meantime 1-7-dimethylxanthin, 1-monomethylxanthin and 7-monomethylxanthin had been isolated from human urine and carefully studied. Not many years later Albanese,[2] in experiments with dogs, and Bondzynski and Gottlieb,[3] in experiments with dogs, rabbits and men, demonstrated that the monomethylpurins of the urine are formed by the demethylation of ingested dimethylpurins and trimethylpurins. Krüger and Salomon[4] furnished a remarkable analysis of the purin base content of normal human urine, and Krüger and Schmid[5] demonstrated that since there is every reason to believe that in man the methyl groups are decreasingly stable in the order 7, 1, 3, the methyl purins of normal human urine can be easily accounted for by the removal of the methyl group occupying position three from the methylated purins of the food.

Since demethylation is known to take place, it seems quite possible that some of the ingested caffein may be completely demethylated and the resultant purin subsequently oxidized to uric acid. In 1868, Leven,[6] using a very inaccurate method, found no increase in uric acid after drinking coffee. Schutzkwer[7] and Minkowski[8] reported that caffein did not increase the uric acid excretion of dogs. These results are not surprising today since the chief end-product of purin metabolism in the dog is now known to be not uric acid, but allantoin; and it is interesting to compare these early observations with those of Schittenhelm,[9] who found that in dogs caffein does cause an increase in excretion of uric acid and of allantoin.

Burian and Schur[10] and Zagari and Pace[11] reported that in men the ingestion of caffein has no effect on the quantity of uric acid excreted. According to Hess and Schmoll,[12] on the contrary, there is an increase after tea and cocoa drinking, and a similar increase was obtained by Haig[13] and Taylor[14] after coffee drinking. Haig's results are scarcely dependable, owing to his use of the inaccurate Haycraft method; and in Taylor's experiments it is very difficult to account for so large an increase in uric acid as the result of ingestion of so small a quantity of coffee on the basis of caffein as the sole cause of increased uric acid excretion. Although these early observations are of great interest, they can scarcely be accepted as incontrovertible proof of the relation of caffein ingestion to uric acid excretion, since none of the earlier methods for the quantitative determination of uric acid were sufficiently exact to show accurately the slight increase in uric acid excretion that might possibly follow coffee drinking.

Quite recently, however, Benedict[15] has reported a single carefully conducted experiment in which the results indicate that ingestion of caffein does slightly increase the excretion of uric acid.

NEW EXPERIMENTS

The present series of investigations was undertaken with the object of determining more exactly the effect of caffein ingestion on the excretion of uric acid.

Plan and Methods.—The subject of the experiment was placed on a purin-free diet consisting of eggs, milk, bread, butter and fruit. To this ration, after the excretion of uric acid had reached an endogenous level, there was added on each of five consecutive days a known quantity of a strong coffee infusion, of which the caffein content was determined.

The urine was collected in twenty-four hour periods beginning and ending at 7 a. m. Total nitrogen was determined by the Kjeldahl-Gunning method, creatinin by the Folin method and uric acid by the Benedict modification[16] of the Folin-Denis method. Owing to certain difficulties in the technic of this procedure which were encountered in the course of our study, a slight modification of the method was devised.[17]

No experiments were performed to determine the reaction of caffein, heteroxanthin, paraxanthin or 1-methylxanthin with the uric acid reagent, but since the work of Lewis and Nicolet[18] indicates that none of the methylated xanthins causes a color development with the uric acid reagent, it was assumed that the presence of methylated xanthins in the urine offered no obstacle to the use of the Benedict method.

The daily ration of coffee was prepared by boiling 110 gm. of coffee in a liter of water for twenty minutes, decanting, making up to 1 liter, removing a 50 c.c. aliquot for analysis, and concentrating the remainder to about 400 c.c. The caffein content was obtained thus: The sample was diluted to 200 c.c., precipitated with basic lead acetate and filtered; after removal of any excess of lead with hydrogen sulphid, the filtrate was concentrated on a water bath to 50 or 75 c.c., cooled and extracted four times with its own volume of chloroform; the chloroform extract was heated on an electric plate for two hours at 75 C., cooled, and weighed as caffein.

Experiment with Coffee.—The first experiment consisted of the ingestion of a purin-free diet until the

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* From the Sheffield Laboratory of Physiological Chemistry, Yale University.

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18. Lewis and Nicolet: J. Biol. Chem., **16**, 369.

endogenous level of uric acid excretion was reached, followed by the addition of large quantities of coffee to this diet on each of five consecutive days, and the resumption of the simple purin-free diet until uric acid excretion again reached an endogenous level. The results of this experiment are shown in Table 1.

TABLE 1.—EFFECT OF COFFEE INGESTION ON URIC ACID EXCRETION

Date	Body Weight, Kg.	Composition of Urine				Remarks on Diet
		Volume, C.c.	Total Nitrogen, Gm.	Creatinin, Mg.	Uric Acid, Mg.	
Mar. 10	48.3	1,115	6.47	799	272	Purin-free
11	....	1,110	8.28	789	268	Purin-free
12	48.5	855	7.45	767	217	Purin-free
13	47.9	1,385	9.30	747	251	Purin-free
14	47.9	1,205	8.99	763	270	Purin-free
15	47.8	2,050	9.45	761	353	Purin-free, with daily allowance of coffee containing 1.3 gm. caffein
16	47.2	1,105	9.26	792	453	
17	47.6	1,065	8.52	767	469	
18	....	1,375	9.81	763	537	
19	47.5	1,395	8.78	801	461	
20	47.9	1,180	7.81	803	339	Purin-free
21	48.0	1,350	8.77	781	276	Purin-free
22	47.9	1,130	9.33	750	269	Purin-free

From these results it is evident that the ingestion of large quantities of coffee is followed by a marked increase in the quantity of uric acid excreted.

Experiment with Decaffeinated Coffee and Caffein.—In order to determine whether or not the increased uric acid excretion observed in the first experiment was due to the caffein ingested, the subject was again placed on a purin-free diet until the excretion of uric acid reached an endogenous level; then for each of eight consecutive days there was added to the diet an infusion of a decaffeinated coffee (Kaffee Hag[19]) prepared in exactly the same way as the coffee of the preceding experiment. On the fifth and sixth days of Kaffee Hag ingestion, there was added to the Kaffee Hag 0.47 gm. of caffein in the form of caffein citrate; on the seventh and eighth days, 0.94 gm. was added in the same way. On the next day, purin-free diet was resumed, and continued until uric acid excretion again reached an endogenous level. The results of this experiment are shown in Table 2.

TABLE 2.—THE EFFECT OF KAFFEE HAG AND CAFFEIN INGESTION ON EXCRETION OF URIC ACID

Date	Body Weight, Kg.	Composition of Urine				Remarks on Diet
		Volume, C.c.	Total Nitrogen, Gm.	Creatinin, Mg.	Uric Acid, Mg.	
Mar. 29	48.3	1,175	8.77	780	374	Purin-free
30	48.3	975	8.48	790	286	Purin-free
31	48.4	1,000	8.93	794	285	Purin-free
April 1	....	1,320	9.80	809	290	
2	48.3	1,270	8.28	816	241	Purin-free, with Kaffee-Hag
3	48.2	1,050	8.74	773	241	
4	47.8	1,350	8.17	804	307	Purin-free, with Kaffee-Hag and 0.47 gm. caffein daily
5	48.1	1,300	7.78	752	333	
6	47.5	1,480	8.05	807	366	Purin-free, with Kaffee-Hag and 0.94 gm. caffein daily
7	47.2	1,370	7.78	755	355	
8	....	675	7.62	750	264	Purin-free
9	47.6	825	8.22	743	268	Purin-free
10	47.6	1,060	8.43	728	274	Purin-free

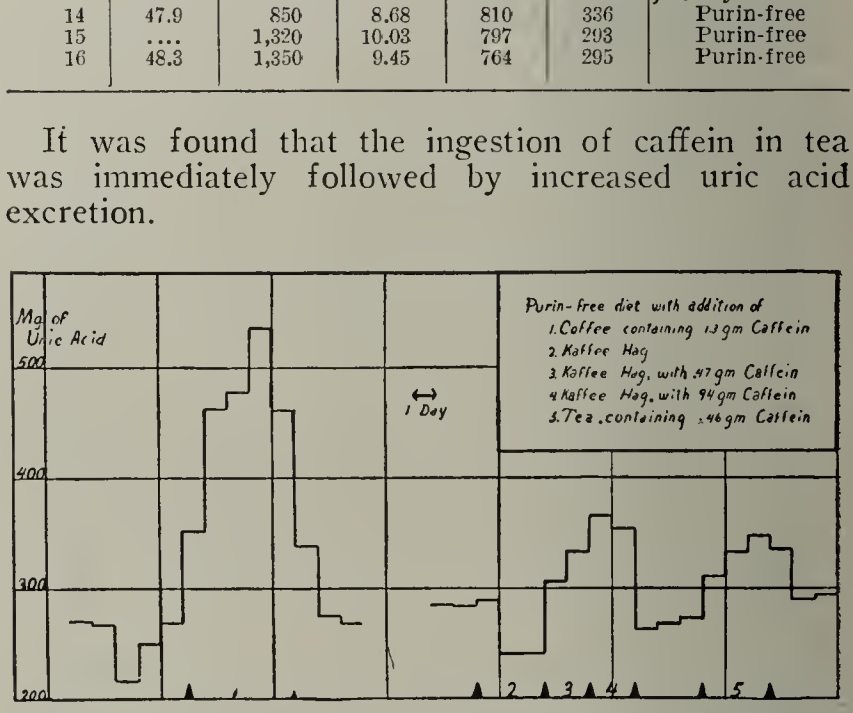
Since the addition of Kaffee Hag to the diet was not followed by any increase in uric acid excretion until caffein was also included in the ration, it seems safe to assume that the increased uric acid excretion of the first experiment was due to the caffein of the ingested coffee.

Experiment with Tea.—As tea also contains large quantities of caffein, it seemed possible that an experiment on tea ingestion might prove of interest. Except that tea was substituted for coffee, the procedure was like that of the first experiment. Each day's ration of tea was prepared by pouring 400 c.c. of boiling water on 28 gm. of tea, allowing it to steep for twenty minutes, and decanting. Caffein was determined by the same method as in the earlier experiment. The results of this experiment are shown in Table 3.

TABLE 3.—EFFECT OF TEA INGESTION ON THE EXCRETION OF URIC ACID

Date	Body Weight, Kg.	Composition of Urine				Remarks on Diet
		Volume, C.c.	Total Nitrogen, Gm.	Creatinin, Mg.	Uric Acid, Mg.	
April 8	....	675	7.62	750	264	Purin-free
9	47.6	825	8.22	743	268	Purin-free
10	47.6	1,060	8.43	728	274	Purin-free
11	47.3	1,355	8.12	757	312	Purin-free, with tea, containing 0.46 gm. caffein daily
12	47.3	1,600	7.84	776	333	
13	47.6	1,240	7.62	769	348	
14	47.9	850	8.68	810	336	Purin-free
15	....	1,320	10.03	797	293	Purin-free
16	48.3	1,350	9.45	764	295	Purin-free

It was found that the ingestion of caffein in tea was immediately followed by increased uric acid excretion.



Relation of ingestion of coffee, caffein and tea to excretion of uric acid.

A comparison of the three tables reveals the fact that the increase in uric acid excretion was proportional to the quantity of caffein ingested; this relation is shown in the graph. The increase in the amount of uric acid excreted could be explained as perhaps due to the demethylation and subsequent oxidation of about 13 per cent. of the ingested caffein.

COMMENT

The results of this series of investigations suggest interesting possibilities for further research. Additional experiments should be performed to determine whether or not the increase in uric acid excretion is always directly proportional to the quantity of caffein ingested. At the same time the purin base content of the urine should be determined in order to learn whether the increase in uric acid excretion is due directly to the conversion of caffein itself into uric acid or to an indirect stimulation of purin metabolism.

The whole question is further complicated by the presence of tannin derivatives in all the beverages under discussion. Earlier observations of Levison,[20]

19. For analysis of Kaffee Hag, see Part V of the Report of the Connecticut Agricultural Experiment Station, New Haven, 1915.

20. Levison, C.: Inaug. Diss., Bonn, 1897.

Dolff,[21] Bohland, [22] and Sabrezas and Frezal[23] indicate that ingestion of tannic acid and tannin causes a decrease in uric acid excretion; those of Weiss[24] and Ulrici[25] fail to show any such results. This phase of the problem could be settled by an experiment similar to the second one of this series, a detannated coffee being used in place of a decaffeinated product.

Finally, it would doubtless prove interesting to perform similar series of experiments with dogs and rabbits in order to study the effect of caffein ingestion on the excretion of uric acid and of allantoin in species in which uric acid is not the prominent normal end-product of purin metabolism.[26]

SUMMARY

Slight modifications of Benedict's method for determining uric acid make possible more accurate determinations than have hitherto been obtained.

The addition of a strong coffee infusion to a purin-free diet causes a marked increase in the excretion of uric acid.

The addition of Kaffee Hag—a decaffeinated coffee product—to a purin-free diet does not cause any increase in the excretion of uric acid. If, however, caffein is added to the Kaffee Hag, the excretion of uric acid is decidedly increased, as in the case of coffee.

The effect of adding tea to a purin-free diet is similar to that obtained by adding coffee to the same diet.

The increase in excretion of uric acid after adding coffee, tea or caffein to a purin-free diet seems to be proportional to the quantity of caffein ingested.

The increase in the amount of uric acid excreted under these conditions is equal to the quantity of uric acid which would be obtained by the demethylation and subsequent oxidation of from 10 to 15 per cent. of the ingested caffein.

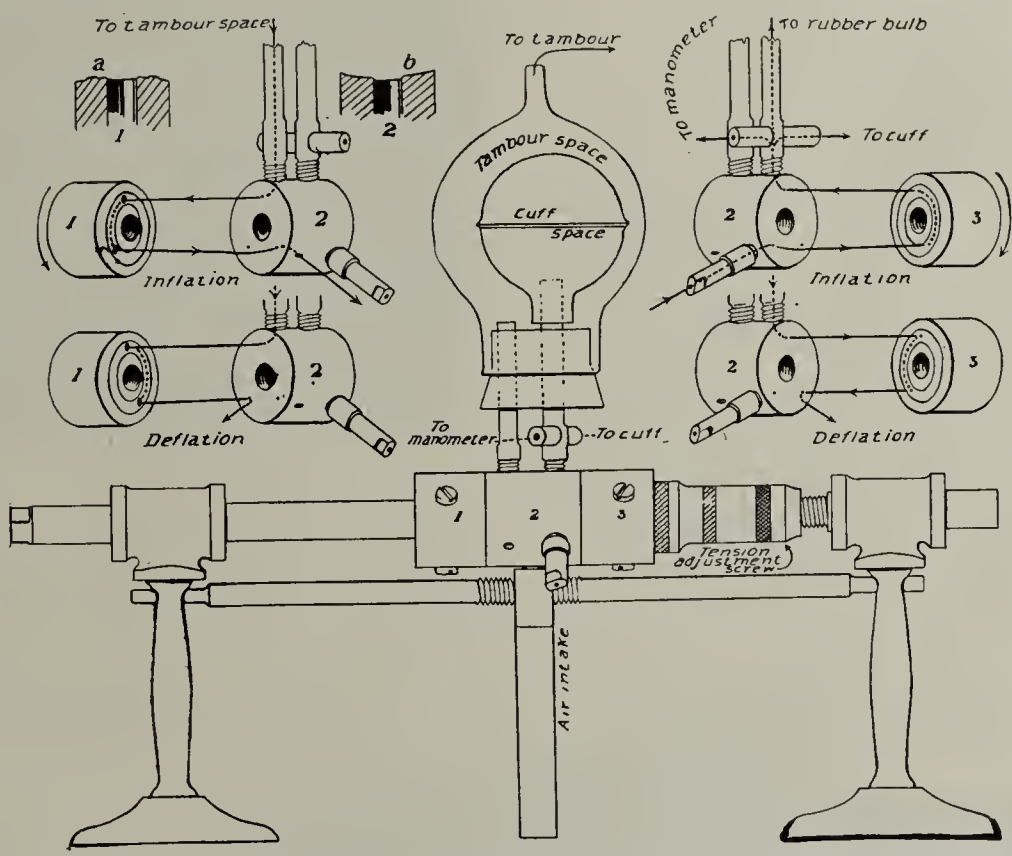


Fig. 1.—Rotary valve, assembled in center, the working faces of the valve on each side. The numbers 1, 2 and 3 have been placed on corresponding parts of the valve in all portions of the illustrations. The longitudinal sections *a* and *b*, in the left hand upper corner, show the manner in which air-tight closure of the valve faces is obtained.

21. Dolff, F.: Inaug. Diss., Bonn, 1898.
22. Bohland, K.: München. med. Wchnschr., 1899, **46**, 505.
23. Sabrezas and Frezal: Jour. de physiol. et path. gén., 1899, **1**, 221.
24. Weiss, J.: Ztschr. f. physiol. Chem., 1899, **27**, 216.
25. Ulrici, T.: Arch. exper. f. Path. u. Pharmakol., 1901, **46**, 321.
26. In addition to the references already given, the following will be found of interest:
Brugsch, T., and Schittenhelm, A.: Der Nucleinstoffwechsel und Seine Störungen, 1910.
Jones, W.: Nucleic Acids, 1914.
Krüger, M., and Schmidt, J.: Arch. f. exper. Path. u. Pharmakol., 1901, **45**, 259; Ztschr. f. physiol. Chem., 1905, **45**, 1.
Levison, C.: Ztschr. f. klin. Med., 1894, **26**, 293.
McCrudden, F.: Uric Acid, 1905.

The Work Treatment.—Those of us who have any imagination cannot fail to realize the difference in atmosphere and *morale* in hospitals where the patients have nothing to do but smoke, play cards, or be entertained, from that found in those where for part of the day they have regular, useful and productive work.—Col. Robert Jones, C.B.

AN AUTOMATIC METHOD OF PROLONGED SERIAL BLOOD-PRESSURE REGISTRATION IN MAN*

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CHICAGO

Work on this apparatus was commenced in 1909, when the desirability of a method for the continuous observation of human blood pressure was strongly borne in on my mind, as I investigated at the Charité in Berlin in association with Professor R. Staehelin the effect of muscle work on human blood pressure by means of the Uskoff sphygmotonometer. It became probable that this effect was, in general, a curve with a primary rise above and a secondary fall below the previous level; but we could not prove this: for, in spite of taking an observation every five minutes, one could not feel certain that one had caught the maximum and the minimum of the effect.

The work of elaborating such an apparatus has since then been continued abortively until, in the summers of 1915 and 1916, Dr. Otis M. Cope, of the department of physiology of the University of Michigan, joined me in a final effort, which we believe has succeeded. The result of this joint work, carried on at the laboratory of physiology of the University of Michigan, was the elaboration of the principles that underlie the construction of an apparatus for the purpose in mind, and the development of a valve, chiefly the design of Dr. Cope, which, however, was not entirely satisfactory. Under the impression that a somewhat different method of attack on the problem of construction of the valve might possibly lead to a more satisfactory result, I have continued work on this apparatus at my laboratory with the cooperation of the mechanic, Edward L. Feeney, who deserves thanks for patient help and useful suggestions in the elaboration of the rotary valve.

THE APPARATUS

The essential portion of the apparatus is a rotary valve, which takes care of the rhythmic inflation and deflation of the sphygmomanometer cuff, while it simultaneously opens the tambour space of an Erlanger arrangement during the inflation and deflation, and closes it during the time of recording.

* Presented before the Chicago Society of Internal Medicine, March 26, 1917.
* From the Pharmacologic Laboratory of the University of Illinois, College of Medicine.

There are, then, in the apparatus, two air spaces that do not open into each other. I shall call them

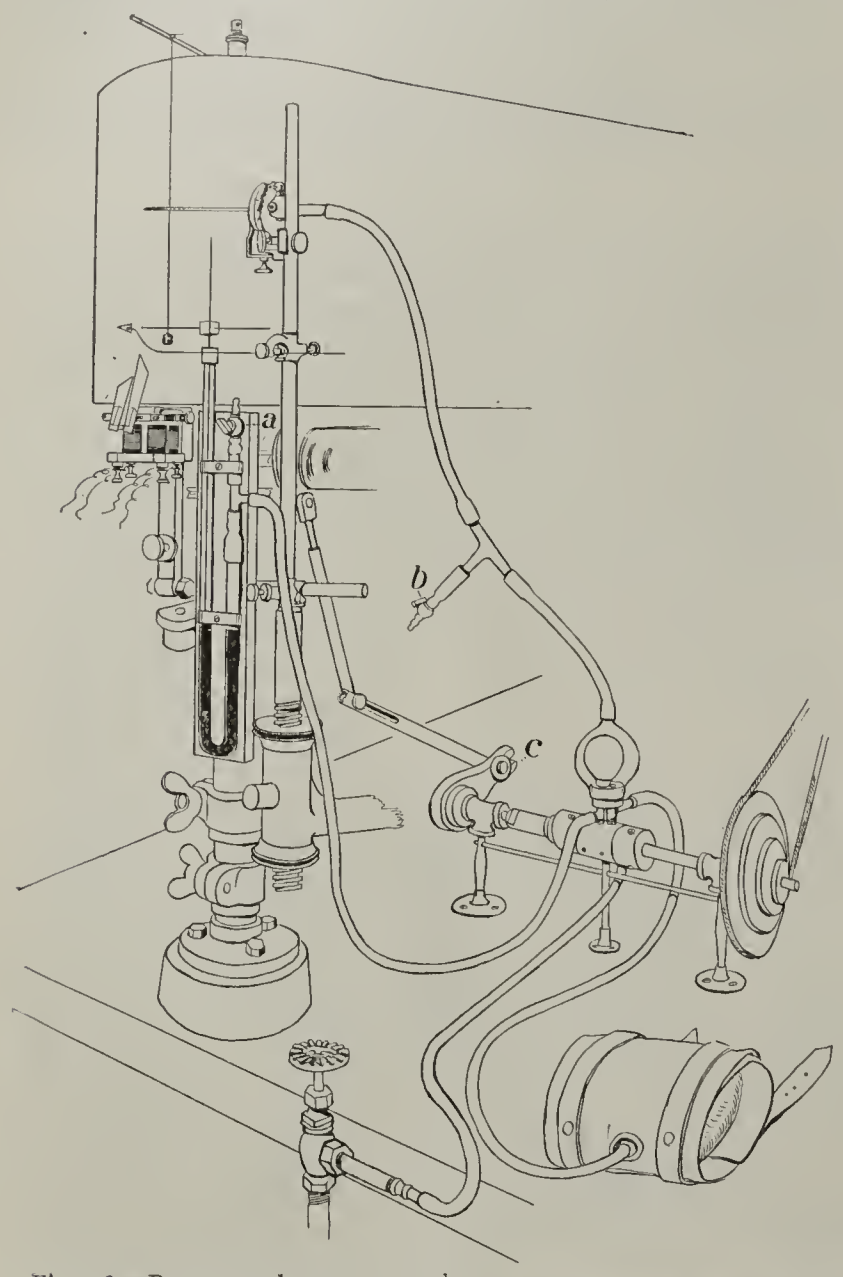


Fig. 2.—Rotary valve connected with the recording apparatus. The valves *a* and *b* introduce a regulable fine leak in the tambour space and cuff space, respectively. The cam *c* operates the starting and stopping mechanism of the kymograph.

"cuff space" and "tambour space," respectively (Fig. 1). The cuff space communicates freely with a mercury manometer and an elastic rubber bulb. The manometer records, on smoked paper, the height of the pressure existing in the cuff space at a given moment. The rubber bulb transmits to the tambour space the pulse oscillations occurring during the gradual deflation of the cuff. To inflate the cuff, a constant source of compressed air at a pressure of over 300 mm. of mercury is required. In the air intake pipe, there should be provided a valve that readily permits slight changes to be made in the air admitted to the cuff space. This valve, once turned on to the proper degree, remains open throughout the period of use of the apparatus. By means of the rotary valve, which revolves at the rate of about once a minute, a momentary connection is made between the tube carrying the compressed air and the cuff space. Thus inflation is accomplished. Then, for two thirds of the circumference of the valve, the cuff space is closed, excepting for a small regulable leak (Fig. 2 *a*), which permits gradual deflation to take place. Since, during the period of gradual deflation, the tambour (to be presently described) records the tracing to be interpreted, I shall speak of this as the "recording time." As soon as the recording has been accomplished, it is desirable to have the air escape rapidly from the cuff space, so as to permit a period of rest for unimpeded return circulation in the arm of the person under examination. We have found that one third of a minute is sufficient for this purpose. Hence, after the rotary valve has traveled for two thirds of its circumference, an opening is encountered by means of which the cuff space communicates with the surrounding air, permitting the pressure to fall instantly.

The cuff space is in relation with the tambour space by means of a glass bulb into which the rubber bulb of the cuff space projects, all the connections being air-tight. Thus the oscillations of the rubber bulb, imparted to it by the pulse, are magnified and recorded by means of the tambour. To eliminate, as much as possible, the recording of the large pressure oscillations that occur during inflation and rapid deflation of the cuff space and might damage the tambour, it is necessary, as has been shown by Erlanger, that the tambour space be freely open during these stages. This is accomplished by holes placed in that side of the rotary valve which controls the tambour space. These holes are spaced in such a manner as to act synchronously with those controlling the cuff space. The holes, in relation with the tambour space, must

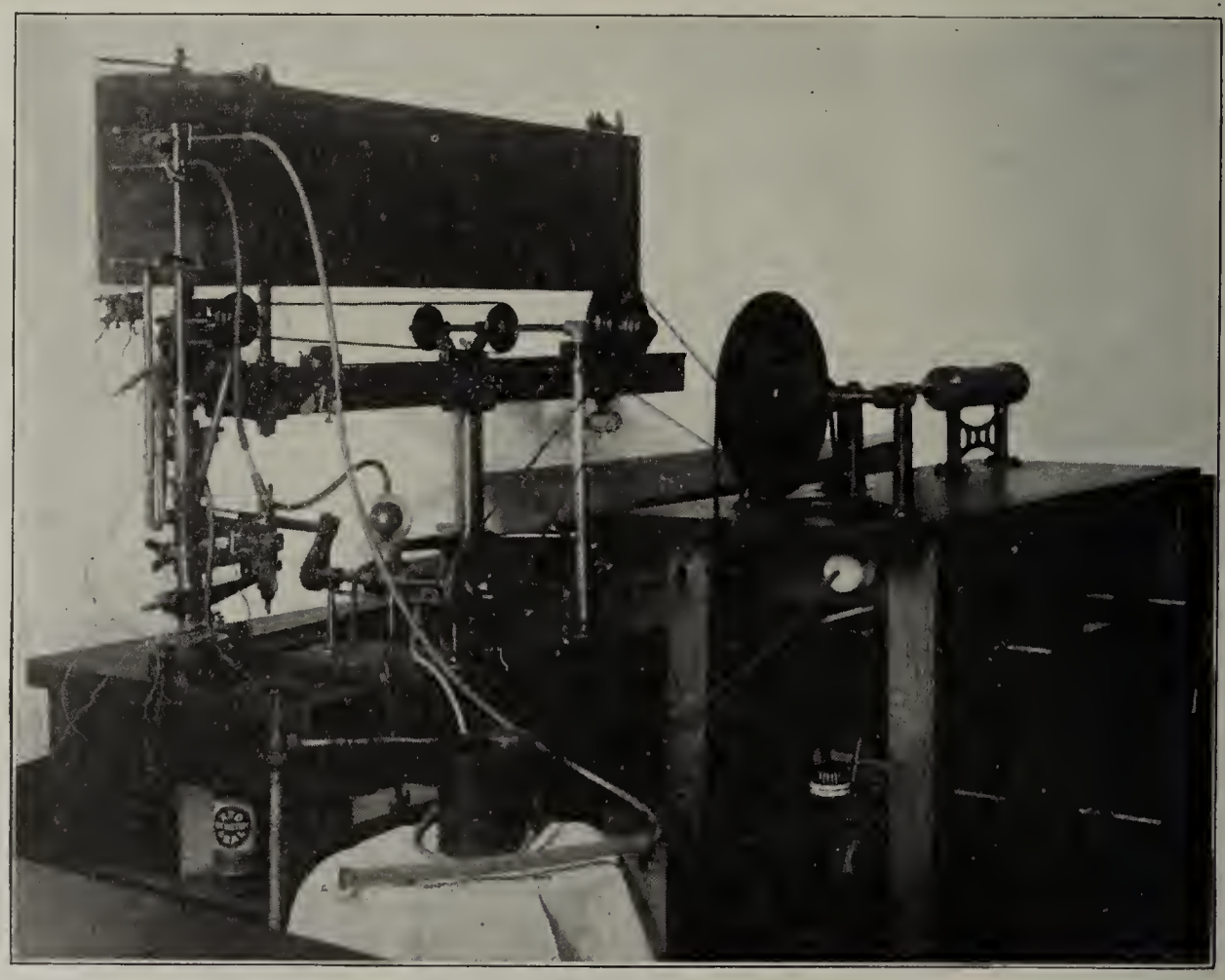


Fig. 3.—Photograph of apparatus, showing valve and driving as well as recording mechanisms used. A much simpler driving mechanism would, of course, be entirely adequate. A pneumograph and its recording tambour is shown in addition to the parts given in the diagrammatic Figure 2.

be a little larger than those in relation with the cuff space, whereby the large and undesirable oscillations can be more effectually eliminated, than if they are of exactly the same size. As Erlanger has shown, it is also essential that a fine leak exist in the tambour space. Cope has found that, by using an adjustable leak (Fig. 2 *b*), one may obtain an optimum record of the oscillations of the bulb.

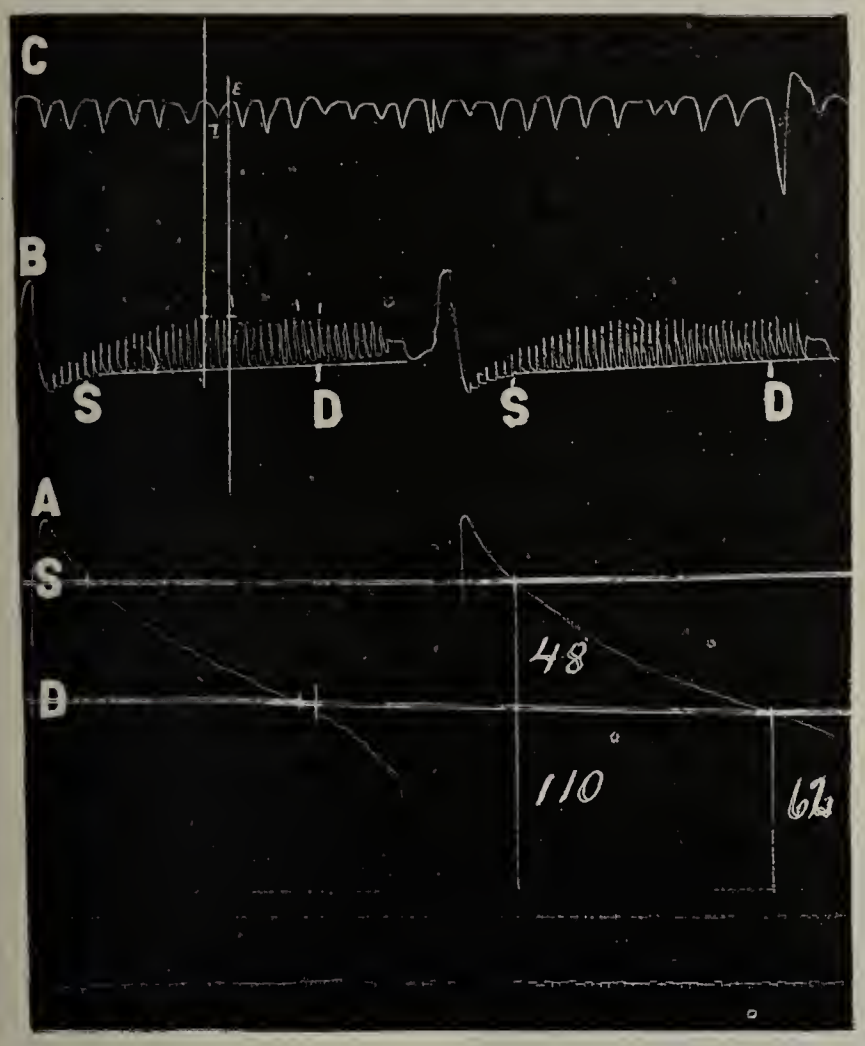


Fig. 4.—Determination of systolic and of diastolic pressure: The Erlanger criterion for systolic pressure, namely, the first divergence of the two limbs of the tambour record (*S* in Curve B) is well shown. The diastolic criterion chosen is the last large oscillation of the tambour lever (*D* in Curve B). This is more difficult to decide on, owing to the disturbing influence of respiration, as is well shown in this tracing by the unusually deep inspiration at the end of the tracing, which obviously produced the increase in the size of the tambour oscillation following it and which would have given rise to difficulty of interpretation of the record, had the respiration record not been taken simultaneously. In the tracings, *A* is the manometer curve, *B*, the tambour record, and *C* the respiration record; *S* indicates the level of systolic pressure, and *D* the level of diastolic pressure.

In order to economize drum space, it is desirable to have a mechanism that automatically starts and stops the drum. This may be done by means of a cam (Fig. 2 *c*), attached to the shaft of the rotary valve, which operates the starting mechanism of the drum.

A long paper kymograph is required, as well as signal magnets for the time and other recording. A second tambour for a pneumograph tracing (*C* in Figs. 4 and 5) is also desirable, as respiration affects the character of the pulse oscillations, as is shown by Figure 4.

We have commenced work on the problem of an apparatus that will furnish its own compressed air, as well as, if possible, do away with the necessity of applying fresh loops of paper, when one takes a very prolonged record.

INTERPRETATION OF THE RECORD

The records (Figs. 4 and 5) furnished by this apparatus consist of a succession of so-called "continuous" Erlanger[1] tracings (*B*), placed above a manometer curve (*A*) that was obtained synchronously with the pulse tracing. The latter is used to determine the points of systolic and of diastolic pressure (Fig. 4). For determining systolic pressure, we have found the Erlanger[2] criterion, namely, the separation of the lower end of the limbs of the tambour record, much more useful than the von Recklinghausen[3] criterion — that is, the sudden increase in size of the oscillations — for, at times, the increase in size is not at all sudden, but quite gradual.

The decision regarding the point at which the diastolic pressure is to be placed seems somewhat more difficult. Erlanger's[1] criterion for diastolic pressure — the maximum amplitude of tambour oscillations — has been shown by MacWilliam and Melvin[4] not to be correct. They suggest using the last of the large oscillations for this purpose. Cope and I have found that the MacWilliam and Melvin criterion coincides quite well with the fourth auscultatory phase obtained by means of the Korotkoff method, as shown by records obtained with our apparatus, when a signal magnet (whose tracing is placed in the accompanying figures above the time record) is used to record the Korotkoff sounds, as has been done in some of the curves shown. Unfortunately, at times, the oscillations decrease gradually rather than abruptly, so as to leave one in doubt as to just where one should decide the change has taken place. This difficulty can be overcome, to a certain extent, by permitting the escape of air during the recording period to be sufficiently rapid for good definition of differences. Nevertheless, the influence of the respiratory pressure changes occasionally also adds to the difficulty of arriving at a judgment regarding the point to be chosen.

Making a simultaneous record of the Korotkoff sounds by means of the signal magnet is quite helpful in the interpretation of the record. Nevertheless, I have found that frequently, when doubt exists as to

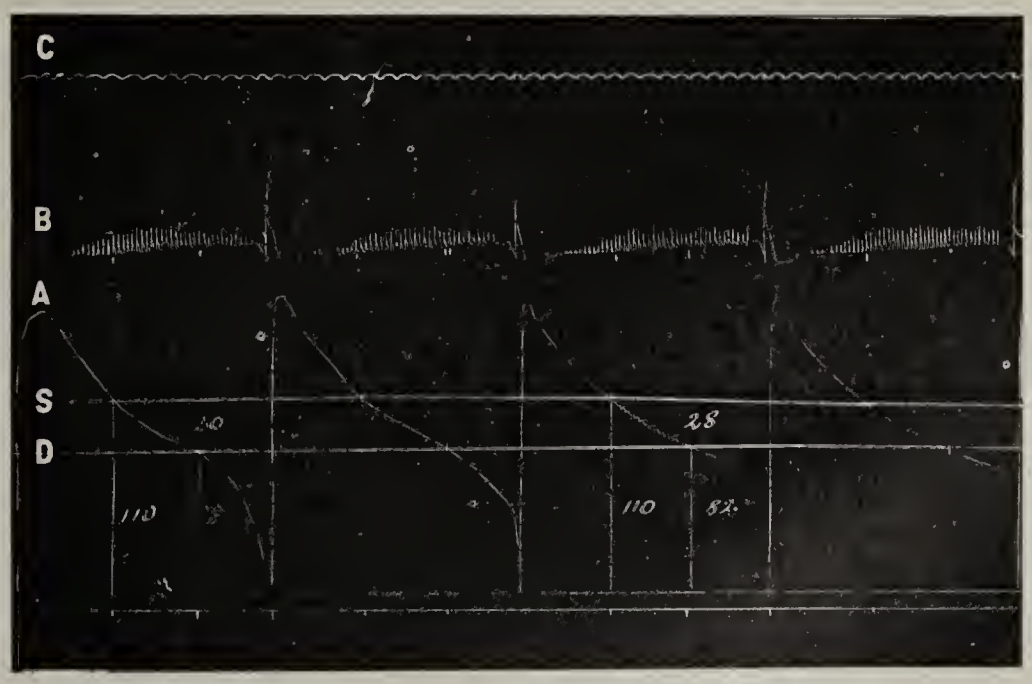


Fig. 5.—Portions of a record from a normal person, showing the practically uniform maintenance of pulse pressure that seems characteristic of normal tracings.

1. Erlanger, Joseph: Johns Hopkins Hosp. Rep., 1904, **12**, 53.
2. Erlanger, Joseph: Am. Jour. Physiol., 1908, **21**, 24.
3. Von Recklinghausen: Arch. f. exper. Path., 1906, **55**, 375.
4. MacWilliam and Melvin: Heart, 1914, **5**, 153.

where one should place the diastolic pressure, because of interference of the respiratory oscillations, the same doubt existed in deciding on the end of the fourth phase of Korotkoff. For, at times, one or two of the muffled sounds of the fourth phase are followed by one or two sounds that are again quite loud. The tracing records this faithfully.

By projecting the point of systolic and of diastolic change in the pulse tracing (*B*) down on the manometer curve (*A*), and by connecting the corresponding points on succeeding manometer curves, a good picture of the blood-pressure changes from minute to minute can be obtained. These changes are comparatively slight under normal conditions, though waves, probably corresponding to the Traube-Herring waves, are easily discernible. By means of this apparatus, I have obtained satisfactory records of the influence on blood pressure of emotion, of attention as well as of muscular movement, and of the effects of a general electric light bath, of amyl nitrite inhalation, and of nitroglycerin administration.

CONCLUSION

An apparatus having been devised whereby it is possible to obtain graphic records of human blood pressure for considerable periods of time, it will probably be found useful not only in psychologic, physiologic and pharmacologic research, but also in clinical medicine, in diagnosis as well as in treatment. For instance, it might be of diagnostic as well as of therapeutic importance to differentiate between those cases of high blood pressure that respond, in a typical manner, to nitrite and those that do not. In critical operative cases, the continuous recording of blood pressure during the anesthesia might be of help to the surgeon.

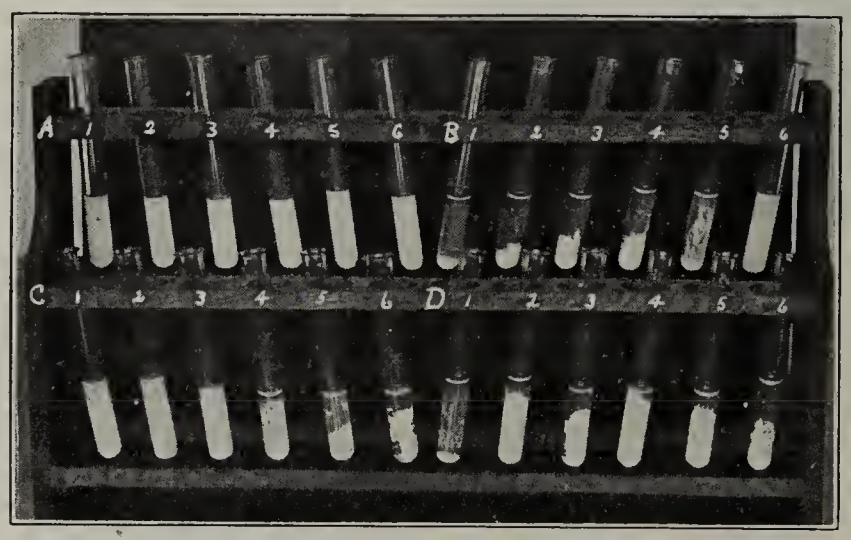


Fig. 1.—Mastic reactions: *A*, negative; *B*, positive; in both *A* and *B*, potassium carbonate has been used in making up the salt solution; *C* and *D*, the same cases in the absence of the potassium carbonate. (Note the confusion in *C*, in which Tubes 4 and 5 show a precipitate.)

Blood Changes in Trinitrotoluene Poisoning.—Capt. Matthew J. Stewart of the Royal Army Medical Corps has recently summed up his observations in fourteen clinical cases of trinitrotoluene poisoning with reference to the blood as follows: In the early stages blood changes are extremely slight, but pronounced deviations occur later. A polymorphonuclear leukopenia, often of extreme degree, with no corresponding failure of the lymphatic function, was observed in nine out of the fourteen cases. An anemia of "pernicious" type, but lacking certain notable characteristics of idiopathic anemia, especially poikolocytosis and punctate basophilia, occurred in three cases. The tentative conclusion arrived at is that the occurrence of either of these changes in any marked degree in a case of trinitrotoluene poisoning is to be regarded as a serious prognostic indication, but this is a point on which further observation should throw much light. An absolute but variable lymphocytosis was found in nine cases. It did not appear to bear any relationship to either of the foregoing conditions. A pronounced and progressive neutrophil leukocytosis occurred in one case which ended fatally. Qualitative changes in the red cells were present in a marked degree in one case only, and punctate basophilia was never observed. —*Proceedings of the Royal Society of Medicine*, March, 1917.

A NEW MASTIC TEST FOR THE SPINAL FLUID*

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Recently much work has been done in order to find a serologic test which will be positive in all cases of syphilis of the nervous system. Collins[1] estimates that 15 per cent. of paretics and 70 per cent. of cerebrospinal syphilitics fail to give a positive Wassermann reaction in the spinal fluid. While these figures are perhaps higher than the average, the fact still remains that a definite percentage do fail to give a positive Wassermann. Collins[1] also estimates that 97 per cent. of these cases give a positive colloidal gold reaction. Any one, however, who has prepared the gold solution and has carried out the test cannot but be impressed with the many difficulties it entails.

While working with the colloidal gold solution, Emanuel[2] endeavored to find a substitute which could be more easily prepared and in which the reaction could be carried out with less possibility of error. For this purpose it seemed that an emulsion of mastic was best adapted. Neisser and Friedman, among others, had already demonstrated the similarity in action on albumin of this substance and colloidal gold.

In brief, Emanuel's procedure was as follows: Five test tubes were used containing, respectively, 0.25, 0.125, 0.062 and 0.031 c.c. of spinal fluid mixed with 1 c.c. of a 1.25 per cent. salt solution. The fifth tube contained no spinal fluid, and was used as a control. Lastly, 1 c.c. of an emulsion of mastic was added to each tube. In this manner he tested out the spinal fluids of thirty psychiatric patients. In paresis, tabes and cerebrospinal syphilis there occurred a precipitation of the mastic in all the tubes, whereas in the normal fluid no flaking occurred except in the control. The mastic solution had to be made up fresh each time and quickly used.

In order to try out the reaction, in the last nine months I have made mastic tests on the spinal fluids of 200 different patients at the Agnews State Hospital. In each case I have made a cell count, in 100 cases the butyric acid test, and in thirty cases the colloidal gold reaction. In every case a Wassermann examination has been made.

The mastic reaction I found to be a very delicate one. If the salt solution and the emulsion of mastic were made with distilled water and promptly used, a rapid precipitation of the mastic occurred in the control tube which contained no spinal fluid. If, how-

* Read before the Agnews Psychiatric Society, Feb. 9, 1917.

1. Collins, Joseph: Pathognomonic Alterations of the Cerebrospinal Fluid in Syphilis of the Nervous System, Am. Jour. Med. Sc., 1916, **151**, 222.

2. Emanuel, G.: Eine neue Reaktion zur Untersuchung des Liquor cerebrospinalis, Berl. klin. Wchnschr., 1915, **52**, 781-804; abstr., The Journal A. M. A., Sept. 4, 1915, p. 908.

ever, tap water was employed, no precipitate appeared. Even washing the test tubes with tap water prevented the reaction. The older the mastic emulsion the stronger was it necessary for the solution of sodium chlorid to be in order to cause a precipitate.

Also, I found that when newly prepared solutions were made with freshly distilled water there was a tendency for the precipitations to occur, not only in the fifth tube but also in the fourth, even in negative cases. This led to some confusion in interpreting the results. It was useless to employ more than four tubes, as further dilution left so little spinal fluid in the mixture that the salt automatically caused a precipitation of the mastic, whether the case was a positive or a negative one.

I found, however, that when the control showed no precipitation, as when the solutions were made with tap water, pathologic spinal fluid still caused the mastic to come down. I then endeavored to find a reagent which could be used with distilled water to hold the salt and mastic in solution and which would be of universal adaptability, since tap water varies so greatly in different localities. After trying many substances, such as potassium hydroxid and lime water, I at length found that a very dilute solution of potassium carbonate answered this purpose perfectly. When 1 c.c. of a 0.5 per cent. solution of the potassium carbonate was put in each 99 c.c. of the 1.25 per cent. salt solution, the mastic was held in suspension and was precipitated only when the pathologic fluid was added. This allowed me to run the dilution out as far as I liked, and the control tube, instead of showing a precipitation, showed none.

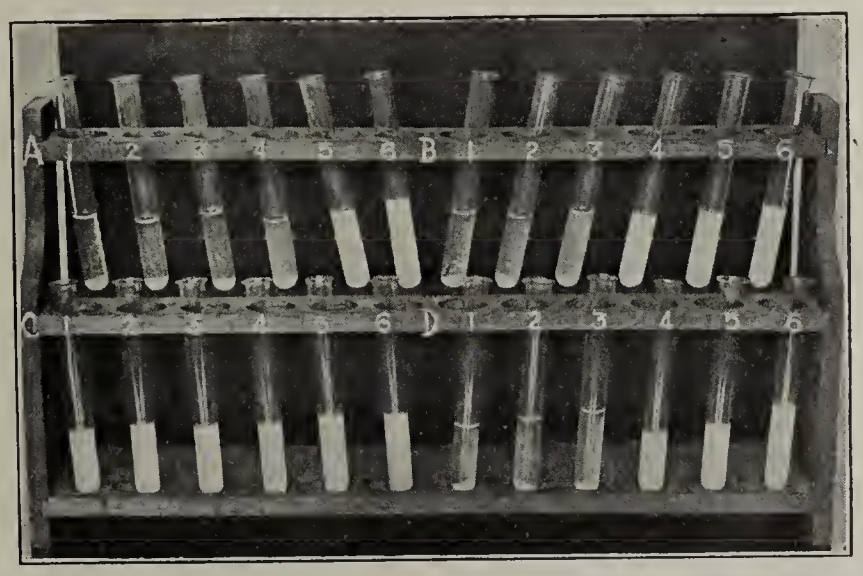


Fig. 2.—Mastic reactions: *A*, in an old paretic; *B*, in an early case of paresis; *C*, negative reaction in a case of dementia praecox; *D*, reaction in a case of paresis under salvarsanized serum treatment. (Before treatment, Tubes 1, 2, 3, 4 and 5 showed a precipitation.)

The advantage of this is readily seen in the following experiment: After mixing 1 drop of a paretic's spinal fluid with 7 drops of normal fluid I was able to get a mixture with a low syphilitic content. By using these proportions I ran a mixture through two series of five tubes each (*a*) in which no potassium carbonate was used and (*b*) in which the carbonate was employed. In *a* the result was a precipitation of the mastic in the first two and the last tubes. In *b* a precipitation showed only in the first two tubes. When 2 drops of syphilitic fluid were used in the mixture, the first four tubes in *a* came down together with the control. In *b* only the first four tubes were precipitated. This ended the experiment in the group containing no potassium carbonate, as all the tubes were now precipitated. In the series, however, containing the potassium carbonate, in which it was possible to increase the number of tubes in the group without automatically causing a precipitation of the mastic, the undiluted syphilitic fluid caused six tubes to come down. In other words, the greater the percentage of pathologic fluid present, the greater the number of tubes precipitated in the series. This clearly demonstrates, it seems to me, that the degree of positiveness in a given case can be more accurately measured when the potassium carbonate is employed to hold the mastic in suspension.

The following I have found best adapted as a routine for doing the test:

A stock mastic solution is made by dissolving 10 gm. of gum mastic in 100 c.c. of absolute alcohol, and then filtering. This stock solution keeps indefinitely if well corked. To 2 c.c. of this solution 18 c.c. of absolute alcohol are added, and insufflated rapidly into 80 c.c. of distilled water. This makes an emulsion of mastic which is opalescent when held to the light. This solution can be used immediately or after several days; indeed, the reactions seem to be more easily read when a solution is employed which has stood for at least a few hours.

Next, a 1.25 per cent. sodium chlorid solution is made with distilled water, and to each 99 c.c. of this salt solution is added 1 c.c. of a 0.5 per cent. solution of potassium carbonate made up with distilled water.

Then six small test tubes, such as are regularly used in the Wassermann tests, or more if desired, are placed in a rack. These tubes should have been washed thoroughly in tap water, then in denatured alcohol, to remove any old mastic adhering to the sides of the tubes, rinsed in distilled water and dried—conveniently in a hot air oven. To the first tube 1.5 c.c. of the combined salt and potassium carbonate solutions are added, and to the other 1 c.c. each. Then 0.5 c.c. of spinal fluid is added to the first, and after thorough mixing 1 c.c. is transferred from the first to the second, 1 c.c. from the second to the third, and so on, the last cubic centimeter that remains over from the next to the last tube being thrown out, and no spinal fluid being put in the control. Now to each tube 1 c.c. of the mastic solution is added and stirred thoroughly with a glass rod, care being taken to wash the rod with distilled water before going to the next series. It is best to finish each group before beginning another.

The racks are set away, and in from twelve to twenty-four hours the end-results can be read. If the racks are placed in an incubator at 37.5 C., the precipitation is complete in from six to twelve hours. A yet more rapid method, I find, is to incubate for two hours and then centrifugalize, in which event the mastic will be precipitated in the positive tubes.

In positive cases the mastic will be precipitated in the first one, two, three or four tubes, and up even as high as the eighth in some. The reaction is simple to read and very convincing. The solutions are easily made; they are extremely inexpensive, and the end-results are much more easily read than in the colloidal gold tests. Indeed, were one to compare the colloidal gold and mastic tests side by side, the mastic is found to be the more convincing. In the fluid of one paretic with 133 cells per cubic millimeter, the colloidal gold showed after twenty-four hours only a 3332100000, whereas the mastic came down in eight of the ten tubes used. It was only after allowing the gold solution to stand for three days that a more complete curve resulted. Three paretic fluids showed irregularities with the gold test, which if taken alone would have been hard to interpret, whereas in all three the mastic showed a typical reaction. The accompanying table shows the classification, the number, and the results

obtained by the mastic and Wassermann reactions on the 200 cases.

In fourteen cases there was a positive mastic and a negative Wassermann reaction. Eleven of these had increased cell counts together with all the clinical signs of paresis and were so diagnosed. Two were diagnosed as cerebrospinal syphilis. The other case giving a positive mastic and a negative Wassermann reaction was that of a man of 50, who two and a half years before entering the hospital had had a "stroke," leaving him with a right-sided paralysis. On entering the hospital he had a mitral insufficiency with casts and albumin in the urine, and died one month later as a result of the heart and kidney complication. He gave a definite history of alcohol with an indefinite history of syphilis. The spinal fluid examination showed a cell count of 10 with an increase of globulin. In no case was there a positive Wassermann and a negative mastic reaction. In two cases in which the mastic test was always positive, the Wassermann test was at first negative, but later became positive.

Of the seven cases of epilepsy, two showed a very slight precipitation in the first tube. Two of the fifty cases of dementia praecox showed the same reaction,

TABULATION OF TWO HUNDRED MASTIC EXAMINATIONS

Classification	Number of Cases	Mastic	Wassermann
Paresis	68	+	+
Paresis	11	+	—
Cerebrospinal syphilis	2	+	+
Cerebrospinal syphilis	2	+	—
Tabes	1	+	—
Dementia praecox	50	—	—
Manic-depressive psychosis	31	—	—
Arteriosclerotic brain disease	6	—	—
Alcoholic psychosis	6	—	—
Senile psychosis	5	—	—
Involution melancholia	2	—	—
Paranoia	3	—	—
Mental defective	2	—	—
Autointoxication	1	—	—
Epilepsy	7	—	—
Traumatic psychosis	1	—	—
Alcoholism	1	—	—
Cerebral hemorrhage	1	±	—

but these were not to be compared with the precipitation in a positive case. In one patient diagnosed as having cerebral hemorrhage, there was a ± in the first two tubes.

Thus far my work has been confined to psychiatric patients. What the action will be in such diseases as poliomyelitis and tuberculous meningitis must be further investigated.

SUMMARY

The mastic test, when taken together with the history and with the cell count, is of undoubted aid in the diagnosis of syphilis of the nervous system.

By the addition of potassium carbonate, the degree of positiveness can be graded very accurately.

By first incubating and then centrifugalizing, the test can be completed in two hours.

It parallels quite closely the colloidal gold reaction, and is more easily interpreted and much more easily and quickly performed.

In eighty-four cases of syphilis of the nervous system, the mastic test was uniformly positive.

Workmen's Compensation.—Thirty-seven states, the territories of Alaska, Hawaii, and Porto Rico have enacted compensation laws, the United States adopting a like principle for the relief of its civilian employees under date of Sept. 7, 1916.—National Industrial Conference Board.

Clinical Notes, Suggestions, and New Instruments

METHODS FOR THE COLLECTION AND TRANSPORT OF BODY FLUIDS FOR BACTERIOLOGIC INVESTIGATION

ALFRED H. CAULFEILD, M.B.,* TORONTO, ONT.
Captain, Canadian Army Medical Corps

The exigencies of war have made the bacteriologic investigation of the body fluids even more imperative than during times of peace, while at the same time the accommodations surrounding the soldier-patient are frequently less adaptable to bacteriologic technic than they are in civilian practice. Consequently it seems desirable at the present time to record any advantageous modifications in the instruments and apparatus used for the collection and transport of such fluids.

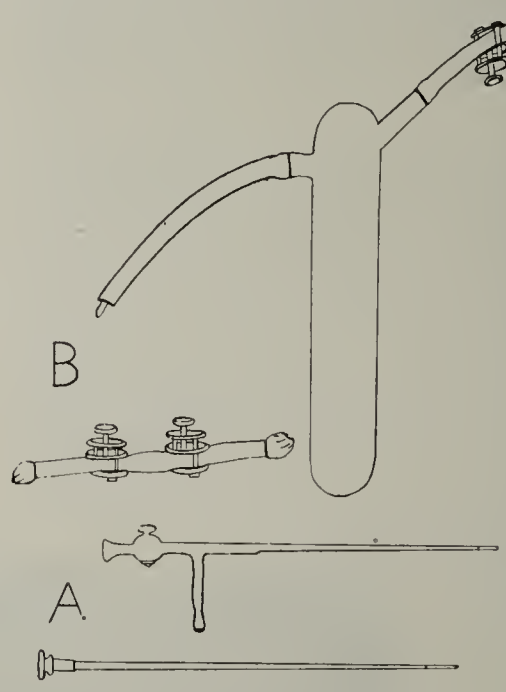


Fig. 1.—*A*, trocar and cannula; *B*, collection tube or flask of quartz glass.

Improvements to be of value should simplify the technic at the bedside, should insure safety and sterility during transport, and should not necessitate elaborate methods of preparation. Indeed, it is most desirable that the value and the result of the final investigation should not be dependent on any special care or expertness on the part of the nurse or lay attendant responsible for the original sterilization or for the transport of the material. In this connection it may be stated that devices by which sterilization may be carried out in the dry oven or autoclave, and which will leave without further manipulation the apparatus or instrument ready for transport, and convenient for use at the bedside, are the most satisfactory and trustworthy. Particularly is this true for those enjoying the facilities of organized hospitals and institutes, as it relieves them of all irksome detail or improvisation. For such metal articles as needles, trocar-cannulas, etc., dry sterilization is preferable,



Fig. 2.—Syringe.

in that any possibility of rusting and blocking of the bore is avoided. It is along these lines and with these points in view that I have attempted to develop the technic.

The general satisfaction I have experienced with the method herein described (which is an amplification of those previously used by me) is to a great extent due to the use of quartz glass for certain parts of the apparatus; and as the use of this material, so far as my knowledge or information goes, is not at all general with the profession, I venture

* Detailed for special investigation from No. 4 Canadian General Hospital (University of Toronto).

to present these methods in full, rather than serve them piecemeal in possible future publications. The particular advantage of quartz glass or silica lies in the fact that it has no coefficient of expansion, and consequently will not break or crack in extremes of heat and cold.

COLLECTION OF MATERIAL (SUCH AS CEREBROSPINAL FLUID) BY MEANS OF TROCAR AND CANNULA

The danger of contamination in catching fluid, as it flows from the open end of a straight needle or cannula, as well as the difficulty of avoiding hand contamination incident to the puncture operation, led me to adopt the form of trocar and cannula shown in Figure 1 *A*. The proximal opening of this instrument is ground to fit the nozzle of a syringe, in case the amount of fluid to be drawn is small and not under pressure.

The collection tube or flask of quartz glass is shown in Figure 1 *B*. In my experience tubes of this nature, made of ordinary glass, fail to give satisfaction, and sooner or later break during sterilization. Preparation for sterilization consists in fitting and wiring to the upper arm a short piece of pressure rubber tubing, the open end of which is lightly packed with cotton, and in attaching to the lower arm a short piece of ordinary rubber tubing, the open end of which is plugged with a glass rod. This will later facilitate handling at the bedside. At the same time an extra piece of pressure tubing should be similarly packed at the ends with cotton. The collection flask thus assembled and the separate piece of pressure tubing should be properly wrapped and sterilized in the autoclave. As four pressure tubing clamps

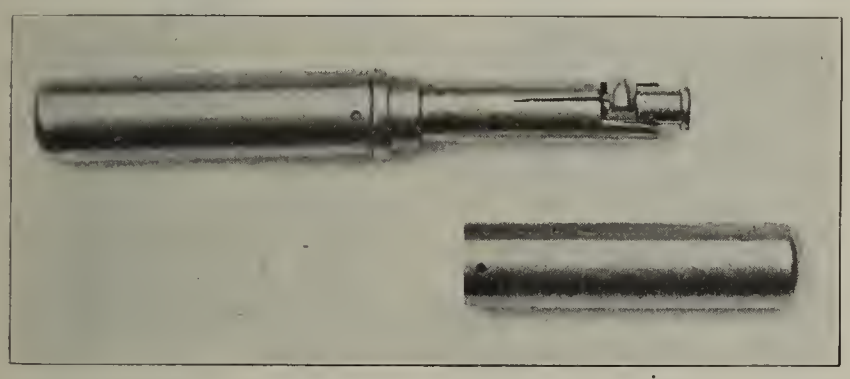


Fig. 3.—Needle holders.

will be required after the tube is filled at the bedside, it is advantageous to tie these to one of the sterilized articles.

Technic at the Bedside.—The cannula and flask are carefully unwrapped, and the soft rubber tubing slipped on the side arm of the former. Any possibility of contamination can be avoided by the use of an alcohol flame. Puncture is made with the collecting tube connected in this fashion to the cannula; then the trocar is withdrawn and the tap turned off. If fluid has appeared at the tap arm opening, it will readily run through the closed passageway into the tube. In case the amount of fluid is so small that it does not flow, a sample may be obtained by fitting a syringe into the cannula.

When the puncture is made, the collecting tube, so to speak, takes care of itself; afterward it should be held upright. When the cannula is withdrawn, the tubing is pinched with the fingers, and afterward separated from the arm of the tube. The opening of the arm with any content of fluid thus exposed should be thoroughly flamed, and while hot slipped into the spare piece of pressure tubing, which can be additionally secured by copper wiring, if this is thought necessary. Finally, by tightly screwing down two clamps on each piece of tubing, these passageways are effectively blocked. The tube is now packed or carried in any position, and is proof against contamination taking place during transport.[1]

COLLECTION OF MATERIAL (SUCH AS BLOOD) BY HYPODERMIC SYRINGE AND NEEDLE

The general satisfaction and convenience that would be afforded, were it possible to sterilize in the dry oven syringe and needles already packed in their cases, led me to devise the syringe, needle holder and case illustrated.

That the parts of the syringe (Fig. 2) need not be separated during sterilization, the proximal end of the graduated quartz glass barrel is cemented to a metal collar corresponding in length to the plunger, and of slightly larger diameter than the plunger to allow for expansion. The collar thus provides, so to speak, a safety expansion chamber for the plunger, which is withdrawn into the chamber during the process of sterilization.

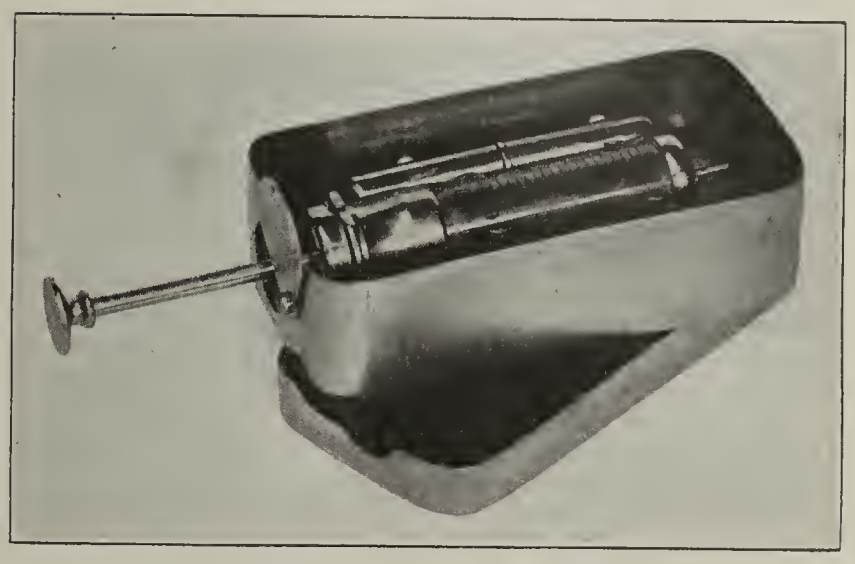


Fig. 4.—Case, and adjustment for sterilization.

As shown in the illustration of the needle holder (Fig. 3), the removal of either protection cap exposes the head of one of two needles. By this means adjustment of the needle of the nozzle of the syringe can safely be made at the bedside. The remaining cap allows one to handle the needle holder with ease and without risk of contaminating the remaining needle or the needle adjusted. In one of the caps there is a small aperture which before sterilization should be adjusted to a similar opening in the inner sheath of the holder to prevent the cap being forced off.

The illustration of the case, and adjustment for sterilization (Fig. 4) shows the syringe with piston extended through an opening in the end of the case, so that the plunger rests in the safety chamber. It is advisable to pack cotton around the needle holder and syringe before replacing the top and sterilizing. As soon as cooling has taken place after dry sterilization, the piston is shoved home into the barrel with sterile forceps, sterile cotton inserted or not as desired, and the opening closed by the shutter. This shutter is so constructed that it is with difficulty opened while the lid is on the case. Sterilization in the manner described insures that everything within the case is sterile, and moreover the syringe and needles will later be found convenient for use at the bedside.

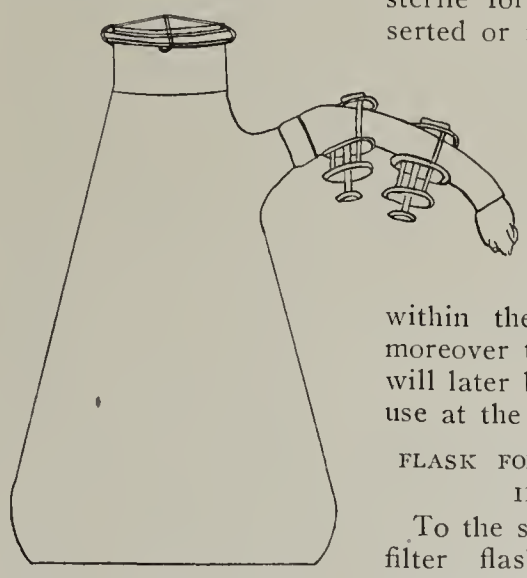


Fig. 5.—Flask for transport of blood in fluid state.

FLASK FOR TRANSPORT OF BLOOD IN FLUID STATE

To the side arm of an ordinary filter flask (containing citrate solution) is attached and wired a short piece of pressure rubber tubing, the open end of which is plugged with cotton (Fig. 5). The mouth of the flask is stoppered with a well fitting rubber cork, which is additionally secured by crossed copper wire. After sterilization in the autoclave, the tubing is blocked by two pressure tubing clamps and the cork paraffined.

Technic at the Bedside.—As everything within the syringe case is sterile, the syringe intact and ready for use, and as the head of the needle can be exposed with safety and ease,

1. Cleaning of these tubes is easily accomplished, as any particles or clots not easily washed out can be completely carbonized over a Bunsen or blast flame.

the adjustment and use of the syringe and needle are very simple. Any possibility of contamination is fully excluded by the use of an alcohol flame. To discharge the blood from the syringe, the needle, on withdrawal from the vein and while still attached to the syringe, is heated and pressed through the cork of the flask. Both clamps on the rubber tubing should be released before depositing the blood, and afterward retightened. The flask may now be packed for transport.[2]

FLASK FOR DISTRIBUTION OF STERILE ENRICHMENT FLUIDS IN QUANTITATIVE AMOUNTS TO CULTURE TUBES

The subsequent bacteriologic investigation of the body fluids is so closely connected with their collection and transport that a brief reference to a device dealing with this aspect may be regarded as within the scope and intention of this paper.

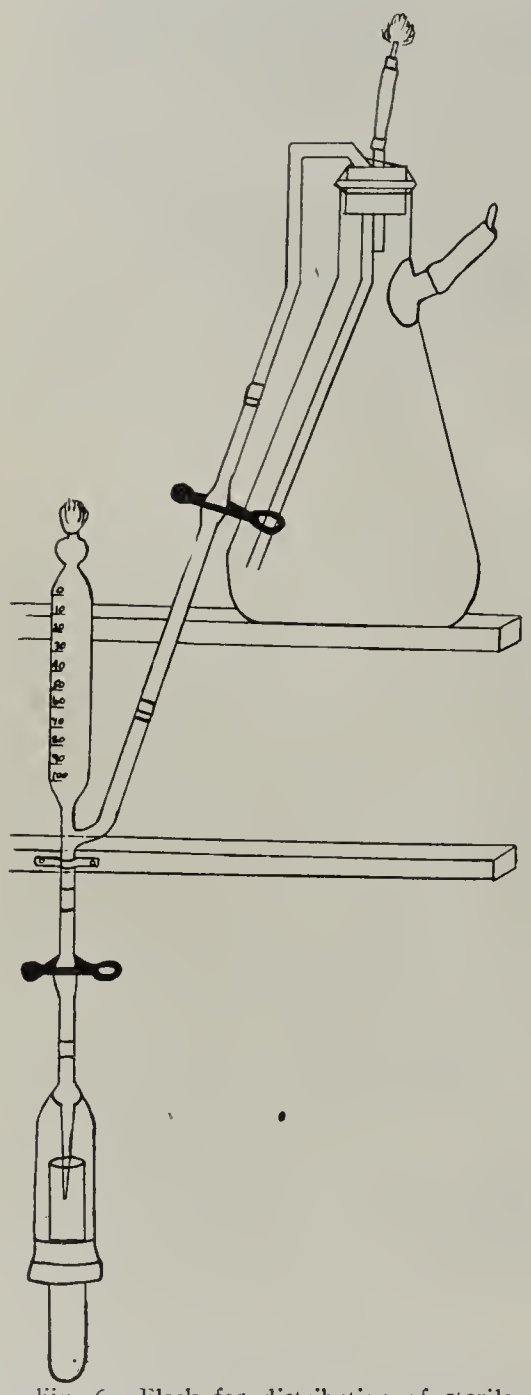


Fig. 6.—Flask for distribution of sterile enrichment fluids in quantitative amounts to culture tubes.

The purpose of the flask is to provide a sterile receptacle so that enriching fluids can easily and without risk of contamination be distributed quantitatively to tubes of the ordinary laboratory mediums. Some such method is almost a necessity if the work is not routine in character. In this part of the work, as well as in the collection of body fluids, simplification in the technical detail is the surest method of incorporating bacteriologic examinations with the practice of medicine.

The arrangement of the apparatus consists in attaching to a large filter flask a graduated tube by means of pressure rubber tubing as shown in Figure 6. The tightly fitting rubber cork of the flask is pierced by a cotton-plugged air vent, and the glass tubing (for siphonage) which is connected to the graduated cylinder. This cylinder plugged with cotton at the top leads by means of pressure tubing to a hooded pipet, which is protected by a test tube held in place by a cork in the manner shown by the illustration. It is safer if all rubber tubing connections and the cork are wired and after sterilization paraffined. As the different fluids must be obtained sterile or rendered so by filtration or other means, the flask thus fully assembled is sterilized before being filled through the side arm, after which this side passageway is properly blocked by a heated rod or tube and clamped. Once the flask is filled, siphonage is obtained by forcing air through the air vent and releasing the clamp to the graduated chamber. As the hooded pipet is made of quartz glass, there is no danger of cracking during the necessary use of the Bunsen flame before and after the withdrawal of the fluid.[3]

2. Besides the individually desired materials for skin sterilization, very few articles need be carried to the bedside when the methods described above are used. Thus for the first type of operation the only necessary articles are: (1) wrapped sterile trocar and cannula; (2) wrapped sterile flask and extra piece of tubing, and (3) spirit lamp. For the second type: (1) sterile case of syringe and needles; (2) sterile flask containing citrate solution, and (3) spirit lamp. My experience with these two types of collecting flasks might be summed up by stating that all specimens of cerebrospinal fluid and blood, collected as described from seven patients, showed no contamination after transport from the North of Ireland to London; and that material shaken and immediately incubated remained sterile.

3. A properly filled flask may quite safely be forwarded, provided all three exits are additionally clamped, and of course breakage guarded against by careful packing. Flasks of 1,000 c.c. of filtered horse serum have provided sterile enrichment fluid for culture tubes until emptied. This means that small amounts have been easily withdrawn on about 200 occasions, without the stock fluid becoming contaminated. The following precautions are suggested on the avenues of infection that might be overlooked: 1. In refilling the graduated tube, care should be taken that the fluid is not allowed to reach the cotton of the air vent. 2. The tube to which the enriching fluid is to be added should be thoroughly flamed before being inserted within the hood, so that there is no possibility of the discharging tip becoming contaminated from the inner wall of the tube. The test tube protecting the tip and blocking the mouth of the hood should be treated in the same way before being reinserted.

THE RATIONAL AND COMFORTABLE TREATMENT OF FRACTURE OF THE CLAVICLE BY MEANS OF A CRUTCH SPLINT

Walter Kelton, M.D., Seattle

Not long ago there came under my observation a case of fracture of the clavicle wherein the Sayre dressing, or Velpau, could not be utilized. The patient, in addition to sustaining a fracture of the clavicle, had also received a severe trauma of the upper arm and forearm of the same side, causing great swelling at the elbow. The arm was fleshy, and this, together with the swelling, made it impossible to use any of the conventional dressings, as in order to do so it would have been necessary to keep the patient continually narcotized and to take chances of interference with the circulation.

A diligent search of the literature for some kind of apparatus or dressing which would take care of the case in hand revealed the Velpau, Sayre and Dessault dressings, and a few modifications of these, as the only hope which could be offered the patient for the correction of his injury.

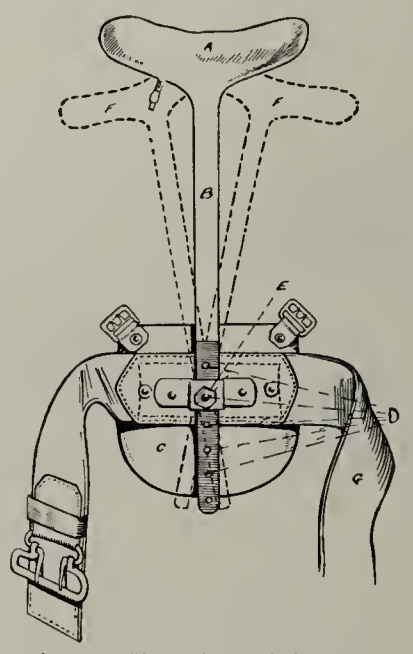


Fig. 1.—Side view of fracture crutch.

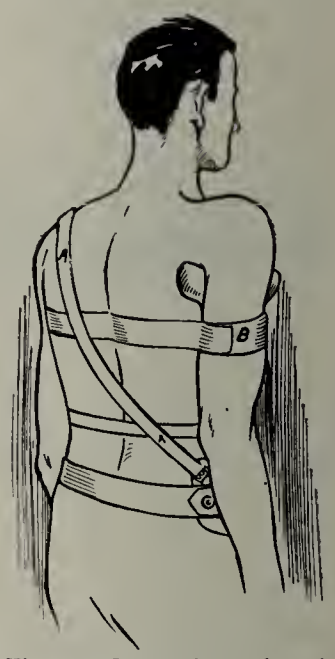


Fig. 2.—Rear view of patient with straps adjusted.

I constructed an apparatus which would perform the dual service of correcting the injury and alleviating the suffering.

The apparatus consists of a T shaped steel bar, on the horizontal or upper part of which rests a pneumatic tube covered over with chamois skin and which fits into the axilla (Fig. 1 *A*). The upright steel bar fits the side of the chest and extends downward to the hip (Fig. 1 *B*), where it is attached to an aluminum plate covered also with chamois skin and shaped to fit snugly over and rest on the hip. (Fig. 1 *C*). Holes placed equidistant in the upright bar (Fig. 1 *D*), render the apparatus adjustable to any adult. The bolt (Fig. 1 *E*) fastening the aluminum plate to the

upright bar may either be adjusted tightly so as to prevent mobility of the crutch with the forward and backward movement of the body, or fixed loosely so as to allow for such motion. (The latter seems preferable—note dotted lines *F, F*, Fig. 1). A belt (Fig. 1 *G*) fastened to the aluminum plate buckles around the waist; and straps extending from this plate over the opposite shoulder (Fig. 2 *A*) give additional security and comfort. A strip of adhesive tape 3 inches wide is placed round a pad (Fig. 2 *B*) over the arm on the injured side just below the axilla, the free end extending back under the opposite axilla and to the sternum in front.

With this apparatus we are enabled to meet all the requirements known as cardinal principles in treatment of fracture of the clavicle, namely, bringing the arm upward, outward and backward: (1) upward by means of the crutch resting on the hip; (2) outward by means of the pneumatic cushion in the axilla acting as a fulcrum, and (3) backward by the use of the adhesive strap around the arm and fastened to the back.



Fig. 3.—Front view of patient with straps adjusted.

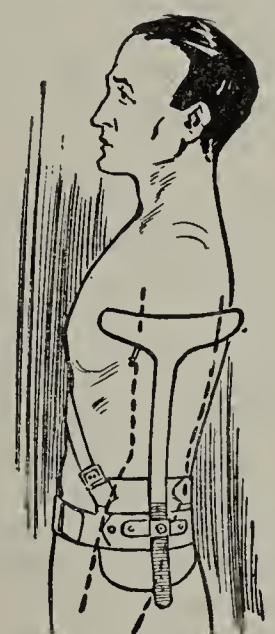


Fig. 4. — Fracture crutch strapped to patient.

ADVANTAGES OF THE CRUTCH SPLINT

1. Most important of all, it is comfortable, and free from the almost intolerable suffering caused by other dressings.
2. It can be used in many cases in which the Sayre or Velpeau dressings cannot be applied.
3. It can be used innumerable times.
4. It can be adjusted to any adult physique.
5. It is inexpensive.
6. It is easily applied and cannot be worked out of place by the patient as are the Sayre and Velpeau dressings, on account of their discomfort.
7. There is no chafing of the skin, the parts are open to inspection, and the apparatus can be easily removed and the injured parts massaged.
8. It allows free use of the forearm and hand.
9. It applies the proper mechanics, meets all the cardinal requirements, and affords perfect immobilization.

Atypical Meningitis in Denmark.—The *Hospitalstidende* publishes a notice from the state serum institute at Copenhagen to the effect that in the towns and rural districts of Denmark there have recently been cases of cerebrospinal meningitis in an atypical form: slight or no meningeal symptoms, high fever, mild catarrh and hemorrhages into the skin, either as petechiae or blue patches, some as large as one's palm. The disease thus simulates scurvy or typhus, but the meningococcus is responsible for it, as also for certain cases with an exanthem suggesting roseola. The institute urges that spinal fluid from all such cases be sent at once for examination, and asks for the data from all such cases that have been encountered, whether terminating in death or recovery.

BACILLUS WELCHII INFECTION AND INTOXICATION *

CARROLL G. BULL, M.D., AND IDA W. PRITCHETT, NEW YORK

The problem of gaseous gangrene in connection with shot and shell wounds has been only partially solved by improvements made in the antiseptic treatment of wounds. The essential nature of *Bacillus welchii* infection has not been established, and this lack of a certain basis of knowledge has hampered progress. Whether the bacilli are mere saprophytic concomitants of an infectious process induced and maintained by other pathogenic micro-organisms, as is held by Weinberg and Séguin, or whether tissue destruction is due to a mechanical action of the gas formed, as is held by Kenneth Taylor, or whether they possess invasive powers of their own, as others believe, has not been definitely settled. The indications are, however, that the bacilli tend not to invade the general blood stream and hence do not produce a septicemia to which the severe effects often noted in gas bacillus infection may be ascribed. It would appear, therefore, that a form of poisoning from local action of the bacilli arises; but it has yet to be shown that the bacilli of Welch are toxin-producing bacteria.

We have been able to establish this point. By cultivating the bacilli anaerobically in broth to which sterile, unheated skeletal muscle of the pigeon or rabbit has been added, a highly toxic fluid is obtained. The toxicity of the fluid is independent of acid and is not essentially influenced by filtration through porcelain which removes the bacilli. The degree of toxicity is also very high if the incubation has not been continued too long. For example, 0.25 c.c. of such a filtered fluid injected into the breast muscle of the pigeon produces intense edema and degeneration of the muscle, and death in a few hours. Corresponding lesions are also produced in the guinea-pig and rabbit. In other words, aside from actual gas formation, the essential lesions arising in *Bacillus welchii* infection in animals are reproducible with this toxic fluid.

The toxic substances are thermolabile. They have been distinguished into a hemolysin which destroys the red corpuscles and another poison not acting on the blood directly, but nevertheless lethal in effects.

If rabbits and other animals are immunized with the toxic filtrate, (*a*) active immunity is produced, and (*b*) an effective antitoxic serum is obtained. With the latter, infection with the bacilli and intoxication with the poison are preventable. The reaction between the immune serum (antitoxin) and toxin conform to the law of multiple proportion.

Our experiments lead us to place the pathogenic members of the *Bacillus welchii* group in the class of toxin-producing bacteria, and to ascribe to them invasive and poisonous properties of their own which are directly responsible for many of the severities observed in connection with the wound infections of the war. They also indicate that by suitable methods of preparation a protective and curative immune serum may be produced.

A detailed account of the experiments on which these statements are based will appear in a forthcoming number of the *Journal of Experimental Medicine.*

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* From the Laboratories of The Rockefeller Institute for Medical Research.

Results of Tuberculosis Treatment at Home.—A report of the Association for Improving the Condition of the Poor of New York on the Home Hospital of the association has recently been issued covering a period of four years. The feature which this report particularly emphasizes is that by their plan many of the patients have been enabled to return to their work. The hospital has found that the care of children in homes where one or both of the parents are tuberculous constitutes one of its greatest problems. They find that nearly one third of the children in such families are afflicted with tuberculosis, while many more than one third are delicate or underweight. Of 140 adult patients who have been treated in the hospital for more than three months and who followed advice, only ten died and seventeen were reported as unimproved. In sixty cases the disease was definitely arrested, thirteen were reported improved, twenty-five as apparently arrested, and fifteen as quiescent.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1697*)

TREATMENT OF PYELITIS

The diagnosis of these infections of the kidney can be determined only by the microscope, by staining the bacteria, and by cultures; which kidney, if not both, is involved must be determined by the physical examination, by the passage of the ureteral catheter, by roentgenograms and, if necessary, by pyelography. All primary infections or localized infections in other parts of the body must be discovered and removed, if possible.

Whatever the germ or germs may be that are causing the infection, the objects aimed at are: (1) good circulation in the kidneys; (2) prevention of absorption of toxins and germs from the intestine; (3) free drainage, and (4) modification of the character of the urine.

1. It is essential that the circulation in the involved kidney should be as perfect as possible; hence, if the kidney is displaced, it should be held in proper position. If the general circulation is poor, it should be improved by digitalis or by some other method. Ordinarily, it is not advisable for such a patient to remain in bed, as bed rest tends to increase the congestion of the kidneys; better drainage from the pelvis of the kidney is secured when the patient is up and about.

2. The bowels should be moved freely every day. Whether a saline laxative or a vegetable laxative should be used will be determined by the needs of the individual patient. The diet should be one which tends to cause the least intestinal fermentation. It may be advisable temporarily to change the diet radically from a mixed to a vegetable, or a milk diet. It may be well to give yeast or lactic acid bacilli.

3. To meet the third indication the patient should drink plenty of water to dilute the urine and to wash out more effectively any débris that may have been deposited in the pelvis of the kidney, whether bacteria alone, or pus, mucus and bacteria.

4. If the urine is very acid, especially if there is bladder irritability, it may be well to give an alkali for a short time, such as potassium citrate in 2 gm. doses; but this alkali should not be given over a long period of time, nor should the urine be allowed to be long alkaline, as most germs grow better in an alkaline medium. Sometimes much of the bacilluria disappears when the urine is made normally acid. Hence if the urine is alkaline in a bacilluria (which is generally not true when there is kidney pus), dilute hydrochloric acid should be given after meals. The dose need not be large — from 5 to 10 drops.

Perhaps the best germicidal treatment is hexamethylenamin, in a dose of 0.5 gm. (7½ grains) in water four times a day. It has been stated that to be antiseptic in the pelvis of the kidney the dose of hexamethylenamin must be much larger than this, but most persons tolerate a larger dose than the one named only for a short time. This drug may cause some bleeding from the kidneys, uretal pain and bladder irritation. When hexamethylenamin is prescribed, an alkali should not be given.

If this treatment, which is the best, does not succeed, or if for any reason hexamethylenamin disagrees with the patient, phenyl salicylate may be given in 0.25 gm. doses, in capsule form, four times a day. This is sometimes successful in mild cases of bacilluria. Santal oil has also been used.

This treatment is frequently successful in more or less permanently curing a bacilluria; at times it is used with success in treating a mild purulent infection of the pelvis; and it is also possible to evacuate and heal a small abscess of a kidney in this manner.

On the other hand, most purulent kidneys are difficult to treat. Both stock and autogenous vaccines have been used with varying success; perhaps the most usual result is failure.

A more radical treatment is to wash out the pelvis of the kidney through the ureteral catheter with boric acid or a silver solution.

Geraghty[127] finds that in simple pyelitis renal pelvis lavage is of great value, and he uses either a silver nitrate solution or a weak solution of formaldehyd. He injects into the kidney pelvis from 5 to 10 c.c. of a 0.5 per cent. silver nitrate solution, and passes the catheter only a short distance into the ureter for the purpose of treating a coincident ureteritis at the same time. The strength of the injection is gradually increased until it has reached 5 per cent. The increase is gradual to obtain tolerance.

It can be readily understood how frequently little pockets of pus — which may be discovered by pyelography — may be located in the kidney tissue around the pelvis. When such small abscesses are present, even with injections, the cure may be slow and imperfect, and they may readily recur.

Geraghty believes that when there is considerable pelvic dilatation, pelvic lavage is of little value. He has also advantageously used formaldehyd solution, from 1 part to 5,000 parts of water, to 1 part to 2,000 parts of water.

Kretschmer and Gaarde[128] believe that many cases of pyelitis in adults, especially when it occurs during pregnancy, represent exacerbations of a pyelitis of infancy which has remained latent for years. They believe that chronic colon pyelitis which has resisted medicinal treatment is best treated by pelvic lavage with a 1 per cent. solution of silver nitrate; they reject the stronger solutions suggested by Geraghty. If there is much pus in the pelvis of the kidney they wash it out first with a weak boric acid solution. They use, on an average, from 5 to 7 c.c. of a 1 per cent. silver nitrate solution, and repeat the injections at five or six day intervals until the urine is sterile and free from pus. The number of injections required in each case in the fourteen cases of pelvic lavage summarized varied from one to eight. In these fourteen cases they reported eleven cures, as proved by negative cultures. All injections must be given slowly, and actual distention of the pelvis avoided.

Murphy[129] believed that though vaccines often fail, they are frequently of great value in genito-urinary infections. He condemned their indiscriminate use, however, as in obstructive pyelitis, but advised the use of vaccines in infection with free drainage when the condition of the patient was satisfactory. He recommended caution in dosage, and began with 100 million dead bacteria as the first dose, increasing this

127. Geraghty, J. T.: The Treatment of Chronic Pyelitis, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2211.

128. Kretschmer, H. L., and Gaarde, F. W.: The Treatment of Chronic Colon Bacillus Pyelitis by Pelvic Lavage, THE JOURNAL A. M. A., June 24, 1916, p. 2052.

129. Murphy, J. B.: Interstate Med. Jour., November, 1914, p. 1214.

number rapidly until there was a reaction. He stopped the treatment from three to eight days and then gave the same or a slightly increased dose, according to the previous reaction. A severe headache or a temperature of 102 indicates a smaller dose, and the largest dose should not exceed 30 billion bacteria. The injections should be given deep into the muscles, and slowly. When more than 10 billions are given at once they should be injected at two or three separate points. Of course smaller doses may be given intravenously. A severe local reaction should not alarm, although these injections may cause necrosis of tissue.

Murphy obtained the best results in colon bacillus infections. He believed that if the infection of the kidney came by way of the blood, the trouble would be in the parenchyma of the kidney and the microscopic examination of the urine might suggest the depth of the location of the infection in the kidney substance by the character of the epithelial cells. If an infection reached the kidney from below by way of a dammed back urine, the pelvis would of course be infected first. He also recognized the lymphatic route of infection from the pelvis or other parts of the abdomen.

If an autogenous vaccine cannot be produced from the infecting bacteria in the urine or from some localized infection, like that of the prostate, it may be isolated from the blood serum or from an infection in some other part of the body, if such causative localized infection is present. The tonsils, the sinuses adjacent to the nose, and the gums and teeth should be studied for possible sources of infection.

While the most frequent germ of infection is the colon bacillus, the staphylococcus, the streptococcus and the gonococcus are also not infrequent infective agents. Ramsey[130] found that in 100 cases of infection, ninety were caused by the colon bacillus.

If a purulent kidney does not improve rapidly, if the patient is becoming debilitated, or if the kidney is found enlarged and examination of the urine from this kidney shows that the kidney structure is diseased, temporizing should cease, and the kidney should be removed, unless the other kidney is so diseased as to render the operative danger very great.

(To be continued)

130. Ramsey: St. Paul Med. Jour., 1914, **16**, 343.

Mortality from Cancer.—The Bureau of the Census has just issued a monograph compiling and analyzing, under twenty-nine separate headings, deaths from cancer in the registration area of the United States in 1914. The total number of deaths for that year, from cancer and other malignant tumors, in the registration area was 52,420, the estimated population of this area being 66.8 per cent. of the total population. As a result of investigation of the reports as originally made to the bureau, the diagnosis of cancer was determined to be reasonably certain in 30,555 instances, or 58.3 per cent. of the total; 14,404, or 27.5 per cent., were regarded as uncertain, and in 7,461, or 14.2 per cent., the diagnosis was classified as unknown. It is on this basis that the analysis of the cases was made. The increase in cancer in the United States is indicated by the mortality figures taken from the registration area as it existed in the several years mentioned, as follows: 1906, 29,020, a rate of 69.1 per hundred thousand of population; 1907, 30,514, rate 70.9; 1908, 33,465, a rate of 71.5; 1909, 37,562, a rate of 73.8; 1910, 41,039, a rate of 76.2; 1911, 44,024, a rate of 74.3; 1912, 46,531, a rate of 77.0; 1913, 49,928, a rate of 78.9; 1914, 52,420, a rate of 79.4. Of the deaths in 1914, it is said that 19,889, or 37.9 per cent., were due to cancer of the stomach and liver, and 8,152, or 15.6 per cent., to cancer and other malignant tumors of the female genital organs.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

THORIUM NITRATE.—**Thorii Nitras.**—$Th(NO_3)_4 + 4H_2O$.—The thorium salt of nitric acid.

Actions and Uses.—The soluble thorium salts bear a close resemblance to alum in their local astringent and irritant properties. They are not absorbed from the alimentary canal. Hypodermically, they cause local sloughing, and intravenously, they kill by coagulating the blood. The nonprecipitant double salts are practically nontoxic, even intravenously. They are excreted by the kidneys. Thorium salts are fairly radioactive. They have been recommended for local application in malignant diseases, and thorium emanation has been inhaled in phthisis. Reliable evidence as to other therapeutic uses of thorium salts is lacking.

Thorium nitrate occurs as white crystalline granules or lumps. Very soluble in water and alcohol. On calcination it yields a voluminous, white oxide, which should amount to from 48 to 50 per cent. of the original salt. The aqueous solution dries over sulphuric acid to a crystalline mass.

An aqueous solution gives a white precipitate with ammonium carbonate, the precipitate being completely soluble in an excess of the precipitant. The aqueous solution gives with caustic alkalies a voluminous precipitate of the hydroxide insoluble in an excess of the precipitant. The presence of tartaric or citric acids prevents the precipitation. Potassium ferrocyanide produces an amorphous precipitate.

THORIUM SODIUM CITRATE SOLUTION.—Prepared by dissolving thorium nitrate, 10 Gm., and sodium citrate, 15 Gm., in water to make 100 Cc.

Actions and Uses.—The citrate of thorium and sodium is opaque to the Roentgen rays. It is used especially in the diagnosis of diseases of the renal pelvis and urinary bladder.

Dosage.—This solution is employed chiefly for cystograms. It should be sterilized by boiling before use.

According to the method of J. E. Burns (THE JOURNAL, June 26, 1915, p. 2126) to make 100 Cc. of the solution, 10 Gm. of thorium nitrate are dissolved in as little distilled water as possible; to this solution, kept hot on a water or steam bath, are added 30 Cc. of a 50 per cent. solution of sodium citrate, the additions being made in small quantities and care being taken to shake the solution thoroughly after each addition. This solution is then made neutral to litmus by the careful addition of a normal solution of sodium hydroxide, and made up to 100 Cc. with distilled water. On filtration, a clear, limpid solution is obtained, which, when sterilized, either by boiling or steam under pressure, is ready for use.

Thorium Solution for Pyelography, H. W. & D., 10 per cent.—This solution has the composition and is prepared according to the method given for thorium sodium citrate solution.

Prepared by Hynson, Westcott and Dunning, Baltimore. No U. S. patents or trademarks.

STRONGER THORIUM SODIUM CITRATE SOLUTION.—Prepared by dissolving thorium nitrate, 15 Gm., and sodium citrate, 22.5 Gm., in water to make 100 Cc.

Action and Uses.—The double citrate of thorium and sodium is opaque to the Roentgen rays. It is used especially in the diagnosis of diseases of the renal pelvis and urinary bladder.

Dosage.—This solution is employed chiefly for ureteropyelograms. It should be sterilized by boiling before use.

According to the method of J. E. Burns (THE JOURNAL, June 26, 1915, p. 2126) to make 100 Cc. of the solution, 15 Gm. of thorium nitrate are dissolved in as little distilled water as possible; to this solution, kept hot on a water or steam bath, are added 45 Cc. of a 50 per cent. solution of sodium citrate, the additions being made in small quantities and care being taken to shake the solution thoroughly after each addition. This solution is then made neutral to litmus by the careful addition of a normal solution of sodium hydroxide, and made up to 100 Cc. with distilled water. On filtration, a clear, limpid solution is obtained, which, when sterilized, either by boiling or steam under pressure, is ready for use.

Thorium Solution for Pyelography, H. W. & D., 15 per cent.—This solution has the composition and is prepared according to the method given for stronger thorium sodium citrate solution.

Prepared by Hynson, Westcott and Dunning, Baltimore. No U. S. patents or trademarks.

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SATURDAY, JUNE 16, 1917

THE EXPERIMENTAL PRODUCTION OF CANCER

It has long been evident that many questions concerning the etiology of cancer would not be answered until this disease could be produced experimentally at will. This accomplishment would make possible the study of the development of the growth step by step, the determination of the factors necessary to incite malignant proliferation, and, evidently, the simultaneous exclusion of unessential or unimportant possible factors. In view of the importance of the subject, it would seem that surprisingly little systematic attempt has been made to accomplish the experimental production of cancer, as far as the literature shows; but it is probable that many more or less extensive experiments have been attempted that have never been reported because of the failure to accomplish their object. Of late years, experimental cancer research has concerned itself chiefly with the transplantable tumors, especially of mice, rats and fowls, but always with the recognition that this was quite a different thing from the production of a spontaneous tumor in an animal through malignant transformation of its own cells. Transplanted tumors have afforded much information concerning the general biology of cancer; but this information bears only indirectly on the solution of the etiology of cancer.

Among the recorded attempts to produce cancer in animals, perhaps the work of Bernhard Fischer is best known. Fischer obtained marked epithelial overgrowth and invasion of the subepithelial tissues with epithelial cells in response to the stimulation produced by fat-soluble dyes, notably scarlet red. But although this overgrowth often resembled carcinoma in its general histologic features, true cancer was never produced, for the growth stopped spontaneously when the effect of the dye was exhausted, and did not progress or produce metastasis as a true cancer should. More recently Fibiger[1] obtained actual carcinomatous growths in the stomachs of rats that had eaten roaches infected with a parasite (*Spiroptera*) which grows in the rat's stomach and stimulates the growth of the epithelial lining. Fibiger has reported producing six definitely carcinomatous growths among many simple papillary hyperplasias, and of these, four produced metastases. This set of observations parallels the production of cancer in the urinary bladder as a result of infection with *Bilharzia* in man. It may be fairly called the first successful series of experiments leading to the intentional production of cancer; but it leaves much to be desired as a method of research, largely because the exciting agent is not capable of exact control. The experimenter can merely feed infected roaches to rats, but the degree of infection of the rats, its site, and the presence of other factors that may influence the process are entirely beyond his control.

In human pathology we have certain forms of irritating or stimulating agents that experience has taught are peculiarly likely to incite cell proliferation that terminates in malignant growth. Most conspicuous of these are the Roentgen rays, which have had many victims of skin cancer; yet, as far as we know no one has produced cancer intentionally in animals by the use of this agent. Certain types of chemicals also have a similar effect in man, notably tar, pitch, paraffin, soot, and certain anilin dyes. By taking advantage of this property of tar, Yamigawa and Ichikawa[2] in the University of Tokyo have now succeeded in causing the production of marked epithelial overgrowth in the ears of rabbits with great regularity, and often the formation of true squamous cell cancers. The method of procedure consisted simply in painting coal tar on the inner surface of the ear every two or three days for from fifty to 400 days. This stimulates the epithelium, especially of the hair follicles, and hornified retention cysts are formed. After from thirty to sixty days there appear minute nodules that consist of growths derived from the hair follicle epithelium, which may take either a polypoid or a verrucose form; and some of the latter growths develop to cutaneous horns if the application of tar is stopped. The verrucose growths, under continued stimulation, may assume an infiltrative character, invading even the ear cartilage, growing into the lymphatics and veins, and in two instances at least in this series, producing metastases in the regional lymph glands. In other words, these growths recapitulate in all essential respects the ordinary skin cancers arising in the human skin as a result of protracted stimulation, whether from light, mechanical or chemical irritation. The Japanese investigators have made possible the production of cancer at will in experimental animals, and thus extend greatly the possibilities of cancer research.

The bearing of their observations on the question of the infectious etiology of cancer is interesting and important. Although untold thousands of rabbits have

1. Fibiger, J.: Ztschr. f. Krebsforsch., 1914, **14**, 295.

2. Yamigawa, Katsusaburo, and Ichikawa, Koichi: Experimentelle Studie über die Pathogenese der Epithelialgeschwülste, Mitt. med. Fak. d. k. Univ. Tokyo, 1915, **15**, 295-344; 1917, **17**, 19-67; Japan. Ztschr. f. Krebsforsch., 1916, **10**, No. 4.

been observed in laboratories, no case of spontaneous tumor of the ear in rabbits seems ever to have been reported; in fact, rabbits are less subject to tumors of any sort than almost any other domestic animal. Nevertheless the opportunity for a cancer parasite, if such there is, to obtain entrance to the tissues of the rabbit's ear are unsurpassed, between the common use of metal tags in the ears for identification, of notching the ears for the same purpose, and needle punctures for bleeding or inoculation, to say nothing of the universal use of the rabbit's ears as a convenient handle. In contrast to the complete exemption of the rabbit's ear to cancer in spite of these opportunities for infection, we find that deliberate stimulation of epithelial growth by a chemical mixture of considerable bactericidal strength leads regularly to a hyperplasia of epithelium which commonly assumes a neoplastic character, often malignant. The least one can say is that these experimental cancers add one more to the numerous features of cancer growth that are extremely difficult to ascribe to an infection, and readily explained as the result of protracted, nonspecific stimulation of cell multiplication.

THE LIFE OF THE RED BLOOD CORPUSCLES AND "BILE CIRCULATION"

It is generally accepted that the red blood cells of the body have a comparatively brief existence. These corpuscles are believed to be disintegrated somewhere in the circulation. When the evidence for this widely taught belief is carefully examined, however, it appears to be extremely indirect and circumstantial in character. The fact that the mammalian erythrocyte is assumed to be a cell which has lost its nucleus has been cited in favor of the probability of a brief survival for the denucleated structure.[1] The experiment has been made to determine the length of time during which foreign corpuscles, such as those of birds, can be recognized after injection into the circulation of a mammal. Such a method of investigation has properly been designated as beside the mark, because these foreign cells will be destroyed by the serum and rapidly taken up, like other foreign particles, by the phagocytes of the body. Nevertheless the destruction of red blood cells sooner or later is presaged by the fact that these are often found engulfed in large cells of various tissues and organs, such as the spleen and hemolymph glands, so that pigment granules supposedly obtained from the disintegration of the red corpuscles can often be recognized.

A further widely accepted belief looks on free hemoglobin, the characteristic constituent of the red blood cells, as the mother substance from which the bile pigments are generated. The latter are thus looked on as the most significant derivatives of the blood pigment. The chief place of disintegration of the hemoglobin has been assigned to the liver, the organ in which the pigmentary residue is supposed to be converted into bile pigment. Injection of hemoglobin into the circulation is reported to lead to an augmentation of bile pigment in the secretion from the liver. The administration of hemolytic poisons, such as phosphorus, arseniuretted hydrogen, and toluylendiamin, results in an icterus which has been argued to be hepatogenous, rather than hematogenous in character. The biliary passages, so the assumption goes, are unable to eliminate the undue amounts of bile pigments produced in the liver from the excess of liberated hemoglobin, so that there is an abnormal reversed discharge of the bile pigment back into the blood. Further, it has been stated that injected bilirubin is promptly excreted into the bile as well as by the kidneys.

Although no one actually knows just when and how red corpuscles go to pieces, the assumption that their pigment ultimately appears in the bile in the new guise of bile pigment has enabled a calculation of the probable life of the corpuscles to be made. An element of obvious error creeps in owing to the uncertainty as to the actual amount of end-product, that is, bile pigment, formed and excreted daily. Nevertheless the estimates made have placed the amount of hemoglobin disintegrated daily at one tenth of the total present in the body. The total life of the red corpuscle, on this hypothesis, cannot exceed ten days.[2]

The fundamental basis for all of the foregoing conclusions regarding the short cycle of the red blood corpuscles, let us reiterate, is the assumption that the bile pigments are formed from hemoglobin. If there is a suspicion, to quote Hooper and Whipple,[3] that other substances than hemoglobin may be formed into these end-products or that some of the used up hemoglobin may not be formed into this end-product, we may also question the life cycle of the red cell as determined in this manner. At least we may say that there is a possibility of error, and assume that the life of a red cell may be normally more than from ten to fourteen days. Whipple and Hooper,[4] in an elaborate series of investigations on dogs with biliary fistulas, have found that blood feeding has no influence on the secretion of bile pigment in the normal dog. Whole blood of the sheep, pig or ox, freshly defibrinated, given to the dog by stomach tube does not influence the output of bile pigments or the volume of bile. Freshly laked dog red cells given by stomach tube likewise have no effect on bile secretion. Cooked pig blood and digested ox blood have not the slightest influence on the output of bile pigments. There is no immediate effect nor any delayed influence on the bile

1. The debatability of part of this hypothesis has already been referred to (The Origin of Red Blood Corpuscles, editorial, THE JOURNAL A. M. A., June 2, 1917, p. 1629.

2. Howell, W. H.: Textbook of Physiology, 1913, p. 430.

3. Hooper, C. W., and Whipple, G. H.: Bile Pigment Metabolism, IV, Influence of Fresh Bile Feeding upon Whole Bile and Bile Pigment Secretion, Am. Jour. Physiol., 1917, **42**, 264.

4. Whipple, G. H., and Hooper, C. W.: Bile Pigment Metabolism, III, Bile Pigment Output and Blood Feeding, Am. Jour. Physiol., 1917, **42**, 256.

secretion. It seems safe to assume that during the period of observation a certain amount of this material was digested, and its constituent parts taken in through the intestinal mucosa. Splenectomy has no effect on these blood feeding experiments.

The skepticism regarding the direct interrelation between blood pigment and bile pigment thus raised by these investigations is augmented by other unexpected findings. To one who has been trained to accept the "circulation of the bile," by which is meant reabsorption from the intestine and reexcretion by the liver, it will come as a surprise that these experiments afford no evidence of this. Feeding fresh bile usually causes a fall in the output of bile pigments in spite of the cholagogue action. Pig bile, as a rule, is most active in this respect, and may depress the bile pigment curve to less than half normal. Ox and sheep bile may have the same effect. Dog bile often causes only a slight fall in bile pigment output, but may depress the curve to 50 per cent. of normal.

Addis[5] has suggested as an outline of the life history of the blood pigment that the hemoglobin is changed in the liver to bile pigments, and excreted into the intestine. The bile pigment is reduced to urobilinogen in the intestine, a part escaping in the feces, and an important part being absorbed into the blood, polymerized into urobilin-complex, and taken up by the liver. This portion is stored in the liver or synthesized into hemoglobin, or, if the liver is abnormal, may escape into the blood and appear in the urine as urobilinogen. This hypothesis, in a word, is "bile circulation" again presented in a more elaborate form — a circulation of a pyrrol complex. Hooper and Whipple[3] believe, however, that their observations exclude the possibility of bile pigment absorption from the intestine. There is no evidence to support the theory of "bile pigment circulation." Their latest experiments give no support to Addis' theory of pigment conservation, urobilinogen absorption from the intestine and synthesis toward hemoglobin. It is suggested that urobilinogen may be formed in other body tissues rather than absorbed from the intestine.

The negative findings respecting the influence of either blood feeding or bile feeding in the direction of increasing the output of bile pigments from the liver are presumably attributable, if correct, to more careful methods of observation than have heretofore been employed. They must not be interpreted to mean that the production of bile pigments is an utterly undeterminable factor. It now seems probable that the liver has some constructive ability in pigment formation which can be modified by diet. According to Whipple and Hooper,[6] carbohydrates stimulate the excretion of bile pigments in bile fistula dogs. Intravenous injections of dextrose act in the same way as a large dose of sugar by mouth, whereas a meat diet will lead to a depression of the average bile pigment elimination found on a healthy diet. Here are further contentions which tend to upset many cherished beliefs.

5. Addis, Thomas: A Working Hypothesis of Hemoglobin Pigment Metabolism, Arch. Int. Med., March, 1915, p. 413.

6. Whipple, G. H., and Hooper, C. W.: Bile Pigment Metabolism, II, Bile Pigment Output Influenced by Diet, Am. Jour. Physiol., 1916, **40**, 349.

THE NEPHRITIS PRODUCED BY OXALIC ACID

Comparisons recently made of the relative behavior of a number of organic acids — oxalic, tartaric, citric and malic acids — in the body[1] have suggested that the variations in toxicity and other features of physiologic deportment are doubtless associated in some degree with the comparative readiness with which they are destroyed in the organism. Nevertheless the differences shown by compounds having many features of resemblance in respect to chemical structure or physicochemical behavior are often so inexplicable as to demand specific consideration for each substance in place of the more general attempt at interpretation in a distinctly systematic plan. Thus it has been found that whereas administration of tartaric acid in an experimental way may give rise to a marked nephritis, even considerable amounts of malic acid salts do not give rise to such untoward results.

Oxalic acid has many properties in common with tartaric acid. Oxalate solutions precipitate calcium from its salts. Since it is well known that calcium is an essential component of living protoplasm, the suggestion has frequently been made that the oxalates exert their baneful influence in the body not through any direct toxic action on the protoplasm, but rather by precipitating its constituent calcium and thus altering the normal integrity of cellular constituents. In support of this is the fact that administration of calcium salts will often restore the damage done by oxalates in the body. Of course such beneficial effects may be due merely to the removal of harmful oxalates by precipitation in the tissues rather than to the actual supply of desired lime. The interpretation is still somewhat problematic.

In explaining the genesis of tartrate nephritis, Umeda and Ringer[2] have pointed out that tartaric acid does not readily pass through the animal membranes or cells. This is known from the fact that the salts of tartaric acid, when given by mouth, are but slightly absorbed, and act as cathartics. They reasoned that, since the kidney cells are more permeable to salts than are the ordinary cells of the body, and since tartaric acid forms a salt with calcium which has a low degree of solubility, the tartaric acid, while passing through the kidney cells, in all probability combines with the calcium salts of the kidney cells, forming an insoluble calcium tartrate, which becomes precipitated in the

1. The Behavior of Three Organic Acids in the Body, editorial, The Journal A. M. A., March 31, 1917, p. 984.

2. Umeda, N., and Ringer, A. I.: Studies in Experimental Nephritis, Proc. Soc. Exper. Biol. and Med., 1916, **14**, 33.

body of the cell and thus causes the complete destruction of the cell.

If this argument is tenable, the administration of oxalic acid also should be followed by an impairment of the kidney tissues. It has long been recognized that most of the oxalate ingested appears in the urine in the form of calcium oxalate. Insoluble crystals of the latter are often deposited along the urinary tubules and may stop them up so as to cause anuria, congestion and inflammation of the kidney. Small oxalate calculi with these renal changes have sometimes been the only indications of lesions found at postmortem examinations in oxalate poisoning. But Umeda and Ringer have now studied more carefully the minute histology of the kidney in fatal cases of experimental administration of potassium oxalate. From their observations it appears that oxalic acid in small quantities produces nephritis similar to that of tartaric acid. From this it is concluded as reasonable that tartaric acid and oxalic acid exert their influence on the kidney tubules by precipitating the calcium salts in the cells, during the process of their excretion.

EFFECTS OF OCCLUSION OF BLOOD VESSELS IN MAN

Studies on animals have shown that the blood pressure may be changed either by alteration of the peripheral resistance, that is, the ease with which blood can escape from the arterial to the venous side of the circulation, or by modifying the output of the heart. Every constriction of the smaller branches of the arterial system results not only in an increase in the peripheral resistance but also in a diminished capacity of the entire blood system. Consequently the arterial pressure is raised at the same time as the mean systemic pressure. Such a change nearly always associates with it some corresponding alteration in the heart beat also; several factors, therefore, may cooperate in the production of a rise or fall of blood pressure.

Investigation of the effects of occlusion of blood vessels on the general blood pressure has now been extended to man by Elliott,[1] at the Physiologic Department of the Washington University, St. Louis. The principal method consisted in applying different known pressures to the vessels of both thighs while following the arterial pressure in the brachial artery by the continuous oscillatory method. It was found that circular compression of the thighs causes a rise in blood pressure, larger and more immediate at the higher than at the lower compressions. This is due to the increase in arterial resistance, modified somewhat at the lower compression pressures by the venous effect. The heart rate is somewhat slowed. Decompression of the thighs causes a fall in blood pressure, more immediate and more profound than the rise due to compression. This effect is likewise more marked at the higher compression pressures, and is modified slightly by the venous accumulation in the legs. The heart rate is somewhat accelerated. The removal from the circulation of man of 64 c.c. of blood does not change appreciably the arterial pressure. A slight external pressure, even less than the diastolic pressure, on an artery may under certain circumstances materially diminish the flow through it. There was no evidence that compression of an arm, as in making blood determinations on man with the aid of a sphygmomanometer cuff, produces any essential effect on general blood pressure.

The results here recorded indicate the accord of the hemodynamic phenomena in experimental animals and man so far as the occlusion of blood vessels is concerned. They have been further substantiated by Elliott's observations in a case of femoral arteriovenous aneurysm whereby a communication existed between the femoral artery and vein. This connection could be interrupted by pressure with the fingers over the site. Closure produced a tremendous rise of blood pressure and a slowing of the pulse rate. Opening the communication caused a fall in blood pressure and an acceleration of the heart, and restored the original conditions. It is evident, Elliott remarks, that in closing the communication we are shutting off the easy path of the blood into the veins and hence back to the heart, thus relieving the heart and indeed the entire venous system of an abnormally high pressure. At the same time the peripheral resistance is greatly increased. Opening the communication, of course, has the opposite effects. It seems fair to conclude that the changes in blood pressure here observed must be due to the changes in arterial resistance, as there seems to be no reason for believing that reducing the venous pressure and, for a time at least, the volume of blood supplied to the heart would cause the arterial pressure to rise. The slowing of the heart rate observed on closing the arteriovenous opening was probably due to stimulation of the vagus center by the increased pressure. In any event, the facts observed in this patient are in accord with the familiar observations of a slowing of the heart beat induced by high blood pressure — a variation long believed to be due to a stimulation of the cardiac nerves.

1. Elliott, B. L.: Observations on the Effects of Partial and Complete Occlusion of Blood Vessels on the General Blood Pressure in Man, Am. Jour. Physiol., 1917, **42**, 290.

Antenatal Influence.—Antenatal influence has been in the past the unknown quantity, so little suspected that to some it has been the imaginary quantity, which has set its mark on health and disease after birth, mystifying the clinician, complicating his diagnosis, falsifying his prognosis, and disappointing his treatment. It was always present, sometimes acting benignly as a kind of physiologic mascot handed down from a clean-living parent, at other times coming more prominently into action as a malign weapon of degeneration forged by a father or a mother without what may be termed a racial conscience. At all times it confused the issue, introducing an uncertainty into the course of events which more than anything else kept the teachable physician humble, and confounded the most confident expectations of the arrogant and proud practitioner.—J. W. Ballantyne, M.D., F.R.C.P.E., *Edinburgh Med. Jour.*, May, 1917.

Current Comment

JUSTICE TO THE PHARMACIST

The letter in the Correspondence department of this issue from Mr. John W. England, secretary of the council of the American Pharmaceutical Association, calls attention to an anomalous state of affairs. Physicians, dentists and veterinarians are officially recognized by the government as men of special training, whose technical knowledge can be of use to the nation in time of war. Provision is made so that men in these three professions can be enrolled as commissioned officers and their skill thus most efficiently used by the Army. The pharmacist, however — as a pharmacist — is utterly ignored. If he enlists he does so as a private. So far as official recognition of it is concerned, the science and art of pharmacy might not exist for the Army. Today, as never before, victory in war goes to the nation that most effectively conserves the health of its fighting men. The physician is now of such military importance that the medical profession will be called on to make no inconsiderable sacrifices. It will materially lighten the arduous duties and responsibilities of the physician to have in the Army trained pharmacists who will be able to give intelligent cooperation. But it is imposing too great a strain on the patriotism of those whose special knowledge is obviously a large asset to the Army, to expect them to enlist as privates without any recognition of their national worth. Pharmacists should be given a rank commensurate with their importance, first because it is but simple justice to the pharmacists themselves, secondly, because the usefulness of the medical corps will be greatly augmented and, lastly, and most important, because the efficiency of our Army demands it.

THE NEW YORK SESSION

Notwithstanding the war, the 1917 Annual Session held in New York last week was a success. The registration, 5,147, makes it second only to the Chicago session of 1908, at which the attendance was 6,466. The new features of this session were that Monday and Tuesday were devoted to the meetings of the House of Delegates, which was presided over by a chairman of its own election, leaving the President of the Association free to meet the many appointments which command his time during the session. With these two days at its command, the House transacted the major portion of its work before the opening of the Scientific Assembly so that the delegates were privileged to attend the scientific meetings not only to their pleasure and benefit, but also to the advantage of the scientific program. The Scientific Assembly opened with the general meeting, as usual, but this was held on Tuesday evening instead of during the morning of the first day of the Assembly. The success of this meeting in New York proved the wisdom of this change in the program for the week's convention. Reports from all the sections show that the attendance was good, the papers excellent and the discussions interesting. The arrangements for housing the sections provided for their close grouping; they were located in five of the larger hotels and the building of the New York Academy of Medicine. The greatest distance between these meeting halls was ten or eleven blocks, and in certain of the hotels there were from two to four Sections. This made the Sections quite accessible one to the other, and undoubtedly accounts for the large attendance at the various meetings. The New York physicians, especially those of greater New York City, hospitably received the Fellows and their guests. A notable feature provided by the local profession was an extensive series of clinics given during Monday and Tuesday. The large registration during these two days — 3,783 — shows the interest taken. Instead of the reception which is usually tendered to the President of the Association, a patriotic rally was held on Thursday evening in the Hippodrome, a full report of which appears in this issue. In addition, on Wednesday evening, meetings were held both in the grand ballroom of the Waldorf-Astoria and in the north ballroom of the Hotel Astor, at which there were presented questions relative to the medical conduct of the war. Many of the papers and the discussions in the Sections, as well as the address of the President, evidenced the intense interest of the medical profession in the nation's crisis.

UNDERLYING PRINCIPLES OF WORKMEN'S COMPENSATION LAWS

A report recently issued by the National Industrial Conference Board of "Workmen's Compensation Acts in the United States" again calls attention to some of the underlying principles of this form of legislation, which has developed so rapidly in the last eight years. While the laws themselves have aroused a considerable degree of opposition, especially among physicians, the criticisms have been largely aimed at administrative details rather than at the underlying principles on which such legislation is based. In order to keep these principles clearly in mind, it is desirable that they should be reiterated and emphasized at frequent intervals. For this reason, the report of the conference board is of interest and value. In the report, the vital principle of workmen's compensation laws is clearly set forth, namely, "the substitution of a definite and certain measure of relief for the former uncertainties of redress through litigation." Under the old system whereby each claim had to be settled as a separate lawsuit and in which the principles of the old English common law, complicated by the legal theories of contributory negligence, fellow servants' responsibility and voluntary assumption of risk, the chances of injured employees ultimately receiving any fair compensation for their injuries were slight. Even when the plaintiff received a considerable award at the hands of the jury, the greater part of it was consumed in legal expenses. Under the workmen's compensation laws, a limited but certain wage payment is made promptly to injured employees, regardless of the question of responsibility or fault. Under the old

system it was necessary to prove who was at fault for each industrial accident. Under the new method the question of fault is ignored, industrial accidents being regarded as necessary incidentals to industrial activity, and those suffering from them being regarded as entitled to compensation as a public necessity rather than as the redressing of a private wrong. The fact that, in the past eight years, thirty-seven states and four territories have adopted such laws, and that the federal government has passed a compensation act for its employees, is abundant evidence of the advantages of the new method over the old. The principles of workmen's compensation now apply to more than two thirds of the wage earners in the United States. The medical profession has been slow to realize the significance and importance of such laws, and in most of the states allowed them to be enacted without paying attention to the terms of service or compensation provided for physicians. As a result, when the laws were put into operation, their provisions were found to be extremely unsatisfactory. It is now necessary in each state to remedy these defects and write into the laws in the form of amendments the provisions which should have gone into the original draft. The inequity of the medical provisions in most of these laws, however, should not blind physicians to the fact that the underlying principles of workmen's compensation laws are essentially sound and are a marked advance over previously existing conditions. Amendments securing to physicians their proper rights and privileges should without question be adopted, but it is not necessary to burn down the house in order to kill the rats. A clear distinction should be made between the essential and fundamental principles of workmen's compensation legislation and the secondary details of administration which can and should be modified in any case in which they work a hardship on any class connected with the administration or operation of the law.



PRESIDENT-ELECT ARTHUR DEAN BEVAN

THE PRESIDENT-ELECT

The medical profession will view with the highest degree of pleasure and satisfaction the recent selection of Dr. Arthur Dean Bevan as President-elect of the American Medical Association. Nor has that highest honor of the Association ever been bestowed on one more worthy to receive it. Dr. Bevan is 56 years old; graduated from Rush Medical College in 1883; was an officer in the United States Marine Hospital Service and professor of anatomy at the Medical Department of the University of Oregon until 1887. He was then elected to the chair of anatomy in Rush Medical College, which position he held until 1899, when he was made associate professor of surgery. In 1902 he was made full professor and head of the department of surgery, which position he still holds. He was a member of the House of Delegates of the American Medical Association in 1902 and chairman of the Section on Surgery in 1906. As a member of the House of Delegates he was made chairman of the Committee on Medical Education which, a year later, recommended the establishing of a permanent council in place of the temporary committees which had previously attempted to bring about improvements in medical education. When the Council was established in 1904 Dr. Bevan was made its chairman, which position he has held since that time. It was through his high ideals and the force of his personality, together with his straightforwardness and sense of fairness, that many of the measures of the Council were carried through to a successful conclusion. The improvements in medical education since the creation of the Council on Medical Education are too well known to need further comment here. It is sufficient to say that there has been no work undertaken by the Association of more vital importance to the medical profession and the public than that which has been accomplished by this Council which, from its beginning, has been so ably directed by Dr. Bevan.

Medical Mobilization and the War

Camps of Instruction for Medical Officers

The following outline of the course of instruction for medical reserve officers is taken from an article in the *Military Surgeon,* by Col. E. L. Munson, M. C., U. S. Army, who was recently appointed head of the division of medical military instruction:

The object of the proposed training is to supply the knowledge which will enable the new officer not alone to work under the direction of more experienced officers, for we have not a sufficient number of such, even to direct, but to perform their duties independently; to, in their turn, supervise others and transmit their knowledge to their subordinates, both commissioned and enlisted. There is an ancient service adage to the effect that good officers can always make good soldiers. The converse of this does not hold true. So we must start with good officers if we are to be efficient.

As all our officers necessarily have the essential medical foundation and are professionally competent, no instruction need be given in purely professional matters. Moreover, the training must be practical, and only so much theoretical instruction given as is necessary to elucidate the subject. There will, of course, be lectures on special subjects, map problems, war games, demonstrations, etc.

It will not be practicable to send all of the newly commissioned medical officers to the designated camps of instruction; not a few of them must at once be assigned to service with troops, who will require their professional services, irrespective of their lack of knowledge of the military environment. The training of such officers will have to be systematically done under the supervision of the responsible medical officer of the command, who, doubtless, will almost always be a trained man. Such training must be carefully supervised, as there is always a tendency to subordinate it to existing duties. Both must receive a due measure of attention.

The following is an approximately accurate outline of what will be done in the training camps.

The course is intended to give the student officers a general idea of the basic duties of a medical officer and prepare them for service with troops in the field. Training will be intensive and pushed as rapidly as possible. It will be borne in mind that the services of thousands of instructed medical officers must be available at an early date.

The training to be given is intended to prepare these officers to conduct the service of the medical department without either the supervision of experienced medical officers or the aid of well-qualified noncommissioned officers. The limited number of these two classes in the medical department, and the necessity of assigning many of them to important administrative duties, renders it probable that few will be available for regimental duty, and only a small number with ambulance companies and field hospitals.

For this reason, also, on the reserve and militia medical officers, graduated from these training camps, will fall the duty of themselves drilling and training the very many thousands of enlisted raw recruits which will be assigned to the medical department, and they must be put into a condition to carry out this most important work effectively.

It is expected that each camp shall have accommodations for 600 medical officers. They will be organized into companies, duly officered, commissioned and noncommissioned, to be selected from among the student officers and trained on a basis of medical cadets. It is desired to impress on these new officers, by actual experience, what will later be required by them of their subordinates.

The staff of the commandant, a medical officer, will be composed of an assistant commandant, an adjutant and a quartermaster, all of whom will be instructors in addition to their other duties. It is proposed, if possible, to assign additional instructors on the basis of one to each fifty student officers. Due to the shortage of regular officers, specially qualified militia medical officers may be assigned to such duty. Officers with regimental detachments, ambulance companies and field hospitals will, in addition to their duties as such, serve as instructors, due effort being made to assign to each subject, officers known to have given special attention thereto and to possess ability to impart information and student officers found specially qualified in any subject may be assigned as instructors and given special authority while so serving, irrespective of rank.

The assistance of the line officer instructors at line camps in teaching map reading, special lectures and the tactical part of medicomilitary problems and maneuvers may be requested.

Instruction by lectures, except in special subjects, will, as far as possible, give place to recitations. Lectures are not considered as effective as recitations in imparting detailed information, nor do they afford opportunity to test the capacity of and grade the student.

Lessons will, therefore, be assigned in the authorized textbooks, and quizzes held thereon, for the purpose of grounding students in theory and insuring that a competent knowledge of methods and principles has been acquired. But coincident with this theoretical instruction, the student officers should, as far as possible, be made to visualize the organizations, apparatus and methods concerned. In addition to study and lectures, it is most important that they should learn by seeing and doing. So far as possible, instruction will be made practical. To this end, for example, all sanitary appliances and methods likely to be of use in field work will be procured or constructed and continually kept in effective operation at the camp, and the officers will be shown their purpose and practical use. Bomb proofs for trench warfare will be thrown up, and gas chambers for practical trial of protection against poison gases will be constructed.

In connection with paper work, all papers required by the medical and other departments will be actually made out until familiarity therewith, and correctness of result, is secured.

Mess management, taught in theory, will be actually demonstrated in the organization kitchens. Applied camp sanitation will be taught by sanitary inspectors. Drill will be taught until every officer can effectively handle and instruct therein the units and detachments of the medical department.

The interior economy and administration of regimental detachments, ambulance companies and field hospitals will be taught not only by books but by assignment to such organizations and quartering and subsistence therewith, and by actually handling them in marches and comprehensive field problems. To permit of the latter it is expected that four ambulance companies, four field hospitals, and six regimental sanitary detachments, all complete and kept recruited up to war strength will be organized without delay. The regimental detachments will be organized as two provisional companies, to be split into their integral regimental parts for demonstration purposes.

Student officers will be assigned to duty with regimental detachments, ambulance companies and field hospitals as junior officers and supernumeraries, to familiarize them with these organizations, the handling of men, etc. Officers so assigned should be quartered and messed with these organizations, but will pursue the regular curriculum of training at the camp. Assignments should be made in rotation, and ordinarily for ten days with each organization.

The training course will be divided into three periods, of one month each. The first, while instructing the officer as such, is intended especially to familiarize him with the duties of his enlisted subordinates whom he must shortly train. The second takes up his training in his own special functions as an officer. The third carries on and completes the work of the second period.

New training classes should as far as possible be started at the conclusion of each month's training period. However, to meet immediate needs, officers needing training will be sent to camps at any time and will be organized at once into groups for instruction.

The following textbooks are authorized for the course: Army Regulations; Manual of the Medical Department; Field Service Regulations; Drill Regulations for Sanitary Troops; Manual of Courts Martial. Such other school textbooks as may be authorized will be announced later.

The instruction, except Saturday afternoon and Sunday, should approximate seven and a half hours. The following general scheme is suggested for the daily schedule for the first month:

6	A. M.	Reveille.
6.15- 6.30	A. M.	Setting up.
6.35- 7.25	A. M.	Breakfast. Police of quarters.
7.30- 8.25	A. M.	Drill (marching?).
8.30- 9.25	A. M.	Drill (special?).
9.30-10.25	A. M.	Quiz or lecture.
10.30-11.25	A. M.	Quiz or lecture.
11.30-12.55	P. M.	Dinner, rest, etc.
1.00- 1.55	P. M.	Quiz or lecture.
2.00- 2.55	P. M.	Quiz or lecture.
3.00- 4.25	P. M.	Equitation.
4.30- 5.55	P. M.	Care of animals, supper, rest, etc.
6	P. M.	Retreat.

On this general plan, 180 hours of formal instruction will be given monthly. No evening exercises are contemplated. Time will be needed for study. Saturday afternoon to be a rest period. Officers to be encouraged in equitation on Sunday, preferably in form of tactical ride. The schedule for the third month will vary materially from above, due to the practical field sanitary problems contemplated, and the fact that at least one full half day is ordinarily needed for each. This provides for a total course of 580 hours of instruction.

The following will indicate the proposed scope and distribution of training of medical officers during the first period of one month of thirty days:

	Hours
Setting up (15 minutes daily for 26 days)	6.5
Drills (marching, litter, ambulance, other means of transport)	52
Inspections	4
Equitation, bridling, saddling, care of animals, etc.	33
Tent pitching, shelter tent	2
Tent pitching, pyramidal tent	2
Personal equipment of the sanitary soldier	1
Field and surplus kits	1
Care and maintenance of soldier's equipment	2
First aid, using soldier's equipment only	2
Examination of recruits, with papers and finger prints	8
Nature and employment of regimental medical supplies	8
Customs of the service	2
Duties of the soldier	4
Regulation of Medical Department to rest of Army	1
General Organization of Medical Department for war	4
Army Regulations	12
General organization of military forces	2
Manual for the Medical Department	12
Military hygiene and sanitation	6
Field Service Regulations	6
Paper work, relating to the Medical Department	4
Map reading, use of compass, orientation, etc.	6
	180

The following scheme shows the scope and distribution of training of medical officers during the second period of one month of thirty days:

	Hours
Setting up (15 minutes daily for 26 days)	6.5
Drills, marching	26
Inspections	4
Equitation and care of animals	33
Tent pitching, hospital tentage	4
Elementary road sketching	4
The regimental detachment; its use and internal administration	8
The ambulance company; its equipment, use and internal administration	8
The field hospital; its equipment, use and internal administration	8
The tactical use of infantry (lecture by line officer)	1
The tactical use of cavalry (lecture by line officer)	1
The tactical use of field artillery (lecture by line officer)	1
The use of the Engineer and Signal Corps (lecture by line officer)	1
The service and mechanism of supply in the field (lecture by Quartermaster)	1
Paper work, relating to the Medical Department	12
Paper work relating to the Quartermaster's Department	4
Paper work, relating to the Ordnance Department	2
The Medical Department in campaign	8
The principles of sanitary tactics	8
Map problems	4
War games	8
Military hygiene and sanitation	12
Army Regulations	6
Manual for the Medical Department	6
Lectures on special subjects	6
Total	180

The following scheme shows the scope and distribution of training of medical officers during the third period of one month of thirty days:

	Hours
Setting up (15 minutes daily for 26 days)	6.5
Drills (service as drill master in drills of diverse nature)	26
Inspections	4
Equitation	15
Handling of rations and mess management	2
Manual for Court Martial and military law	8
The Articles of War	1
The Geneva and Hague Conventions	1
The rules of land warfare	1
Military surgery	8
Poison gases, protection against, symptoms and treatment (demonstrations)	1
Liquid fire, shell shock	1
War psychoses and neuroses	2
Malingering	1
Trench warfare; "trench foot"	1
Demonstration of trench system, including bomb proofs, dug-outs, entanglements, abattis, etc.	1
Cantonment hospitals, organization and management of	2
The sanitary service, line of communications	1
Hospital ships, ships for patients, hospital trains, trains for patients	2
Base hospitals, their organization and management	1
General hospitals, their organization and management	1
Contagious disease hospitals, casual camps, convalescent camps, camps for prisoners of war	1
Organization, functions and limitations of the American Red Cross	1
The civil sanitary function of the Army Medical Department in occupied territory	1
War games	2
Tactical rides	6
Sanitary inspections, practical demonstration of methods of	4
Practical march and bivouac (2 days)	15
Practical field maneuvers, including brigade and divisional problems with two night problems, and utilizing regimental detachments, ambulance companies, field hospitals, stations for slightly wounded, etc., in coordination. Problems will include the attack, retreat, planned defense and reencounter with all arms	60
Lectures on special subjects	4
Total	180

To stimulate student officers to their best work a certain number of places in the grade of captain and major, Medical Department Officers Reserve Corps, will be left unfilled. Appointment will be made to these vacancies from among the student medical officers, who, on vote of the staff of instructors, are recommended by the commandant as possessing such exceptional knowledge, aptitude and efficiency as would qualify them for such increased rank.

To this end there will be established and maintained a grading system of marking, by which relative efficiency will be recorded.

Also medical officers satisfying the age and other requirements and after passing such examination as the surgeon general may require, may, subject to the vote of the staff of instructors, and approval of the commandant, be commissioned at once as first lieutenants in the medical corps of the army. If any reserve officer is found unfit for the service by reason of physical, mental, moral or temperamental reasons, he will, on vote of the staff of instructors, be recommended for separation from the service.

Age Limit for Medical Officers Training Camps

Three weeks ago we concluded an editorial comment with the statement, "The men assigned to these camps for training will probably be the younger men—those under 45." This has called forth a number of letters from men over 45, who evidently feel that they have been placed in the discard and will not have an opportunity to do active service. While the statement was correct, viz., that men over 45 are not ordered to the training camps, at the same time a request from commissioned medical reserve officers who are over this age and who are in good physical condition will be given consideration. Hence we would suggest that those officers who desire to obtain the training given in the camps of instruction for medical officers apply to the surgeon-general's office for such assignment. In doing this it would be well to state the age, date of physical examination and of commission, and rank.

Status of Physicians in the Draft

To the Editor:—Kindly advise as to status of medical men below 31, conscripted under the selective draft law. Will their rank be equivalent to that of a member of the Army Medical Corps, Reserve Medical Corps, or non-commissioned officer?

L. GREENBERG, M.D., Brooklyn, N. Y.

ANSWER.—The above letter is one of many that have been received covering the same question. The regulations for the draft and the exemptions have not yet been announced. Undoubtedly, however, the qualifications of the medical man if conscripted will be recognized in any assignment he may be given.

Staple Supplies for War Conditions

In addition to the list of staple surgical supplies announced last week, several other catalogues are in preparation as follows: 1. Medicine, Disinfectants, Anesthetics, Chemicals, etc.; 2. Hospital Equipment and Supplies; 3. Laboratory Apparatus; 4. Roentgen-Ray Apparatus; 5. Dental Instruments and Supplies. These catalogues will be distributed through the Council of National Defense and will be sent free on request to any physician. Address Dr. F. F. Simpson, Chief of the Medical Section, Council of National Defense, Washington, D. C.

Physicians Recommended for Commission in Reserve Corps

During the week ending June 9, 1917, twelve majors, fifty captains and 441 lieutenants were recommended to the adjutant-general of the army for commission in the Medical Reserve Corps of the Army.

Red Cross Commission to France

The Red Cross Commission to France which has gone abroad "for the period of the war" to study the needs and conditions of noncombatant populations in some of the European countries and to prepare the way for American troops, is headed by Major Greyson M. P. Murphy who has been given the military title and who goes with plenary powers. Major Murphy, who will be known as commissioner for Europe, is vice president of the Guarantee Trust Company, New York, and a graduate of West Point. There are eight deputy commissioners, including James M. Perkins, vice president of the National City Bank, New York; William Endicott of the firm of Kidder, Peabody and Company, New York; Carey Taylor, lawyer, New York; George B. Ford, town planning expert, New York; Ernest McCullough, engineer, Boston; A. W. Copp; Ernest P. Bicknell, who has resigned as director-general of civil relief of the Red Cross, and Dr. Alexander Lambert, New York, who is the medical member of the commission. The commission is accompanied by six inspectors for service in Europe, three secretaries and a comptroller. The work of this commission will be to undertake matters of civil relief and to take charge of the human and sociologic aspects of the care of the wounded. Henry P. Davison, chairman of the new Red Cross War Council, has described this work as "the most stupendous and appealing call in the history of the world to aid suffering humanity." The work of the committee is to be so extensive that its passports read only "to the Allies of the United States and to neutral countries."

Reserve Officers Ordered to Active Duty

The following officers of the Medical Reserve Corps at the places mentioned:

To Fort Oglethorpe, Georgia: Captains Harry F. Watt, Ocala, Fla.; James W. Squiers, Fort Wayne, Ind.; Clement A. Penrose, Edgar B. Friedenwald and Arthur M. Shipley, Baltimore, Md.; Robert M. Donald, Hattiesburg, Miss.; Everett A. Lockett, Winston Salem, N. C.; Brayton E. Failing, Atlantic Highlands, N. J.; David H. Crawford, Newark, N. J.; William J. Condon, New Brunswick, N. J.; Blase Cole, Newton, N. J.; Frank Hancock, Norfolk, Va. Lieutenants Frank G. Grace, Walter F. Scott, Birmingham, Ala.; John R. Armistead, Jackson, Ala.; J. Roscoe Elliott, Laurel, Del.; George J. Schirch, Washington, D. C.; James W. Davidson, Clearwater, Fla.; Roscoe C. Hubbard, Ellenton, Fla.; William G. M'Kay, Jacksonville, Fla.; Orison O. Feaster, Micanopy, Fla.; Frank P. Hixon, Joseph A. Mixon, Pensacola, Fla.; Robert F. Godard, Quincy, Fla.; John H. Swafford, Athens, Ga.; Evans B. Wood, Atlanta, Ga.; Carl A. L. Binger, George H. Dorsey, Joseph S. Lawrence, Oscar V. Linhardt, Walter B. Martin, William Neill and Edgar P. Sandrock, Baltimore, Md.; Joseph M. White, Barnesville, Md.; Maynard J. Simmons, Indian Head, Md.; David A. Haller, Boston, Mass.; Harvey T. Cuming, Gloster, Miss.; Leonard Hart, Meridian, Miss.; Philip E. Brundage, Grantwood, N. J.; Widmer E. Doremus, Arlington, N. J.; William T. Elmore, Belleville; N. J.; Daniel L. Golann and Frank N. Mandeville, Newark, N. J.; Edward Guyon, Atlantic City, N. J.; William A. Newbold, Belmar, N. J.; Morris L. Potts, Trenton, N. J.; John F. Reeves, Elmer, N. J.; Frederic H. Thorne, Greystone Park, N. J.; George W. Vannatta, Orange, N. J.; Eric A. Abernathy and Louis H. Webb, Chapel Hill, N. C.; J. Rush Shull, Cliffside, N. C.; William J. Chewning, The Plains, Va.; Gerald A. Ezekiel, Richmond, Va.

To Rockefeller Institute, New York, for special course, Majors John W. Hanner, San Francisco, Cal.; and William H. Moncrief, Tacoma Park, Md.

To Fort Snelling, Lieut. Henry Power, Rochester, Minn.

To Washington, to Army Medical School for instruction, Captains Daniel W. M'Millan, Pensacola, Fla.; and Lester B. Rogers, New York City; Lieutenants Augustus C. Gray, Washington, D. C.; Gustave R. Gerson, New Orleans, La.; William H. Jenkins and William H. Toulson, Baltimore, Md.; John S. Abbott, St. Paul, Minn.; Roy L. Scott, Sayre, Pa. With American Red Cross, Major Alexander Lambert, New York City.

To Allentown, Pa., and report to Major Elbert E. Persons, with U. S. Ambulance Corps now being organized, Lieut. Richard Slee, Swiftwater, Pa.

To Philadelphia, to examine applicants for appointment in the O. R. C., Major Elijah H. Siter, Philadelphia; from Fort Thomas and report to Major Elbert E. Persons, Lieut. Rufus A. Van Voast, Cincinnati, O.

To Letterman General Hospital, San Francisco, Supt. Emil O. Jellinek, San Francisco.

To Ithaca, N. Y., to examine applicants for aviation section, Lieut. Samuel A. Munford, Ithaca.

To Denver, Colorado, to examine recruits for base hospital No. 29, Capt. Cuthbert Powell, Denver.

To Governor's Island, for duty in transport service: Lieutenants Wesley M. Thomas, Chicago, Ill.; Leon E. Lesser and Moses Sandler, Brooklyn, N. Y.; John E. Conboy and Edwin W. Goodman, New York City; John J. Flynn, Yonker, N. Y.; Frederick A. Lobb, Hawley, Pa.; Harry T. Stockton, Marcus Hook, Pa.; Ralph S. Bromer, Harold S. Broomall, John B. Carson and Francis V. Gowen, Philadelphia, Pa.; James L. Hamner, Ammon, Va.; Beverly F. Eckles, Richmond, Va.

To Fort D. A. Russell, Capt. Robert L. Tebbitt, Los Angeles, Cal.

To Fort MacKenzie, Lieut. Thomas V. Moore, Washington, D. C.

To Kemmerer, Wyo., Lieut. Hugh M. Ware, Butte, Mont.

To St. Louis, Mo., Lieut. Theodore P. Brookes, St. Louis.

To Fort Benjamin Harrison, Ind., for a course of instruction in the medical officers' training camp: Majors William L. Cousins, Atlanta, Ga.; Harold D. Cochrane, Albany, N. Y.; Fred H. Albee, Colonia, N. Y.; Richard Derby, Henry H. M. Lyle, Henry S. Satterlee and John Warren, New York City; Melvin M. Franklin and William Gillespie, Philadelphia, Pa. Captains John S. Dye, Waterbury, Conn.; John A. Martin, Indianapolis, Ind.; Sidney M. Bunker, Charles B. Hollings and William J. Mixter, Boston, Mass.; Charles Whelan, Hingham, Mass.; William Mitchell, Marion, Mass.; Frank W. George, Worcester, Mass.; Hugh McD. Beebe, Ann Arbor, Mich.; Ernest N. Dolman, Clark D. Brooks, Theodore A. McGraw, Jr., Frederick H. Newberry, William J. Stapleton, Jr., and Frank Luggs, Detroit, Mich.; Alex. J. MacKenzie, Port Huron, Mich.; Rollin C. Winslow, Sault Ste. Marie, Mich.; Amos G. Straw, Manchester, N. H.; Lester W. Lord, West Assipee, N. H.; Edgar A. Vander Veer and Howard L. Van Winkle, Albany, N. Y.; George P. Coopernail, Bedford, N. Y.; Thurston H. Dexter, Brooklyn, N. Y.; Ward J. MacNeal, Forest Hills, N. Y.; George Baehr, Edwin Beer, Wyndham B. Blanton, Archibald H. Busby, Herbert L. Cellar, Sidney Cohn, Robert T. Frank, John C. A. Gerster, Leopold Jaches, Samuel J. Kopetzky, Junius H. McHenry, Leo. B. Meyer, Bernard S. Oppenheimer, Marshall C. Pease, Jr., and Richard Weil, New York City; Max A. Almy and George H. Gage, Rochester, N. Y.; Harlow G. Farmer, Watertown, N. Y.; Robert Conrad, Blanchester, O.; David Marine, Cleveland, O.; John R. McDowell, Columbus, O.; Arthur Smith, Elyria, O.; Sidney M. McCurdy, Youngstown, O.; James P. Austin, Philadelphia; Ward Brinton, Philadelphia; Walter S. Cornell, George C. Kieffer, and Chas. M. Montgomery, Philadelphia; Frederic Proescher, Pittsburgh, Pa. Lieutenants Mathew H. Griswold, Kensington, Conn.; Charles A. Barron, Ga.; William P. Nicolson, Atlanta, Ga.; James A. Lindsay, Cairo, Ga.; Homer E. Line, William S. Ehrich, Evansville, Ind.; Edward J. Du Bois, Paul B. Coble and Frederick C. Warfel, Indianapolis; E. Adrian Fauve, Ft. Wayne, Ind.; Ephraim B. Chenoweth, Nineveh, Ind.; Clayton C. Campbell, Walton, Ind.; Robert L. Hoffman, Wichita, Kan.; Enoch Bush, Winchester, Ky.; Raymond Van Ness Bliss, Blue Hill, Me.; Charles E. Cook, Jr., South Berwick, Me.; Edson S. Cummings, Lewistown, Me.; Edgar T. Flint, Foxcroft, Me.; James F. Bowen, Amherst, Mass.; William R. Ohler, John A. Reese, James C. Janney, and George Leland, Jr., Boston, Mass.; Louis E. Mannix, Chicopee Falls, Mass.; Charles H. Watt, Fall River, Mass.; Howard A. Lampher, Chester, Mass.; John M. Maloney, Richard A. Rochford, Parker M. Cort, and William A. R. Chapin, Springfield, Mass.; Artemas W. Chase, Adrian, Mich.; Roland W. Kraft, Ann Arbor, Mich.; Elijah Van Camp, Athens, Mich.; Bernard J. Beuker, Atwood, Mich.; DeWitt C. Adams, Highland Park, Mich.; Roscoe G. Leland, Kalamazoo, Mich.; Harold E. Clark, Detroit, Mich.; Charles V. Crane, Towas City, Mich.; Samuel Miller, Manchester, N. H.; Ernest L. Huse, Meriden, N. H.; Jasper W. Coghlan, Newark, N. J.; Frederick C. Smith, Fort Stanton, N. M.; Frank S. Child, Port Jefferson, N. Y.; Herbert C. Chase, Leon E. Deyoe, Allison H. Dugdale, Alfred Braun, George K. Rhodes, Abraham Zingher, Charles H. S. Selinger, Clarence P. Thomas, James W. Worcester, Bernard H. Eliasberg, Gilbert S. Osincup, William D. Anderson, Samuel H. Geist, Richmond R. Holt, Richard Bolling, and James M. Kent, New York City; Francis T. Duffy, Troy, N. Y.; Harmon H. Ashley, Machias, N. Y.; Albert Bowen, Rochester, N. Y.; John P. McQuillin, Stanley W. Pallister, Brooklyn, N. Y.; Joseph E. Rapuzzi, Staten Island, N. Y.; Ira A. Rowlson, Plattsburg, N. Y.; George S. Silliman, Westbury, N. Y.; William E. Youland and Otto R. Eichel, Albany, N. Y.; Melville D. Ailes, Warren, O.; Victor Biddle, Charles W. Mason, Steubenville, O.; Herbert A. Brown, Cincinnati, O.; Theodore Burstein, Cleveland, O.; Nathan W. Meyer, and Albin M. Painter, Youngstown, O.; Ralph T. Shipley, Carrolton, O.; Anton B. Spurney, Cleveland, O.; William T. Feuker, State Soldiers Home, O.; George A. Ferguson, Toronto, O.; Carl F. Hartmann, Wauseon, O.; Albert W. Cole, Robert T. Devereux, Thomas M. Armstrong, John A. Bertolet, Baldwin H. E. W. Lucke, William J. Lynch, Edward W. McCloskey, John E. Medley, Thomas G. Miller, Charles A. O'Reilly, Frank McC. Ramsey, William C. Ryan, Phillip A. Sheaff, Cheney M. Stimson, William D. Stroud, Isaac S. Tassman, Harry B. Wilmer, Karl D. Winter, Jay D. Zulick, John D. Elliott, Edgar W. Fought, Daniel M. Hoyt, Henry E. Keely, Frank C. Knowles, Jackson S. Laurence, William W. Lerman, Wilfred B. Fetterman, and Samuel Leopold, Philadelphia, Pa.; George W. H. Conrad, Johnstown, Pa.; Charles C. Crouse, Derry, Pa.; Richard H. Eanes, Widen, Pa.; James H. Austin, Ardmore, Pa.; Ralph E. Buckley, Hazleton, Pa.; Stoddard S. Burg, Northumberland, Pa.; Benjamin J. Longwell, Seminole, Pa.; George W. Miller, Norristown, Pa.; Henry Pleasants, Jr., West Chester, Pa.; Maurice S. Redmond, Austin C. Frank, Samuel Hamilton, Jr., Elmer C. Jackson, Carey J. Vaux, and Daniel F. Jackson, Pittsburgh, Pa.; Simon W. Reichard, Wilkes-Barre, Pa.; George H. Robinson, Uniontown, Pa.; Grover C. Schwartz, Perkasie, Pa.; Edward J. Gordon, Wyncote, Pa.; Ralph L. Hill, Woodville, Pa.; Robert C. Johnston, Springdale, Pa.; Harold De Wolf, Bristol, R. I.; Fred S. Wright, Brownsville, Tex.; William C. Moser, Morgantown,

W. Va.; Maurice C. James, Hinton, W. Va.; Esley T. Lake, Nuss, W. Va.; John S. Sharp, Salt Lake City, Utah; Benjamin L. Petry.

To ALLENTOWN, PA., report to Major Elbert E. Persons; Lieutenants Charles K. Berle, Louisville, Ky.; Samuel M. Browne, Orangeburg, S. C.; Rossner E. Graham, New Orleans; Thomas D. Hurley, New Orleans; Alexander E. Listoe, Washington; David E. Smith, St. Louis; Max R. Stockton, Philadelphia; George S. Woodward, Philadelphia.

To FORT RILEY, KANSAS: Majors George G. Davis and Ralph W. Webster, Chicago. Captains Basil C. H. Harvey, Homer K. Nicoll, Jesse E. Royer, Warren P. Sights, and Walter F. Von Zelinski, Chicago; Ellis K. Kerr, Oak Park, Ill.; John C. Staley, St. Paul; Francis St. C. Reilly, Inverness, Mont.; Harry Greenberg, Milwaukee. Lieutenants Frederick J. Smith, San Diego, Calif.; Caro W. Lippman, William A. Sampson, and Harold W. Wright, San Francisco; Herbert R. Stolz, Stanford University, Calif.; Ray H. Davies, Lee C. Gatewood, David H. Keller, Lawrence H. Roblee, and Andrew J. Lyons, Chicago; Royal Tharp, East St. Louis, Ill.; Gilbert J. Thomas, Minneapolis; Frank P. Kimball Frisch, Prairie, Minn.; Philip E. Stangl, St. Cloud, Minn.; Spies V. Wilking, Butte, Mont.; William J. Lewis, New York; Arthur T. Blachly, Portland, Ore.; Frank Van Doren, Seaside, Ore.; Harry T. D'Arc, Mt. Vernon, Wash.; Fred J. Whittaker, Republic, Wash.; Edmund H. Smith, Seattle; Frederick G. Sprowl and Herbert E. Wheeler, Spokane, Wash.; William T. Clark, Ft. Atkinson, Wis.; Earl L. Parmenter, Mondovi, Wis.; Clarence A. Richards, Rhinelander, Wis.; Albert M. Farrell, Two Rivers, Wis.

To PLATTSBURG BARRACKS, N. Y., Lieut. Charles W. Woodall, Schenectady, N. Y., report for duty to commanding officer of that post.

To FORT ETHAN ALLEN, VT., Lieut. John C. Murphy, Hinesburg, Vt., to report for duty to commanding officer of that post.

To FORT STEVENS, ORE., Capt. Arthur A. Finch, Astoria, Ore., to report for duty to commanding officer of that post.

To CINCINNATI, OHIO, Lieut. William J. Topmoeller, Cincinnati, Ohio, to report to Col. Lansing H. Beach, Corps of Engineers, Customhouse, for duty pertaining to the examination of reserve corps recruits.

To SAN FRANCISCO, CALIF., Lieut. Pierre N. Charbonnet, Ft. McDowell, Calif., is relieved from duty at Fort McDowell, Calif., and will report to commanding officer, Eighth Reserve Engineers Regiment, San Francisco, for duty.

Lieut. John C. Graham, Brooklyn, N. Y., is relieved from duty at Fort Hamilton, N. Y., and will proceed to his home, reporting on arrival to the Adjutant General of the Army by telegraph. Lieut. John C. Graham, is honorably discharged from the service of the United States, to take effect upon the expiration of the leave of absence granted him, his services being no longer required.

Charges Against the Naval Hospital Ship Solace Unfounded

"In our judgment, Surgeon-General Braisted of the Navy, Dr. Blackwood, medical inspector in command of the *Solace,* and his staff, as well as Dr. Pickerel, medical inspector in charge of the Naval Hospital, and his assistants, are all entitled to the highest praise for their devoted and untiring efforts and for the success which they achieved under extremely difficult conditions." Thus Dr. W. H. Welch, Dr. Abram Flexner, and Mr. Nathan Straus, the special committee appointed by Secretary of the Navy Daniels to investigate charges of conditions and management aboard the hospital ship *Solace,* are reported in THE JOURNAL, June 9, page 1706, sum up the results of their inquiry. Not only does the committee exonerate from all blame the officers and men named above, but it goes further and says that some of the charges were in fact untrue and others grossly exaggerated; that while the ship was overcrowded at the time the charges were made, yet there was no lack of care or medical attendance; that the patients suffering from different infectious diseases were carefully segregated; that the regulations in regard to sanitation were observed; and that the entire ship, including blankets, dishes, etc., was sterilized after every trip to the hospital.

The charges that led to the appointment of the committee were embodied in a "round robin," signed by 30 enlisted men in the navy, and were first brought to the attention of the public by Senator Calder, who presented them to the United States Senate in open session. The committee charged with the investigation of the matter visited the fleet, a large naval hospital, a naval training station, and a navy yard, where every facility for investigation was placed at their command. An entire day was spent on the *Solace,* and members of the staff and patients were questioned. In all more than 100 patients were interviewed, who were aboard the *Solace* when the "round robin" was drafted, or had been there either shortly before or shortly after that time, such interviews taking place in the absence of officers and attendants and under assurances from the committee that names of the patients interviewed would not be used.

Discussing conditions aboard the *Solace,* the committee calls attention to the fact that this is the only hospital ship in the navy. It has a normal capacity of 228 beds. Thirty of these, on the upper deck, arranged in three separate wards which have no direct communication with one another—one having eight beds, another having ten, and the third having twelve—are set apart for patients suffering from communicable diseases. Each ward has a lavatory, with a basin and running water. Two have separate compartments for washing dishes and other vessels. The third, the measles ward, has no such compartment, and dishes used in it are washed in large pans outside. All three wards are well ventilated, and serve their purposes excellently under normal conditions. The main hospital accommodations of the *Solace*—the medical and surgical wards, and the operating rooms—are on the deck below, and are reported by the committee as being models of their kind.

The staff consists of a medical inspector, who is in command; an executive surgeon; an operating surgeon; an internist; a specialist in genito-urinary diseases; a specialist in diseases of the eye, ear, nose and throat; a laboratory chief; a dentist; a pharmacist and assistants; and naval hospital apprentices, as they are officially designated, who are in effect male nurses specially trained for the naval service.

The accommodations of the *Solace,* however adequate for ordinary conditions, were, according to the report of the committee, clearly overtaxed as the result of the rapid assembling of naval recruits, following the official recognition of the existence of a state of war, but the committee recognizes the skill and intelligence of the naval officers on duty in utilizing to the very best advantage such resources as were at their command to meet the emergency. Recruits from all over the country rapidly poured into training camps, and from these camps they were sent to the fleet. Something of the magnitude of this assembling of recruits can be understood when it is realized that at Norfolk sometimes 700 and more arrived in a day, and that the fleet population of 25,000 was speedily gathered there. The unusual prevalence throughout the country of measles, mumps, scarlet fever and cerebrospinal fever, and the rapid assembling of these recruits necessary in the early days of mobilization, inevitably lead to a considerable number of cases of the common infectious diseases.

"The war vessels," according to the report of the committee, "had at once to transfer their infectious cases to the *Solace,* which, equipped to handle comfortably 30 infectious cases, had to handle at times more than three times that number. The pressure was most severe between the 18th and 21st of May, the dates covered by the round robin. On May 18 there were seventy-two infectious cases on board. Eight more were added on the 19th, fourteen more on the 20th, and seven on the 21st—101 in all—over three times the normal capacity of the hospital ship. It was impossible for the *Solace* to avoid congestion by more frequently transferring patients to the Naval Hospital. In the first place, the Naval Hospital was itself overtaxed, and the bungalows and tents which now enable the hospital to accommodate a largely increased number of patients had not then been sufficiently provided. Again, on account of its operating facilities and its facilities for taking care of noncontagious medical patients, it was important that the *Solace* stay by the fleet, avoiding as long as possible the loss of time required for the trip to the hospital and back."

In order to meet the increased demands, the staff of the *Solace* was increased, tents were erected on deck, and cots and army stretchers were provided. Arrangements were made for an ambulance transport, to carry patients from the *Solace* to the Naval Hospital, and this was put into service a few days before the committee made its report. Strict precautions were taken at all times to prevent the spread of infections, with marked success, cross-infections being extremely rare, both on the *Solace* and in the Naval Hospital.

Discussing specific complaints, the committee reported that it was unable to find anyone except the author of the "round robin" who stated that patients were compelled to carry their own baggage; that the charge in reference to the scarcity and temperature of the drinking water was grossly exaggerated, and the implication of lack of care entirely undeserved; that the charge that "vessels were standing around with germs of scarlet fever and mumps" in the lavatory where the dishes used by men sick with measles were washed, was impossible and absolutely absurd; that the method adopted for feeding patients was the only one practicable and was entirely correct; that the committee was unable to find a single patient, except the author of the "round robin," who complained that he was unable to get enough food, and that even he, according to the statement of one of his neighbors, was fed regularly and abundantly; that while a few patients stated that on the night of their

arrival on the *Solace* litters and cots had given out, and they slept between blankets on the deck, yet under the circumstances no special harm could have resulted, and in the opinion of the committee the charge applied to so few persons as to be practically negligible; that the charge that blankets were passed indiscriminately among patients suffering from measles, mumps, and scarlet fever, without disinfection, was not supported by the facts of the case, including the extremely good records of the *Solace* and Naval Hospital with respect to cross-infections; and that the charge that sick men were unable to wash themselves at proper intervals was not supported by the testimony of the patients interviewed by the committee.

Protecting the Practice of the Absent Physician

The Ninth District (Kansas) Medical Society adopted resolutions to the effect that the men who remain at home shall attend to the business of physicians who are called to active duty with the army, and on the return of these physicians turn back the patients together with one third of the income received during the physicians' absence. They resolved, further, to discourage the attempt of any physician to locate permanently in a community temporarily vacated by the physician who has gone to the front.——The auxiliary council of the Allegheny County (Pa.) Medical Society has announced that physicians, members of the society, who enter military service will receive 35 per cent. of the income of their practice while they are absent.——At a meeting of the Kings County (N. Y.) Homeopathic Medical Society, in Brooklyn, resolutions were adopted that the society protect, by every possible measure, the private practice of medical men who enter military service.——At the May 28 meeting of the Medical Society of the County of New York, it was announced that a fund had been started by Dr. Edwin B. Cragin for the support and care of the wives and families of members of the society and other members of the profession of New York who may require financial aid as the result of the head of the family being called into the service of the country. Dr. Cragin started this subscription with $10,000, Dr. John F. Erdman gave $5,000 and Dr. Seth M. Milliken $1,000 to the fund. The president of the society announced the formation of a joint committee of the New York City Academy of Medicine and the society to administer the fund and receive contributions. The committee will be known as the Committee on the Amelioration of Hardships of the Families of Physicians Called into National Service. Dr. Walter B. James is chairman; Dr. Edward L. Hunt, secretary; Dr. J. Bentley Squier, Jr., treasurer of the committee.——The Audubon County (Iowa) Medical Society has adopted resolutions endorsing either the payment of $5 per month for each member of the society who is in the military service or the payment of one third of the fees collected for service to regular patients of the absent member while he is in the military service.——The executive committee of the faculty of the medical department of the University of Louisville has adopted resolutions that any members of the teaching forces who may join the medical service of the United States will be reemployed by the university at the end of hostilities.——The Indianapolis Medical Society has adopted resolutions recommending that one third of the fund collected for professional work by physicians in Marion County for services to the families of physicians in government service be turned over to the absent physicians on their return or be paid to their families.——The Madison County (Ind.) Medical Society has decided to take care of the practice of the four physicians of the county who are in the army medical service and return the practice to them when they leave the army.——Physicians of Douglas County, Wis., who enter military service will be given one third of the receipts from patients who ordinarily would have employed the absent physician. An agreement to this effect has been drawn up by the county medical society.

To Raise Field Hospitals and Ambulance Companies.—Major James F. Hall, M. C., U. S. Army, has selected the following physicians to enlist and presumably to command additional field hospitals and ambulance companies; assigned to field hospitals are: Drs. Charles R. Morgan, Boston; Major Bial F. Bradbury, Togus, Me.; Howard W. Beal, Worcester, Mass.; Otto G. Wiedman, Hartford, Conn.; Edmund Russell, Waterbury, Conn., and Harold G. Giddings, Boston; those assigned to ambulance companies are: Drs. Howard D. F. Lockwood, Meriden, Conn., and William E. Hamlin, Waltham, Mass.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

The Alumni Elects Officers.—The Alumni Association of the Northwestern University Medical School held its annual meeting in Chicago, June 11, under the presidency of Dr. James H. Stowell, and elected the following officers: president, Dr. Carl E. Black, Jacksonville; vice president, Dr. Victor D. Lespinasse, Chicago; secretary, Dr. Leo G. Dwan, Chicago (reelected), and necrologist, Dr. Samuel C. Stanton, Chicago (reelected).

Chicago

Summer Session.—The second session of the Graduate Summer Quarter in the College of Medicine of the University of Illinois will open June 20, to be continued until September 12.

Senior Student Dies.—Michael Henry Flynn, a senior student in Rush Medical College and an intern in St. Joseph's Hospital, who fainted and fell fracturing his skull, while assisting in an operation at the hospital, May 24, died in the institution a week later.

Personal.—Dr. Luther H. Maloney, formerly of Savanna, has been appointed medical director of the Rockefeller Municipal Sanatorium.——Dr. Julius H. Hess, Chicago, has been appointed professor and head of the division of Diseases of Children in the University of Illinois College of Medicine, and chief of the department of Diseases of Children in Cook County Hospital. Associated with Dr. Hess is Dr. Jesse R. Gerstley.

MARYLAND

Personal.—Dr. Hugh Hampton Young, major in the Officers' Reserve Corps, who is head of the commission appointed officially to represent the medical service of the American army abroad, has arrived in London. With Dr. Young are Dr. Louis C. Lehr, Washington, D. C., and Dr. Howard L. Cecil, Baltimore.

Women Physicians Elect Officers.—At the annual meeting of the Women's Medical Society of Maryland, held in Baltimore, May 23, Dr. Caroline B. Towles was elected president; Dr. Anna D. S. Abercrombie, vice president; Dr. Flora Pollack, corresponding secretary; Dr. Mary C. Willis, recording secretary, and Dr. Mary F. Voeglein, treasurer, all of Baltimore.

St. Joseph's Hospital to Offer Unit.—Arrangements are under way at St. Joseph's Hospital, to form a well equipped hospital unit for active service in the field. As soon as the plan of organization is complete, the staff will volunteer as a whole for immediate service. Foremost in the plans of the organization are: Drs. William H. Yeager, chief resident physician; James A. O'Donnell, Frank Martin, Johnson and George W. Bishop.

Park Physicians Selected.—A corps of surgeons is to be selected by the park board for the treatment of employees injured in the service. The following were recommended by the district superintendents and are expected to be named by the board: Drs. Harry C. Algire, Charles S. Parker, William G. Coppage, Jacob Fisher and L. Ridgely Wilson. A surgeon is to be assigned to each of the five districts and paid only when called on to render professional service.

MINNESOTA

Southern Minnesota Physicians to Meet.—The midsummer meeting of the Southern Minnesota Medical Association will be held at Faribault, June 23 and 24. The preliminary program includes papers on unusual fractures and dislocations, the tuberculosis situation, and the diagnosis and treatment of epidemic cerebrospinal meningitis.

Personal.—Dr. George B. Weiser, New Ulm, has been appointed a member of the State Board of Medical Examiners.——Dr. Russell Noice, Minneapolis, has been appointed first lieutenant of the Medical Corp, and assigned to duty with the First Minnesota Infantry, succeeding Dr. Ralph J. Sewall, Crosby, resigned.——Dr. Edward A. Eberlin has been appointed local surgeon for the Minneapolis, St. Paul and Sault Ste. Marie Railway at Glenwood.

Hospital Notes.—The construction of the five proposed additional stories of the Minneapolis Hospital is approved by the ways and means committee of the city council. The total cost of the addition will be about $80,000.——The contract for the construction of the Sacred Heart Sisters' Home, East Grand Forks, has been awarded for $25,000.——The board of directors of the Bethseda Hospital Association, Crookston, has decided not to build the proposed addition to the institution at present, on account of the high cost of material.

NEW YORK

Police Ambulance for France.—The honor legion of police department have set aside $1,100 for the purchase of an ambulance and a movement has been started by civilian backers of the legion to send several ambulances which will be driven by New York policemen.——Eighty clubs and members of the Metropolitan Golf Association have contributed $85,000 in a Red Cross benefit tournament toward the purchase of fifty ambulances which they will maintain along the French frontier.

New York City

Association of Cardiac Clinics Meets.—The Association of Cardiac Clinics, organized at a meeting of workers of special cardiac clinics of New York, Feb. 14, 1917, held its second meeting on April 30. At this time a report was made on the districting of the city as an aid to the work of the clinics. Arrangements were made for sending patients to convalescent homes and a classification of patients with cardiac disease was outlined and accepted.

Personal.—A loving cup was presented to Dr. Thomas E. Satterthwaite at the annual banquet of the American Therapeutic Society, June 2. The inscription states that the cup is given as "a token of esteem, and in recognition of his faithful and valuable services to the society and to the medical profession." The presentation was made by Prof. Oliver T. Osborne of Yale University.——Dr. Anthony Bassler has been elected professor of gastro-enterology in the New York Policlinic School and Hospital.——It is reported that the condition of Dr. Hideyo Noguchi, who is seriously ill with typhoid fever in Mount Sinai Hospital, is improving.——Dr. Marcus B. Heyman, assistant superintendent of the Central Islip State Hospital since 1897, has been appointed medical inspector of the State Hospital Commission. Dr. Heyman's place has been filled by the appointment of Dr. Horatio G. Gibson, Jr.

OHIO

Personal.—At the meeting of the Alliance Medical Society, May 31, Drs. Homer G. Scranton and Benjamin C. Barnard, who have accepted commissions in the Medical Corps, U. S. Army, were presented with gold wrist watches at the meeting of the Alliance Physicians' Society.——Dr. Charles M. Mooney, Waverly, is reported to be seriously ill with septicemia in the Cincinnati General Hospital.——Dr. William W. Pennell, Mount Vernon, who has been seriously ill in a hospital in Cincinnati, is convalescing, and has gone to the home of his daughter in Washington Court House.

Survey of Hospitals and of Medical Licensure.—Governor Cox of Ohio has created a commission to make a survey of, and a subsequent report with recommendations regarding (*a*) the present system and laws relating to the incorporation, licensing, inspection, supervision and regulation of public and private hospitals, and (*b*) the present system and laws relating to medical licensure and medical education, and the education and licensure of those who treat the sick public by systems of healing other than medical. On this commission the governor appointed Mr. Howell Wright, secretary of the Cleveland Hospital Council, and Mr. George V. Sheridan, executive of the Ohio State Medical Association, Columbus.

Cleveland

"**Fraudulent Proprietary Medicines.**—The sale of Kilmer's 'Swamp Root,' 'Varlex' and 'Sargol' has been ordered discontinued in Cleveland since the inauguration of the City Bureau of Laboratories' Crusade against fraudulent proprietary medicines and other misbranded preparations. 'Swamp Root' is largely a dilute alcohol-water solution of sugars and absolutely injurious in the case of kidney disease, which it professes to cure, according to the bureau's analysis. 'Sargol' claimed to be a flesh builder. Letters notifying the company of the city's action were returned marked fraudulent' by the Postoffice Department. 'Varlex' was advertised as a cure for the tobacco, drug and liquor habit. The bureau is busily engaged in gathering data and an embargo will shortly be placed on a number of other products."

PENNSYLVANIA

Personal.—Dr. Robert C. King, Hellertown, suffered a fracture of the knee cap when he lost control of his automobile near Shimerville.——Dr. Daniel P. Gerberich, Lebanon, who has been seriously ill, is reported to be convalescent.——Dr. George B. Klump, Williamsport, has been appointed local surgeon for the Pennsylvania System to succeed Dr. Eugene B. Campbell, deceased.——Dr. Roderick E. Albright, Allentown, who was operated on for appendicitis, recently, is reported to be convalescent.

Antidope Bill Passes.—The antidope bill unanimously passed the house of representatives, June 7. This bill is designed to correct not only the social evils of Pennsylvania but to enforce the federal laws governing traffic in narcotic drugs. A fine feature of the bill is the one dealing with the treatment of the addicts by practicing physicians who must register the names of such patients with the board of health. Agents of the board, who cover every section of the state, must make their complaints to the different district attorneys.

Committee for Recruiting Reserve Officers.—Physicians of Pennsylvania who have not already responded to the call for war duty by enlisting in the Medical Reserve Corps are being urged to rally in the cause. A committee has been formed within a few days and will conduct a campaign for the purpose of arousing patriotism. The committee who will urge the enrolment of more than 13,000 physicians within the commonwealth was designated today by Dr. Edward Martin, professor of surgery in University of Pennsylvania. He is chairman of the state committee of the Council of National Defense.

National Guard Changes.—The following commissions to medical officers have been issued: majors: Norman D. Smith, Rutledge; Leonard D. Frescoln, Philadelphia; Charles P. Brady, Philadelphia, and Scott M. Huff, Center County; lieutenants: Royal H. McCutcheon, Bradford Massey, Charles S. McGivern, James R. Martin, Washington Merscher, Philadelphia; Vite E. Van Kirk, Jr., Pittsburgh.——Lieut. Frank B. Baird, M. C., has resigned.——Capt. Eugene Swayne, Philadelphia, has been relieved of duty with Field Hospital No. 2, and Lieut. Charles S. Pancoast from Ambulance Company No. 1, and both have been assigned to Field Hospital No. 3.——Lieut. D. E. Sable has been released from duty with Ambulance Company No. 1, and assigned to the First Field Hospital.——Major Gregg A. Dillinger, M. C., has been relieved of assignments with the First Field Artillery, and directed to await further orders.

Philadelphia

Charitable Bequest.—The will of the late Dr. Louis P. Posey bequeaths his medical library to the Hahnemann Medical College and Hospital of which he was manager.

Medical Club Reception.—The Medical Club of Philadelphia gave a reception in honor of Col. John Gribbel, president of the Union League Club, and the Hon. George B. Orlady, M.D., LL.D., presiding judge of the superior court, on June 8, at the Bellevue-Stratford Hotel.

Jefferson Commencement.—The ninety-second annual commencement of the Jefferson Medical College was held in the Academy of Music on June 2. Edwin Erle Sparks, Ph.D., LL.D., president of the Pennsylvania State College, delivered the valedictory address and 140 men were graduated.

Ambulance for Hospital Unit.—Base Hospital No. 34, being organized by the physicians of the Episcopal Hospital, has been presented with a motor ambulance by the parishioners of St. Stephen's Church. The car will hold four patients, as well as driver and attendant. This unit consists of twenty-five surgeons, sixty-five nurses and 125 orderlies and attendants.

Personal.—Dr. Francis E. Stewart, professor of clinical surgery, Jefferson Medical College, delivered the annual address to the graduating class of the Jefferson Hospital Training School for Nurses, on May 24, in the hospital amphitheater.——Dr. Luther C. Peter has been appointed professor of ophthalmology in Temple University.——Dr. William T. Ellis, Swarthmore, and Charles Beury, Tioga, sailed from Vancouver, June 7, on the *Empress of India* for Russia and the Caucasus, to make a study of the refugees and of the

relief work that is being done in that portion of Asia.——The Medical Club of Philadelphia gave a reception, June 8, at the Bellevue-Stratford Hotel in honor of Col. John Gribbel, president of the Union League, and Hon. George B. Orlady, M.D., presiding judge of the superior court.——The resignation of Dr. Clara Marshall, dean of the Women's Medical College of Pennsylvania, was announced, June 6, and Dr. Martha Tracy, professor of chemistry at the college, has been appointed acting dean.——Dr. John B. Deaver was elected vice president, and Dr. John H. Gibbon, secretary, of the American Surgical Society at its closing session in Boston, June 2.

VIRGINIA

Senior Student Dies.—Lewis Banks Payne, son of Dr. Robert L. Payne, Norfolk, a senior student in Jefferson Medical College, Philadelphia, died in that city, May 7, from pneumonia.

New Society Organized.—The Albemarle Medical Society was recently reorganized at Charlottesville with the following officers: president, Dr. Edward M. Magruder; vice president, Dr. William D. Macon, and secretary-treasurer, Dr. Frank C. McCue.

Faculty Named for Social Economy School.—The following physicians are announced as members of the faculty of the Richmond School of Social Economy: Drs. Ennion G. Williams, Roy K. Flannagan, James H. Smith, William H. Higgins, McGuire Newton and Aubrey Straus.

New Officers for Health Association.—At the annual meeting of the Virginia Public Health Association, held in Lynchburg, Dr. W. Brownley Foster, Roanoke, was elected president; Dr. Claude B. Bowyer, Stonega, vice president; Dr. Roy K. Flannagan, Richmond, secretary-treasurer.

Medical School Changes.—At the meeting of the board of officers of the University of Virginia at Charlottesville, Dr. Theodore Hough, acting dean, was made dean of the medical school; Dr. James A. Wardell, associate professor, was made professor of pharmacology and materia medica, and Dr. John H. Neff, instructor, was made adjunct professor of genito-urinary surgery.

Personal.—Dr. John H. Ayers, Accomac, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. Joseph N. Barney, Jr., Fredericksburg, who resigned, to accept military service.——Drs. William F. Parker and James P. Roy have been reelected grand medical examiners of the Order of Heralds of Liberty.——Dr. William A. Brumfield, Lynchburg, has been confirmed as assistant state health commissioner, succeeding Dr. Roy K. Flannagan, resigned, to become chief health officer of Richmond, in place of Dr. Ernest C. Levy.——Dr. James M. Whitfield, city chemist of Richmond, has resigned, to become coroner of Henrico County to serve out the term of the late Dr. William H. Taylor.

WISCONSIN

District Society Meeting.—At the annual meeting of the Ninth District Medical Society, held in Stevens Point, May 30, Dr. Ellietson H. Rogers, Stevens Point, was elected president, and Dr. Joseph F. Smith, Wausau, was elected secretary.

Field Hospital and Ambulance Companies.—The War Department has ordered Wisconsin to furnish two field hospitals and two ambulances companies. One field hospital is already organized in Milwaukee and one ambulance company in Racine. A second field hospital is to be organized in Madison, and will be in charge of Lieut. W. F. Lorenz.

Personal.—Dr. Joseph B. Noble, Waukesha, who has been seriously ill with septicemia as the result of a glass wound of the finger, is reported to be convalescent.——Dr. Oscar Lotz, Milwaukee, has been appointed a member of the Wisconsin State Board of Medical Examiners.——Dr. Charles M. Gould, for six years health commissioner of Superior, has resigned on account of ill health.

Compensation for Typhoid.—The State Industrial Commission has announced awards in the seven Eau Claire typhoid fever cases, totaling $5,356.83. These cases go back to 1914, when thirteen workmen employed by the New Dells Lumber Company and two men employed by the Pioneer Furniture Company contracted typhoid fever, two dying. In accordance with the decision of the supreme court, the industrial commission in these cases holds that typhoid fever contracted by an employee as the result of drinking polluted water furnished by an employer is a personal injury accidentally sustained.

WYOMING

New County Society.—Physicians of Albany County met at the Invinson Memorial Hospital, Laramie, May 30, and organized the Albany County Medical Society, electing Dr. Herman E. McCollum, president; Dr. J. W. Price, vice president; Dr. Josiah P. Markley, secretary, and Dr. Henry L. Stevens, treasurer.

CANADA

Health Certificates Before Marriage.—The National Council of Women, meeting at Winnipeg, Man., has passed a resolution calling on all provincial governments in Canada to make it a law that health certificates must be produced before a marriage license is granted in Canada, the idea being to protect the race from contamination with venereal disease.

Health Officers' Election.—The Ontario Health Officers' Association held its sixth annual meeting in Toronto, May 19 and 20, under the presidency of Dr. Alexander J. Macaulay, M. O. H., Brockville. The principal address was that of Dr. C. E. A. Winslow, professor of public health in Yale University on "Safeguarding the Health of Young Children." The following officers were elected: president, Hibbert W. Hill, M. O. H., London; vice presidents, Georgia S. Cruickshank, M. O. H., Windsor; E. A. Wincon, M. O. H., Kingston, and secretary, Dr. John W. S. McCullough, Toronto.

Personal.—Major Thomas D. Archibald, Toronto, who was overseas for a year or more, and who some weeks ago returned to Toronto, has been appointed officer commanding at the Whitby Hospital for returned wounded soldiers.——Lieut. Clifford K. Langford, M.D., Saskatoon, Sask., has been appointed to the standing medical board in that district——Drs. R. J. Roche and Cameron T. Coulter, Gull Lake, Sask., have been appointed officers on the district medical mobilization board.——Dr. Theodore G. H. Drake, Toronto, after spending a year with the Royal Army Medical Corp in France, has returned to Canada, and has located at Carson, Sask.——Capt. C. Gordon Gunn, M.D., Edmonton, Alta., has been recommended for distinction on account of conspicuous bravery.——Lieut.-Col. William B. Hendry, Toronto, in command of the University of Toronto Base Hospital at Saloniki, was the recipient of D.S.O. in His Majesty's birthday honors. ——Dr. David S. Johnstone, Regina, Sask., who recently went overseas as radiographer to the C. A. M. C., is connected with Saskatoon Field Hospital No. 8.——Lieut.-Col. Cameron A. A. Warren, second in command, Toronto Military District, has resigned and has been appointed to the New York office of the British office for recruiting of British subjects.——Capt. E. Ward Wright, Toronto, who has been in command of the Soldiers' Convalescent Home, Whitby, Ont., has resigned, and has accepted an appointment in the office of the British ministry in New York.

GENERAL

Association Purchases Liberty Bonds.—The Board of Trustees of the American Medical Association, at its meeting in New York last week, voted to invest the sum of $20,000 in Liberty Loan Bonds.

Dr. Seale Harris Ill.—Dr. Seale Harris, editor of the *Southern Medical Journal,* developed an acute attack of appendicitis while attending the New York Session of the Association. He was operated on at the Roosevelt Hospital and is reported to be making an uneventful recovery.

Association of American Teachers of the Diseases of Children.—This organization held its eleventh annual meeting at the Plaza Hotel, New York, June 4, 1917, under the presidency of Dr. Laurence R. DeBuys, New Orleans. The officers elected for the ensuing year are: president, Dr. John Lovett Morse, Boston; senator at large, Dr. Harry M. McClanahan, Omaha; secretary, Dr. Edgar P. Copeland, Washington, D. C., and treasurer, Dr. Harry Lowenburg, Philadelphia.

Laryngological Society Elects.—At the closing session of the American Laryngological, Rhinological and Otological Society, the following officers were elected: president, Dr. George L. Richards, Fall River, Mass.; vice presidents, Drs. D. Crosby Greene, Jr., Boston; Daniel W. Layman, Indianapolis; Frank R. Spencer, Boulder, Colo.; secretary, Dr. William H. Haskin, New York; treasurer, Dr. Ewing W. Day, Pittsburgh; council, Drs. S. McCuen Smith, Philadelphia; Robert Levy, Denver; D. J. Gibbs Wishart, Toronto; Edward B. Dench, New York; Thomas H. Halsted, Syracuse; Walter A. Wells, Washington, D. C.; Thomas J. Harris, New York; Francis P. Emerson, Boston, and Lee W. Dean, Iowa City, Iowa.

PROCEEDINGS OF THE NEW YORK SESSION

MINUTES OF THE SIXTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT NEW YORK CITY, JUNE 4-8, 1917

(*Continued from page 1768*)

HOUSE OF DELEGATES

Second Meeting — Tuesday Morning, June 5

The House of Delegates met at 9:40 a. m., and was called to order by the chairman.

Supplementary Report of the Committee on Credentials

Dr. D. Chester Brown, Connecticut, chairman, presented a supplementary report of the Committee on Credentials, which was accepted, and those reported were seated as members of the House.

The roll was called, and the secretary reported a quorum present.

The chairman of the House of Delegates then introduced Dr. William Wesley Peter, Shanghai, China, secretary of the Joint Council on Public Health Education of the National Medical Association, the China Medical Missionary Association, and Young Men's Christian Association, who extended the greetings of the China Medical Missionary Association and the National Medical Association to the American Medical Association.

The secretary read the minutes of the previous meeting, which, on motion of Dr. Randolph Winslow, Maryland, were adopted.

Report of the Reference Committee on Reports of Officers

Dr. Horace G. Wetherill, Colorado, chairman, presented the report of the Reference Committee on Reports of Officers, as follows:

Your Reference Committee on Reports of Officers offers the following recommendations:

THE PRESIDENT'S ADDRESS

Your committee would recommend to the House of Delegates that the action of President Blue, in appointing a committee to outline recommendations for the best method of utilizing the facilties of the American Medical Association in preparing for war, be endorsed and approved. The emergency was such that we deem the President was well within the exercise of a proper discretion in assuming the responsibility of naming this committee. The House of Delegates should also confirm the action of the committee, consisting of Dr. Arthur Dean Bevan, chairman, Dr. Alexander Lambert, and Dr. John W. Kerr.

REPORT OF THE SECRETARY

Your committee recommends to the House of Delegates that the discretionary action of the secretary, be approved in offering the Surgeon-General of the United States Army, and the Surgeon-General of the United States Navy the services and cooperation of the American Medical Association in any way in which the facilities of the office or of the organization might best serve the medical departments of the federal government. We furthermore suggest to the House of Delegates that it formally and officially offer to the government, through adoption of this recommendation, the services and facilities of the American Medical Association for such assistance as it may be in its power to render hereafter.

REPORT OF THE BOARD OF TRUSTEES

This complete and comprehensive report merits careful study by each member of the House of Delegates. It is quite apparent that serious economies have already become necessary, and it is probable that during the next year even greater economies must be considered. The high cost of paper and other publication supplies, and the imminent decrease in the revenue of THE JOURNAL, create a situation calling for the most careful consideration of future events. Your committee desires to endorse fully and most heartily the measures of economy already adopted by the Board of Trustees in the publication of THE JOURNAL, and particularly we recommend the approval of the action of the Board of Trustees, at its meeting in February, in passing the following resolution:

> That all papers read at the annual session be treated as volunteer papers, and that the same be published in full in THE JOURNAL or rejected, or published in abstract as may seem best.

This action will place THE JOURNAL and its editor on a plane with other similar medical publications, and will automatically cut out the publication of much undesirable and reduplicated matter. With reference to the publication of the papers from the Sections on Ophthalmology and Laryngology, Otology and Rhinology in separate journals, we have deferred action until this subject can be considered by the various sections interested, and an expression of opinion be secured from them.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

Regarding this report, your committee again commends it to the House of Delegates for serious consideration. The report has been prepared with the greatest care, and we unqualifiedly endorse it for adoption in substance, at least, to the House of Delegates. Unquestionably, the adoption of the measures recommended in the report will do much to coordinate the work of the various sections, and to divide the time available for scientific work in such a way as to make it most useful and valuable for those who attend the meetings of the sections. We recommend the adoption of the by-laws and standing rules suggested by the Council, and believe that the adoption of the plan suggested by the Council, as a whole, will make for economy of time, of members and space in THE JOURNAL. We heartily commend to careful consideration the clearly stated matter contained in this report.

COMMITTEE ON RED CROSS MEDICAL WORK

We desire to approve and commend the report of the committee on Red Cross Medical Work. We recommend the House of Delegates to take such action as might help the movement to retain medical students in the medical schools until the course has been completed. The experience in England has shown that this is vital and necessary. We furthermore recommend that some action be taken which may save the existing hospitals in this country such nurses, interns and other medical officers as may be necessary to the efficient operation of the institutions. The other recommendations of this committee on Red Cross work are also approved, and recommended for endorsement by the House of Delegates.

The resolution offered by Dr. Arthur McCormack was considered by your committee and it was decided to recommend to the House of Delegates that a committe of five be appointed by the President to present this memorial to the proper government authorities, provided the memorial is approved by the House of Delegates.

Dr. Arthur T. McCormack, Kentucky, moved that the report be adopted as read. Seconded.

After discussion by Dr. Elmer L. Kenyon, Illinois, the motion was put and carried.

Report of Reference Committee on Legislation and Political Action

Dr. M. L. Graves, Texas, chairman, presented the report of the Reference Committee on Legislation and Political Action, as follows:

The Reference Committee on Legislation and Political Action has carefully considered the report of the Council on Health and Public Instruction, and desires to commend the Council for the excellent work it has done during the past year, particularly with the diminished appropriations at its command. We approve the report of the Council and recommend that the House of Delegates ratify the appointment of the Committee on Child Welfare Work.

The committee desires also to express its appreciation and approval of the work of the various subcommittees of the Council, namely, the report of the Committee on Conservation of Vision, the Committee on Cooperation with the National Education Association, the Committee on Women's and Children's Welfare, and the elaborate report of the Committee on Social Insurance, which contains a large amount of valuable information necessary to the understanding of this subject.

The report of the Council contains two questions requiring action by the House of Delegates, namely, the resolution regarding the use of alcohol, and the resolutions on social insurance. Your reference committee requests more time for the consideration of the resolution on alcohol. The resolutions on social insurance are approved, and we recommend their adoption.

We further recommend that the secretary of the Association be instructed to transmit a copy of these resolutions to each constituent state association and to inform each constituent state association that the Council on Health and Public Instruction is willing to cooperate with the state associations whenever social insurance questions are to be considered by the law-making bodies of the respective states.

Dr. Perry Bromberg, Tennessee, moved the adoption of the report as read.

Seconded by Dr. Miles F. Porter, Indiana, and carried.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Floyd M. Crandall, New York, chairman, presented the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

The Reference Committee on Amendments to the Constitution and By-Laws begs to report as follows:

The following amendment to the Constitution was introduced at the Sixty-Eighth Annual Session of the American Medical Association:

No Trustee shall be cligible to any other elective office, the term of which runs concurrently with the term for which the said trustee has been elected.

The committee recommends its adoption.

The committee recommends the following amendment to Chapter XI, Section 4, paragraph (*c*) by the introduction of the following words, "and in accordance with rules and regulations enacted by the House of Delegates," so that the paragraph shall read:

Secretary.—The secretary shall keep a record of the proceedings of the section in a book provided for such purpose; shall, with the cooperation of the chairman, and in accordance with rules and regulations enacted by the House of Delegates, arrange the program; and shall, at least thirty days before the Scientific Assembly, forward it to the Secretary of the Association for insertion in the official program; and shall perform such other duties pertaining to his office as may be provided by the by-laws of the Association or of the section.

The committee recommends that Chapter XI, Section 12, be amended to read:

NUMBER OF PAPERS ON PROGRAM.—The number of papers, including addresses, on the program of any section shall not exceed six in each unit assigned to the section, by the rules and regulations enacted by the House of Delegates, provided, however, that no section may list more than thirty papers on its program.

The committee recommends that Chapter XI, Section 3, be amended by substituting for the first sentence, which reads: "The election of officers of the several sections shall be the first order of business of the next preceding the final meeting of the section at each Scientific Assembly except when the section holds but one meeting," the following:

ELECTION OF OFFICERS.—The election of officers of the several sections shall be the first order of business of the next preceding the final meeting of the section at each Scientific Assembly, provided, however, that when a section shall hold not more than two meetings at any annual session, these officers shall be elected at the final meeting.

STANDING RULES

The committee recommends the following Standing Rules for the government of the Scientific Assembly:

1. The term "unit" shall signify a single meeting of a session at an annual session.

2. Not more than six numbers shall be listed on the scientific program of any one unit, and further, no section shall list more than thirty papers (the number to which a section is limited by the By-Laws of the Association) at any one annual session, distributed among all the units assigned to it.

3. The sessions of the Scientific Assembly shall be limited at each annual session to the maximum number of units listed in the appended table:

Practice of Medicine	6 units
Surgery, General and Abdominal	6 units
Obstetrics, Gynecology and Abdominal Surgery	6 units
Ophthalmology	6 units
Laryngology, Otology and Rhinology	6 units
Diseases of Children	3 units
Pharmacology and Therapeutics	3 units
Pathology and Physiology	3 units
Stomatology	2 units
Nervous and Mental Diseases	3 units
Dermatology	3 units
Preventive Medicine and Public Health	3 units
Genito-Urinary Diseases	3 units
Orthopedic Surgery	3 units
Gastro-Enterology and Proctology	2 units

4. Those sections to which three or a less number of units are assigned shall hold one meeting on each of the days of the annual session during which section meetings are held.

5. The Council on Scientific Assembly shall apportion the morning and afternoon units at each annual session to the several sections.

The report was considered section by section, and on several motions, duly seconded and carried, they were adopted with the exception of the section distributing the units to the different sections of the Scientific Assembly. This section, on motion of Dr. W. C. Fisher, delegate from the Section on Stomatology, was amended by substituting three units for two units, as recommended by the reference committee.

The motion to amend was duly seconded and carried.

Dr. Horace G. Wetherill, Colorado, moved that the report of the reference committee, as amended, be adopted.

Seconded and carried.

Dr. Floyd M. Crandall, New York, offered the following amendments: Amend Chapter XI, Section 7, by adding the following, "16. Miscellaneous Topics," and amend Chapter VII, Section 7, of the By-Laws, by adding the words:

The Council on Scientific Assembly is authorized to appoint officers for the meetings making up the section on miscellaneous topics.

Dr. Southgate Leigh, Virginia, rose to a point of order. He stated that the House had already adopted the recommendation of the Reference Committee on Reports of Officers which recommended the adoption of the assignment of units to the sections of the Scientific Assembly as reported by the Reference Committee on Amendments to the Constitution and By-Laws, and that the amendment to the report of the Reference Committee on Amendments to the Constitution and By-Laws was in conflict with an action previously taken by the House.

The chairman declared the point well taken.

Dr. Horace G. Wetherill, Colorado, moved a reconsideration of that portion of the report of the Reference Committee on Reports of Officers Distributing the units to the sections, and that the assignments of units made in the amended report of the Reference Committee on Amendments to the Constitution and By-Laws be adopted.

Seconded and carried.

New Business

Under the head of "New Business," Dr. William J. Cruikshank, New York, presented the following preambles and resolutions, which were referred to the Reference Committee on Legislation and Political Action:

WHEREAS, Chapter 7, Section 4, of the By-Laws of the Medical Society of the State of New York has been amended to read: "The Committee on Legislation shall consist of a chairman to be elected by the House of Delegates, and of the chairmen of the legislative committees of the constituent county societies." And

WHEREAS, The Medical Society of the State of New York has shown by the adoption of this amendment that it recognizes the fundamental principle that all questions on medical legislation which may affect the whole state should primarily be referred to the state society, that attempts at handling such questions should not, as heretofore, be left to the spasmodic effort of the unorganized few, and that what is needed for successful operation is a permanent representative organization that shall reach every smallest part of the state; and

WHEREAS, The plan here to be outlined has, for some time, been in operation in the Medical Society of the County of Kings, in the State of New York, and has been found to be effective; therefore be it

Resolved, That the present organization of the legislative committee of the Medical Society of the State of New York, and of the Medical Society of the County of Kings, in the State of New York, be recommended by the American Medical Association to the state and county societies of the several states. And be it further

Resolved, That the plan recommended be as follows: The chairman of the legislative committee of the state society to be chosen, if possible,

from the state capital. The legislative committee of each county society to be so arranged that it shall always consist of a physician from each legislative district. The duty of the chairman of the legislative committee of the county society, by reason of the fact that he is also a member of the legislative committee of the state society, to be, to give to the members of his committee information coming to him, from the chairman of the legislative committee of the state society, to advise them in regard to proposed medical legislation that may need to be combated or furthered, and to get from them information arising from their interviews or correspondence with the legislators of their respective districts.

The duty of the members of the legislative committees of the county societies to be to ascertain the views or position on medical legislative matters as they arise, of the state legislators from whose districts they were appointed and to try to influence these legislators in favor of proper medical legislation against mischievous medical legislation. And further be it

Resolved, That the American Medical Association recommends that the machinery of such an organization be put in operation as soon as possible, believing that its use would result in successfully combating pernicious medical legislation and furthering proper and necessary medical legislation.

Dr. Samuel J. Meltzer, New York, delegate from the Section on Practice of Medicine, offered the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

In noticing with profound gratification the fact that numerous distinguished physicians of our country were among the first to offer their services to the government and to respond to its call to serve in their capacity as medical men on the battlefields of our allies in Europe, the American Medical Association, at its Sixty-Eighth Annual Session, expresses herewith its confidence to the entire medical profession that all its members will stand by the government in its present national need and offer willingly their services whenever they are called on and in whichever capacity they are capable of rendering them; at the same time the Association wishes to remind the members of the profession that the duties and rights of medical men are clearly defined and protected by the international Hague Conventions, of which our country is one of the signatory powers, and expresses herewith the hope that the standard of the actions of the medical men of our country during the war, wherever executed, will be of such a character that it will bring honor to our profession as well as to our country.

Dr. R. M. Funkhauser, Missouri, rose to a question of personal privilege and asked what disposition, if any, had been made by the Judicial Council of a request which he had presented to the House of Delegates at the Detroit session through the Reference Committee on Amendments to Constitution and By-Laws.

He now desired to make an additional inquiry and asked why one, who is or has been a member of the organization, should not be required to obtain membership at a new location on a transfer rather than by application *de novo*?

The chairman of the House of Delegates directed the secretary to bring this question to the attention of the Judicial Council, with the request that the Council report concerning the matter at the next meeting of the House of Delegates.

Dr. Arthur T. McCormack, Kentucky, presented the following resolution, which was referred to the Reference Committee on Legislation and Political Action:

WHEREAS, The protection of the national health is a measure of vital importance in peace and especially in war; and

WHEREAS, The governor of the State of New York by his untiring and public-spirited efforts, aided by the New York Academy of Medicine, has proffered the New York quarantine, etc., to the federal government; and

WHEREAS, Congress has not yet appropriated the funds which are necessary to complete the transfer of said New York quarantine; therefore, be it

Resolved, That the House of Delegates of the American Medical Association urges on Congress the importance of making immediately the appropriations with which to effect the transfer of the New York quarantine to the national government.

Dr. Arthur T. McCormack, Kentucky, asked that the privileges of the floor be extended to Dr. Seale Harris, Alabama, to permit him to discuss a question relative to food conservation.

Dr. C. L. Stevens, Pennsylvania, moved that Dr. Harris be granted five minutes.

Seconded and carried.

Dr. Harris then addressed the House, suggesting the following resolution; which was received by the House and referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, Those in position to know warn us that the American people are facing an alarming food shortage, particularly of meats and of wheat products; and

WHEREAS, If the laboring classes are deprived of these necessities to health and life, tuberculosis and many other diseases will increase very rapidly—it is said that tuberculosis has increased 500 per cent. in Berlin since meats and fats have almost disappeared from the German markets, and that in France the "white plague" and other diseases have increased enormously since the war began; and

WHEREAS, In the United States diseases of the arteries, kidneys, heart and brain (the degenerative diseases) have increased about 20 per cent. in the last thirty years, due partly to overeating, particularly of meats; and

WHEREAS, The food problem both among those who may be deprived of meats and breads, and among the prosperous who may be shortening their lives by overcating, is a question of vital importance to the health of the nation; and

WHEREAS, The U. S. Food Commission, with a patriot and an American of such distinguished ability as Mr. Herbert Hoover at its head, has wonderful opportunities for controlling food prices and in educating the public regarding food values and rational eating; therefore be it

Resolved, 1. That the American Medical Association in convention assembled in New York City, June 5, 1917, recognizing the food problem as a public health question, urges the people of the United States to conserve the food supply by eating less meat (many authorities say that it is harmful to eat more than one small portion of meat a day) and by eating more of corn, rice and barley products as substitutes for foods made from wheat.

2. That the U. S. Senate and House of Representatives be urged to expedite pending legislation, giving the Food Commission powers and means to control prices and to handle the food supply as it may think best for the American people.

3. That the Food Commission be requested to appoint a scientific committee composed of physicians and other experts on diet and nutrition to act, without pay, in an advisory capacity; and to provide means for said scientific committee to carry on a campaign of education to inform the public regarding the normal nutritional needs of the human body, and of the dangers from overeating, as well as to warn the public that high prices will deprive both the poor in our country and our allies in Europe of meats, bread and other foods that are necessary for the health, efficiency and even life itself.

4. That copies of these resolutions be sent to President Woodrow Wilson, Food Commissioner Herbert Hoover, the U. S. Senate and House of Representatives, and that copies be furnished the press.

Dr. Horace G. Wetherill, Colorado, offered the following amendment, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

To amend Section 3, Chapter VII, of the By-Laws, adding under classification "(f)" to the standing committees the words "Executive Committee." That the following be added as Section 9, and the present sections from 9 on to be renumbered.

THE EXECUTIVE COMMITTEE FOR THE HOUSE OF DELEGATES.—The Executive Committee shall consist of the President of the Association, the chairman of the House of Delegates, the secretary and the chairmen of the Board of Trustees, of the Judicial Council, of the Council on Health and Public Instruction, of the Council on Medical Education, and of the Council on Scientific Assembly.

In the event of death, resignation or removal of any of these the place so made vacant on the Executive Committee shall be filled by the one authorized to perform the duties of the respective office. The Executive Committee shall act for the House of Delegates in the interval between the annual sessions of the House, when the House itself is not in special session.

All actions taken by the Executive Committee, in order that they be adopted, must be supported by not less than three fourths of the members of the Executive Committee.

Also, in order to prevent conflicts, delete from Chapter VI, Section 1, sentence near the bottom of page 14, reading as follows: "In case of a vacancy in the office of Treasurer or Secretary, on account of death or otherwise, the vacancy shall be filled by the Board of Trustees until the next annual session of the House of Delegates," and the last sentence of Section VI to read, "During the intervals between the sessions of the House of Delegates, the Board of Trustees shall supervise the action of committees constituted by the action of the House."

Dr. Horace G. Wetherill, Colorado, offered the following amendment to Chapter V, Section 5, of the By-Laws, by cutting out the words "or the General Manager," which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Dr. John MacDiarmid, Florida, offered the following communication, which was referred to the Reference Committee on Miscellaneous Business:

Hon. Woodrow Wilson, Washington, D. C.:

The American Medical Association, in convention assembled, representing more than 70,000 physicians of the United States, commending your patience as long as patience was a virtue, endorses your manly and patriotic action at this critical hour of our national life, when German autocracy, ignoring the common rights of man, is waging inhuman war upon democracy and humanity, and pledges to you our hearty and active cooperation.

Dr. Floyd M. Crandall, New York, offered the following amendment to Article 9, Section 1, of the Constitution, which will lie over until the next annual session of the House of Delegates:

The Committee on Amendments to the Constitution and By-Laws submitted the following amendment to Article 9, Section 1, of the Constitution:

Amend by striking out the words "Chairman and Vice Chairman of the House of Delegates," and substituting the words "Speaker and Vice Speaker of the House of Delegates."

Report of the Reference Committee on Medical Education

Dr. William S. Lalor, New Jersey, chairman, presented the report of the Reference Committee on Medical Education, as follows:

Your committee, to which the report of the Council on Medical Education was referred, reports as follows:

We recommend that the report be endorsed as a whole. No one can read and study this report and consider the results obtained without being impressed with the profound influence of the Council's work on the present and future welfare of the medical profession in this country. The reasonably high standards of preliminary education which have been established insure well qualified students who, with the improved training now obtainable in the majority of medical colleges, cannot fail to be a credit to the profession they have adopted and of greater service to the public.

It is pleasing to note that during the last several years so large a proportion—over 70 per cent.—of all medical graduates are from the Class A medical schools, and are in position to render service of a high order to the government in the present national crisis. Your committee endorses the Council's statement that there should be no lowering of educational standards or shortening of the medical course, although the emergency may require certain changes in methods of procedure.

The Council should be commended on the establishing of the Student's Register, which not only is a permanent record of the qualifications of all medical students but also enables the Council to know definitely whether medical schools are upholding reasonable standards for admission.

The Council's list of approved hospitals is of much service to medical graduates in obtaining internships. This work should be continued so that other worthy hospitals may be included in subsequent lists. Your committee believes that a most important and urgent work remaining to be accomplished by the Association is a more extensive investigation of the hospitals as to their ability to furnish intern training of a sufficient value to be accepted by state licensing boards as the final year of the medical course. Your committee recommends that an appropriation of $2,500 each year for three years be made for this purpose.

Your committee calls especial attention to Table 5, on page 176. This shows that of the 3,877 physicians coming from colleges of known classification who were licensed during 1916, nearly 80 per cent. were graduates of Class A colleges. We recommend that the attention of each state medical society be called to the record of their state.

Your committee recommends that the action taken by the Council in its ratings of medical colleges be approved and recommends the publication of the ratings with the changes recommended by the Council.

The committee wishes to commend the Council on the splendid results of its work during the last fourteen years.

William Smith Lalor, Chairman.
L. W. Littig.
Dean Lewis.

Dr. Perry Bromberg, Tennessee, moved that the report be adopted.

Seconded by Dr. C. E. Cantrell, Texas, and carried.

Report of Reference Committee on Hygiene and Public Health

Dr. W. C. Rucker, District of Columbia, chairman, presented the report of the Reference Committee on Hygiene and Public Health, as follows:

The committee unanimously endorses the resolution presented by Dr. Arthur T. McCormack and recommends its adoption.

The committee also considered the resolution relative to food conservation. The committee feels that inasmuch as this matter has been considered by Congress, and the national government is taking steps in this direction, it is inexpedient to proceed farther with the matter at present, and the committee so recommends to the House, and advises that the communication be laid on the table.

On motion, duly seconded and carried, the recommendations of the committee were concurred in.

Dr. Oscar Dowling, Louisiana, a member of the Board of Trustees, called the attention of the House of Delegates to the practice, not uncommon among physicians, of giving letters of recommendation and testimonials relative to the therapeutic merits of drugs and combinations of drugs without careful scientific investigation. He made the suggestion that this practice should be condemned by an organization of scientific physicians.

The chairman of the House of Delegates requested Dr. Dowling to present his suggestion in writing for the consideration of the House.

Dr. H. M. Brown, Wisconsin, addressed the House on the question of taking action relative to memorializing Congress, praying that it revoke the patent rights of salvarsan and neosalvarsan.

Dr. C. E. Cantrell, Texas, suggested the extending of the memorial to cover other patented pharmaceutical products. The question was also discussed by Dr. Floyd W. McRae, Georgia.

At the suggestion of the chair, a motion was made, duly seconded and carried, authorizing the appointment of a special committee of three to frame a resolution covering this question, and directing the secretary to transmit the resolution drafted by the special committee to the Reference Committee on Hygiene and Public Health. The committee appointed consisted of Drs. H. M. Brown, chairman; C. E. Cantrell, and F. W. McRae.

The committee reported the following resolutions, which were transmitted to the reference committee as directed:

Resolved, That the 86,000 medical men, represented by the House of Delegates of the American Medical Association, urge on the Congress of the United States the imperative necessity of immediate steps being taken to abrogate the German patents on the manufacture of salvarsan in this country, to the end that the people of the United States may have at their command an available means for rapidly controlling the spread of syphilis. Be it further

Resolved, That Congress is urged to consider the abrogation of other important patents now held by Germans which interfere with the manufacture of drugs useful to the people of the United States.

The Committee on Credentials presented, through its chairman, Dr. D. Chester Brown, Connecticut, the following amendment to the rules for the guidance of the Committee on Credentials:

To be substituted for Paragraph 1 of the rules adopted June 6, 1912: "Credentials shall be of two parts. The first part shall be sent to the office of the secretary of the American Medical Association by the secretary of the constituent association, 'not later than seven days prior to the first day of the first meeting of the House of Delegates,' and shall be a list of delegates 'and alternates' for that association."

This amendment was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

On motion, duly seconded and carried, the House of Delegates then adjourned to meet Thursday, at 2 p. m.

Third Meeting—Thursday Afternoon, June 7

The House of Delegates met at 2 p. m., and was called to order by the chairman.

Dr. D. Chester Brown, Connecticut, chairman, presented a supplementary report of the Committee on Credentials.

Dr. C. E. Cantrell, Texas, moved that the report be adopted, and the delegates reported be seated.

Seconded and carried.

The secretary called the roll and 100 delegates responded. Later twelve additional delegates reported their presence.

The chairman announced a quorum present.

Dr. E. Eliot Harris, New York, called the attention of the House to the presence of Dr. Abraham Jacobi, an ex-President of the Association.

Dr. Jacobi addressed the House, expressing his appreciation of the opportunity to look into the faces of many of the delegates whom he had known before and to shake hands with them.

The minutes of the previous meeting were read and approved.

Election of Officers

The next order of business being the election of officers, the House proceeded to an election, which resulted in the choice of the following:

President—ARTHUR DEAN BEVAN, Chicago.

First Vice President—EDWARD H. BRADFORD, Boston.

Second Vice President—JOHN MCMULLIN, U. S. Public Health Service, Washington, D. C.

Third Vice President—LAWRENCE LITCHFIELD, Pittsburgh.

Fourth Vice President—HOLMAN TAYLOR, Fort Worth, Tex.

Secretary—ALEXANDER R. CRAIG, Chicago.

Treasurer—WILLIAM ALLEN PUSEY, Chicago.

Chairman of the House of Delegates—HUBERT WORK, Pueblo, Colo.

Vice Chairman of House of Delegates—DWIGHT H. MURRAY, Syracuse, N. Y.

Members of the Board of Trustees—PHILIP MARVEL, Atlantic City, N. J.; W. T. SARLES, Sparta, Wis.; H. BERT ELLIS, Los Angeles. The resignation of W. T. COUNCILMAN, Boston, having been received and accepted with regrets, WENDELL C. PHILLIPS, New York, was selected to fill the unexpired term.

The House approved the following nominations of the President:

Judicial Council—RANDOLPH WINSLOW, Baltimore.

Council on Health and Public Instruction—WALTER B. CANNON, Boston.

Council on Medical Education—WILLIAM PEPPER, Philadelphia, and to fill the place made vacant by the election of Arthur D. Bevan to the presidency, H. GIDEON WELLS, Chicago.

Council on Scientific Assembly—E. S. JUDD, Rochester, Minn.

The President, Dr. Charles H. Mayo, then addressed the House and said that nearly all great bodies looked after the destitute, those that were rendered so by sickness or those who left their families destitute. He knew of men in the medical profession who were paralyzed, and who lived on a mortgage of their life insurance which was meant for the use of their families. He hoped and believed that this year the American Medical Association would start the nucleus for a fund that can be used by the Board of Trustees for the care of such members of the profession and their families as were deserving.

The secretary presented a list of applicants for associate fellowship endorsed by the Judicial Council, the Section on Stomatology, the Section on Pharmacology and Therapeutics, the officers of the Section on Pathology and Physiology, the officers of the Section on Preventive Medicine and Public Health, and a nomination for Honorary Fellowship from the Section on Orthopedic Surgery, the latter to be approved by the Council on Scientific Assembly.

It was moved that the secretary be authorized to cast a ballot of the House in each instance in which the applicant is not eligible for membership in the state association of the state in which he resides, and provided no objection to the applicant is filed by the officers of such state association.

Seconded and carried.

Address by the President of the Association

At this juncture, the business of the House was suspended. The chairman introduced Dr. Bevan, President Elect, who said:

Mr. Chairman and Members of the House of Delegates: You are so busy this afternoon that you do not want to hear me talk, and I have very little to say.

I want to thank you for the great honor that you have conferred on me in electing me President of the American Medical Association. Frankly, however, I regard it rather as an expression of confidence and in honor of the movement in connection with medical education that was initiated fifteen years ago with which I have been fortunately actively identified. I have been tremendously impressed with the possibilities of the American Medical Association from my experience in the work of the Council on Medical Education. I have been impressed with the possibilities that when the organized profession of this country seriously undertakes to carry out certain reforms, it will be successful. This is shown in the splendid work of THE JOURNAL and in the Council on Pharmacy and Chemistry and in many other activities of the Association.

I am a member of several special societies, but my membership in the American Medical Association means more to me than does my connection with any other medical organization in this country, and I think it means more for any man in American medicine. (Applause.)

Medicine is not only a science, but it is today one of the great functions in civilization, and the American Medical Association represents the organized profession in this country. I believe it has a very important part to play in the future development of this country in many ways, and I think if we all realize what can be done by an organized profession and work together intelligently, we shall not only accomplish a great deal of good for the medical profession and for medicine, but for the people of the United States. (Applause.)

The Health of Our Soldiers

Dr. Frank Billings, Illinois, rose to a question of personal privilege which was granted, and said:

Any one who has been in touch with the conditions of health of our recruits, both in the navy and army, since we are in a state of war, must have been impressed with the fact that there is something wrong. At different places we hear fault found with our army medical department, and with the navy medical department. There are scandals regarding certain epidemics of cerebrospinal meningitis, of scarlet fever, of measles, and pneumonia among the young men called to the service, and now that conscription is with us and 500,000 recruits are to be concentrated in camps, we ask ourselves the question of what is to become of these young men. We have not far to go, if we understand things, for an answer. In times of peace, even the medical departments of the army and navy have not the power commensurate with the responsibilities, and now in time of war these responsibilities are greater and their power is not greater but less if anything. Do you want me to give you one or two concrete examples?

Since registration has taken place and conscription faces us, contracts have been let for sixteen concentration camps and barracks. These barracks are to be of wood and steel, rooms holding 600 soldiers, and the amount of space allotted to each is 300 cubic feet. This matter is in charge of the quartermaster's department. They may reach the surgeon-general; he may O. K. it or disapprove of it, but he cannot stop it. The army medical officers themselves cannot demand or expect to receive any change in this routine. They must depend on us as civilians to bring about a change through the influence we may have with the administration at Washington. We must not act hastily. We must formulate methods. At this time of war, for instance, the war college should have a representative in it of the medical department. It has not now and never has been given one. We conceive that the health of our boys both in the navy and in the army, in recruiting stations, and in the field, is one of the most important functions and powers of war. We must do something to help our three surgeons-general. I do not want further to take up your time, but simply intimate this to you. They are glad to receive help. We want to give them help in the right way, and after a conference with officers of the army and with Dr. Welch, who has made examinations of certain of these camps, I ask that this House appoint a committee to draft resolutions to be forwarded to the President of the United States. I do not ask that this be done now. We should have a commission or committee with power, after a conference with Surgeon-General Gorgas, Surgeon-General Braisted, and Surgeon-General Blue, to formulate resolutions to the President that may be helpful in obtaining the power they need to guard the health of our soldiers.

Dr. C. E. Cantrell, Texas, moved that a committee of five, with power, be appointed by the Chairman of the House, for this purpose.

Seconded and carried.

Place of Annual Session

The next order of business being the selection of a place and fixing the time for the annual session of 1918, Dr. A. B. Walker, Ohio, moved that the privileges of the floor be extended to Dr. E. O. Smith, Cincinnati, president of the Ohio State Medical Association.

Seconded and carried.

Dr. Smith extended a warm invitation for the Association to hold its next annual meeting in Cincinnati.

Dr. Charles J. Whalen, Illinois, extended an invitation to the Association to hold its next meeting in Chicago.

Dr. E. Eliot Harris, New York, moved that no further invitations be received, and the House proceed to a ballot.

Seconded and carried.

It was suggested that if unanimous consent be accorded, the place of the next annual session could be determined promptly by a rising vote.

Unanimous consent having been obtained, a rising vote was then taken, which resulted in Chicago being selected.

Dr. J. B. Blake, Massachusetts, moved that the time of meeting be left to the Board of Trustees.

Seconded and carried.

Report of Reference Committee on Miscellaneous Business

Dr. J. B. Blake, Massachusetts, Chairman, presented the following report of the Reference Committee on Miscellaneous Business:

Your committee has the honor to present the following report:

Two matters were referred to this committee and have received careful consideration. The first, a resolution offered by Samuel J. Meltzer, delegate from the Section on Practice of Medicine, for which your Reference Committee recommends the adoption of the following substitute:

In noticing with profound gratification the fact that numerous distinguished physicians of our country were among the first to offer their services to the government and to respond to its call to serve in their capacity as medical men on the battlefields of our allies in Europe, the American Medical Association, at its Sixty-Eighth Annual Session, expresses herewith its confidence to the entire medical profession that all its members will stand by the government in its present national need and offer willingly their services whenever they are called on and in whichever capacity they are capable of rendering them; and that wherever executed, their services will be of such a character that they will bring honor to our profession, as well as to our country.

The second, a communication, presented by John MacDiarmid, Florida, is as follows:

Hon. Woodrow Wilson, Washington, D. C.: The American Medical Association, in convention assembled, representing more than eighty thousand physicians of the United States, commending your patience as long as patience was a virtue, endorses your manly and patriotic action at this critical hour of our national life, when German autocracy, ignoring the common rights of man, is waging inhuman war on democracy and humanity, and pledges to you our hearty and active cooperation.

The committee recommends its adoption.

JOHN BAPST BLAKE,
ALEXIUS MCGLANNAN,
HARRY P. RITCHIE,
D. E. MCGILLIVRAY.

Dr. Arthur T. McCormack, Kentucky, moved that the report be adopted.

Seconded and carried.

Tribute to Alexander Lambert

Dr. Arthur T. McCormack, Kentucky, asked unanimous consent, which was granted, to present the following personal tribute to Major Alexander Lambert, of the Medical Reserve Corps of the United States Army, who is about to depart for oversea duty:

Dr. Alexander Lambert, *Sir*:—You came to the House of Delegates many years ago, already the honored son of your illustrious father, famed from infancy, into the most cherished traditions of the profession. You have added dignity to the state you have so well represented by constantly and effectively contending for all that is best for the physicians of America, and for the people whom they serve.

A true physician yourself, we recognize your numerous contributions to the science of medicine. It is unnecessary, here, to enumerate them; but because of its tremendous practical importance, as a matter of restoration to healthy usefulness and self-respect of so large a class of unfortunates, we especially congratulate you on your success in devising, perfecting and giving to the profession, and the world, a successful treatment of drug and alcohol addicts.

Recognizing your sense of fairness, your tact, your correct and accurate perception of justice, your colleagues long ago chose you as the Chief Justice of the Supreme Court of Medicine—the Judicial Council of the American Medical Association. You have occupied the position with dignity and honor, and, through your broad conception of its functions, you have advanced not only the popular but also the professional conception of the duties of the physician to himself and to the state, and of the state toward safeguarding the health of all those who by productive labor support it.

Bred in the principle of medicine, you have constantly maintained its highest standards. It is with a deep feeling of real pride, therefore, that we, your colleagues of the House of Delegates of the American Medical Association, recognized you as our special representative with our armed forces overseas in this war, in which justice, equity, right—all three things, Sir, which you, in your own person, so ably represent, are the causes for which our country and its allies fight.

We bid you Godspeed, and in your firm hand and your true heart we confidently place the guardianship of our honor, knowing that it is safe.

On motion, duly seconded and carried, the House concurred in the sentiment expressed in Dr. McCormack's communication and directed that it be spread on the minutes.

Dr. Alexander Lambert was called to the platform, was warmly received, and said:

Gentlemen: I am going to new fields. I will do my best to live up to your good opinion of me, and I thank you. (Applause).

Supplementary Report of the Judicial Council

Dr. Alexander Lambert, New York, chairman, presented the following supplementary report of the Judicial Council:

Relative to the inquiry submitted by Dr. R. M. Funkhouser, Missouri, as to what, if anything, had been done in connection with the subject which Dr. Funkhauser presented to the Reference Committee on Amendments to the Constitution and By-Laws which was submitted to the House of Delegates at the second meeting of last year's annual session:

The following amendment to Chapter VIII, Section 6, of the By-Laws was presented to the chairman of the committee yesterday by Dr. Robert M. Funkhauser of Missouri. As it was not presented to the House of Delegates, it could not be acted on. The committee, however, considered the question at considerable length and decided to present it to the House at this session.

"No person can become an Associate Fellow who can be a member of the American Medical Association in the regular way."

The Judicial Council is of the opinion that there should be no change in the by-laws defining and regulating Associate Fellowship.

In reply to the inquiry Dr. Funkhauser submitted at this session, there are doubtless instances of illegal membership in the American Medical Association, unknown and unrecognized, many of them occasioned by the migration of physicians from state to state, and the obtaining of membership at the new location to which these physicians have gone. This has come about because the procedure defined in the by-laws and the standing rules is not carefully followed, and is usually due to the neglect to obtain a transfer card from the society the member has left to the society at his new location. Frequently, unpaid dues are left behind and yet the physician is given membership at his new location. This causes much confusion, and is due to the failure of the societies to insist on the applicant showing a clear record from the society he has left. The Judicial Council feels that the confusion is due to failure to comply with existing by-laws and standing rules, and that it is unwise to add new rules and regulations to govern this transfer of membership from one society to another until public opinion in component societies enforces the fulfilment of the already existing rules.

The Judicial Council has authorized the following reply to be sent to the official communication received by this House of Delegates from the Mississippi State Medical Association:

In accordance with the advice already mailed to you, your letter of May 17 was transmitted to the House of Delegates of the American Medical Association at the opening meeting of the 1917 annual session. On motion, duly seconded and carried, the House referred your communication to the Judicial Council for a reply.

The Judicial Council at a meeting held in New York City, June 5, took this official communication from a constituent association of the American Medical Association under advisement and after careful deliberation begs leave to reply.

The careful reading of the section of the by-laws giving appellate jurisdiction to the Judicial Council will show that the only matters which can be appealed to the Judicial Council are questions of law and procedure, not of fact. This leaves the question of discipline and the questions of fact concerning whether or not a member should be disciplined where it belongs, in the county societies, where it has always been. The appellate jurisdiction given to the Judicial Council in simple language means this, that any member of a county society or state association—any member of the American Medical Association—may appeal to the Judicial Council if in the course of some dispute he is not given what he considers to be his just rights in questions of law or procedure.

The qualifications of membership in county societies are not involved in this question at all, because only those already members of the association may avail themselves of the protection of this appeal.

If the appellate powers of the Judicial Council are contrary to democratic principles, the concept of democratic principles, as held by your honorable body, is at variance with the accepted concept of fair play. The Judicial Council of the American Medical Association believes that the preambles and resolutions transmitted to the House of Delegates by you are based on a misconception of the appellate powers actually vested in the Judicial Council. The Judicial Council believes that when its appellate jurisdiction is accurately comprehended by the Mississippi State Medical Association, the wisdom of the existence of these appellate powers will be fully recognized.

Dr. Frederick L. Van Sickle, Pennsylvania, moved that the report be adopted.

Seconded and carried.

Report of Reference Committee on Legislation and Political Action

Dr. M. L. Graves, Texas, chairman, presented the report of the Reference Committee on Legislation and Political Action, as follows:

The resolution regarding recommendations to the constituent state association proposing a plan for the appointment of committees on legislation and political action, has been considered by the committee, and inasmuch as the plan has not been in operation for a sufficient length of time to establish its effectiveness, your committee recommends that this resolution be referred to the Council on Public Health and Instruction.

The resolution to memorialize Congress and urge the appropriation of funds immediately to take over the New York quarantine by the national government was referred to this committee. We learn that the same resolution has already been considered and reported by the Reference Committee on Hygiene and Public Health, and inasmuch as the recommendation of that committee meets with the approval of this committee, and the House has already acted on same, it would appear that no further action is necessary.

The following resolution on alcohol, submitted by the Council on Health and Public Instruction, has been gravely considered by your committee:

WHEREAS, It is the unanimous opinion of the Council on Health and Public Instruction of the American Medical Association that alcohol has no drug value, either as a stimulant, as a tonic, or as a therapeutic agent, and that it has no food value; and

WHEREAS, Its use as a beverage or as a therapeutic agent is detrimental rather than beneficial to the individual; therefore, be it

Resolved, That the House of Delegates of the American Medical Association, at its Sixty-Eighth Annual Session, declares it is opposed to the use of alcohol by individuals either as a medicine or as a beverage; and be it further

Resolved, That its use in medicine is permissible only in the preparation and preservation of pharmaceutical products.

Since the first premise of these resolutions expresses an opinion held by the Council, and since the expressions of opinion from numerous members of the House and the Association lead us to the conclusion that the status of alcohol in medicine is still undetermined, your committee begs to amend the resolutions by substituting the following:

WHEREAS, We believe that the use of alcohol as a beverage is detrimental to the human economy, and

WHEREAS, Its use in therapeutics, as a tonic or a stimulant or as a food has no scientific basis, therefore be it

Resolved, That the American Medical Association opposes the use of alcohol as a beverage, and be it further

Resolved, That the use of alcohol as a therapeutic agent should be discouraged.

It was moved that the report be adopted. Seconded.

Dr. R. A. Hatcher, New York, delegate from the Section on Pharmacology and Therapeutics, moved to substitute the following resolution for the resolution on alcohol offered by the Reference Committee on Legislation and Political Action, and advised the House that the substitute which he offered was presented at the direction of the Section on Pharmacology and Therapeutics after having been adopted by that section:

The Section on Pharmacology and Therapeutics instructs its delegates to the House of Delegates that it is the sense of this section that the question of the therapeutic value of alcohol which has been long in dispute remains yet undetermined, and that hasty action taken in the stress of present circumstances would not be wise, and would not reflect fully the best therapeutic and pharmacologic opinions.

Furthermore, while recognizing the possible need of prohibition of the use of alcohol as a measure of public safety, it would ask that the two questions be considered separately on their respective merits.

After discussion by Drs. Samuel J. Meltzer, New York; R. A. Hatcher, New York; Walter T. Williamson, Oregon; Stewart R. Roberts, Georgia; Cyrus L. Stevens, Pennsylvania; Arthur T. McCormack, Kentucky, and George A. Moleen, Colorado, the chairman put the substitute motion, which was lost.

Dr. E. Eliot Harris, New York, moved to amend by striking out from the resolution offered by the Reference Committee on Legislation and Political Action all that relates to the therapeutic use of alcohol. Seconded.

After discussion by Dr. M. L. Graves, Texas, the amendment was put and lost.

The motion to adopt the report of the Committee as presented was put and carried.

Report of Reference Committee on Hygiene and Public Health

Dr. Arthur T. McCormack, Kentucky, presented the report of the Reference Committee on Hygiene and Public Health.

The Reference Committee on Hygiene and Public Health reports on the resolution offered by Dr. H. M. Brown, Wisconsin, and recommends the following substitute for the resolution presented:

Resolved, That the American Medical Association urges on the Congress of the United States the imperative necessity of immediate steps being taken to abrogate all the German patents on the manufacture of salvarsan and allied products in this country, to the end that the people of the United States may have at their command an available means for rapidly controlling the spread of syphilis.

The following preambles and resolution have come to the reference committee from the Section on Preventive Medicine and Public Health, with the endorsement of that section and are recommended for adoption by the House of Delegates:

WHEREAS, The protection of the national health is a matter of paramount importance, particularly at the present time, and

WHEREAS, To accomplish this it is necessary that there be a close integration of all the health agencies of the nation, the states and the municipalities, therefore, be it

Resolved, That the Section on Preventive Medicine and Public Health urges the House of Delegates to memorialize Congress to the end that Senate Joint Resolution No. 63 be speedily enacted into law.

Your committee reports recommending the adoption of a second set of preambles and resolutions which have been adopted by the Section on Preventive Medicine and Public Health and are transmitted through your reference committee. These resolutions are as follows:

WHEREAS, Venereal infections are among the most serious and disabling diseases to which the soldier and sailor are liable; and

WHEREAS, They constitute a grave menace to the civil population; and

WHEREAS, The Congress of the United States has authorized the President, and has empowered and directed the secretary of war to control prostitution and alcohol within effective zones surrounding all military places; and

WHEREAS, The Council of National Defense has adopted resolutions outlining a general policy for the combating of venereal diseases; and

WHEREAS, A grave responsibility rests on the civil population, and particularly the medical profession, for participation in making effective these and other measures for the eradication of venereal diseases; therefore, be it

Resolved, That the American Medical Association endorses the actions of Congress and the Council of National Defense and commends the following as the basis for a program of civil activities:

1. That sexual continence is compatible with health and is the best prevention of venereal infections.

2. That steps be taken toward the prevention of venereal infections through the prevention of prostitution, and by the provision of suitable recreational facilities, the control of alcoholic drinks, and other effective constructive measures.

3. That plans be adopted for centralized control of venereal infections through special divisions of the proper health and medical services.

4. That the hospitals and dispensaries be encouraged to increase their facilities for early treatment and follow-up service for venereal diseases as a measure of national efficiency.

5. That the members of the medical profession be urged to make every effort to promote public opinion in support of measures instituted in accordance with these principles of action in the control of venereal diseases.

A third set of preambles and a resolution adopted by the Section on Preventive Medicine and Public Health are herewith transmitted, and action will be called for subsequently during this meeting.

These preambles and resolutions are as follows:

WHEREAS, Preventive medicine is a subject of growing importance, and

WHEREAS, The section on Preventive Medicine and Public Health of the American Medical Association brings many who are interested in public health work to its meetings, and

WHEREAS, The consideration of special subjects relating to preventive medicine requires additional time rather than restricted time, and

WHEREAS, It is of the utmost importance that preventive medicine be not alienated from the other branches of medicine, and be dissipated among a multiplicity of special health organizations, therefore, be it

Resolved, That the Section on Preventive Medicine and Public Health hereby petitions the House of Delegates that its work at the annual sessions be extended to six units, and that it be permitted to hold two meetings daily until its work is completed.

On several motions, duly seconded and carried, the several sections of the report were adopted.

Supplementary Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Floyd M. Crandall, New York, chairman, presented the following supplementary report of the Reference Committee on Amendments to the Constitution and By-Laws:

The following communication, presented by Dr. R. M. Funkhouser of St. Louis was referred to this committee.

Dr. R. M. Funkhouser of St. Louis moved that the delegates to the next meeting of the A. M. A. be instructed to take up the question of transfer of members from one unit society of one state to a unit society of another, as there are cases where members of one state, delinquent or not, go to another state without a transfer card and illegally become members of a unit society in another state. This subject should be brought to the attention of the proper authorities at the coming meeting of the A. M. A., and properly settled. No member of a unit society should be permitted to join or should be accepted in a unit society of another state unless the said member desiring membership in another state shall conform to the laws which demand all dues be paid and a proper transfer be obtained from the unit society from which the transfer is desired.

After prolonged deliberation, the committee decided that in its judgment the matter was completely covered by Chapter VIII, Section 3, of the By-Laws.

It was voted, however, to refer the matter to the Judicial Council.

It was further voted that in its judgment, all matters pertaining to the transfer of membership should be referred to the Judicial Council.

The committee recommends that Chapter V, Section 5, of the By-Laws be amended by striking out the words "Or the General Manager," and substituting the word "or" between the words "Delegates" and "the," so that the section shall read: "And shall perform such other duties as may be directed by the House of Delegates, or the Board of Trustees."

The Committee on Registration of Delegates presented, through its chairman, Dr. D. Chester Brown, the following amendment to the rules for the guidance of the Committee on Credentials:

To be substituted for Paragraph 1 of the rules adopted June 6, 1912:

Credentials shall be of two parts. The first part shall be sent to the office of the secretary of the American Medical Association by the secretary of the constituent association, "not later than seven days prior to the first day of the first meeting of the House of Delegates," and shall be a list of delegates "and alternates," for that Association.

The committee recommends the adoption of this rule.

The following amendment to the By-Laws was submitted to the House of Delegates at the meeting of June 5:

Amend by adding to Chapter XI, Section 1, the following words: "16 Miscellaneous Topics."

Amend Chapter VII, Section 7, by adding the words: "The Council on Scientific Assembly is authorized to appoint officers for the meetings making up the section on miscellaneous topics."

The committee recommends the adoption of this amendment.

The Committee on Amendments to the Constitution and By-Laws submitted the following amendment, Chapter VII, Section 11, of the By-Laws:

Amend by adding the words "(9) A Committee on Sections and Section Work, to which shall be referred all matters relating to the sections and the section work. Members of the Council on Scientific Assembly shall be members *ex officio* of this committee."

The Committee on Amendments to the Constitution and By-Laws submitted the following amendment to Article 9, Section 1, of the constitution.

Amend by striking out the words "Chairman and Vice Chairman of the House of Delegates," and substituting the words "Speaker and Vice Speaker of the House of Delegates."

The reference committee has received from Dr. Oscar Dowling the following memorandum:

Add Principles of Medical Ethics:

Chapter I, Section IV—Judicial Council—Authority

For complaints or violations of

Chapter II, Article I, Section 6—The Judicial Council shall have original jurisdiction.

Chapter II, Section 6, add last line following manufacture, or represent or exploit or promote (for financial gain or other purpose) their use in any way.

This memorandum having been received too late to be acted on by the committee, the chairman moved that it be referred to the Judicial Council for consideration and report.

On several motions, which were duly seconded and carried, the several sections of the report were adopted.

Dr. George A. Moleen, Colorado, moved the adoption of the report as a whole.

Seconded and carried.

Dr. Floyd M. Crandall, New York, presented the following resolution, which was duly seconded and carried:

Resolved, that the secretary be empowered to arrange and renumber paragraphs of the Constitution and By-Laws as may be necessary to bring them into harmony with existing sections.

The chair announced the following committee called for by the action of the House in response to the remarks made by Dr. Billings:

Dr. Charles H. Mayo, Minnesota; Dr. William H. Welch, Maryland; Dr. Victor C. Vaughan, Michigan; Dr. Samuel Lambert, New York, and Dr. Frank Billings, Illinois.

Report of Reference Committee on Reports of Officers

Dr. Horace G. Wetherill, Colorado, chairman, presented the report of the Reference Committee on Reports of Officers:

Your Committee on Reports of Officers desires to submit the following:

On further consideration of the matter held in abeyance in our previous report, relating to the formation of special journals in ophthalmology and otolaryngology, we commend the plan of the Board of Trustees for the formation of journals of ophthalmology and otolaryngology, but believe it should be carried out with the full cooperation of the members of the American Medical Association who are most interested in their success. The prevailing opinion appears definitely to favor the creation of separate journals. We would leave to the Board of Trustees the arrangement of the necessary details with the sections and specialties involved.

Regarding the resolution of Dr. Arthur T. McCormack of Kentucky which is as follows:

WHEREAS, The United States is at war with Germany, a war which involves the freedom and lives of our people, and the existence and honor of our nation; be it

Resolved, By the American Medical Association, the representative organization of the 145,000 physicians of America, that the president and the Congress and the supreme court of the United States, and the governors and legislatures and the supreme courts of the states and territories, respectively, be memorialized as follows:

1. The medical profession of America pledges itself to furnish adequate, competent officers for the efficient care and protection of the health and lives of our forces at home, on the seas or overseas; that it realizes, and will help to its utmost in solving, the necessity for the conservation of our food supplies; for the mobilization and protection of labor in home, factories and mines and on farms and our great transportation routes; and for such sacrifices to the common welfare in loans of money to or in increased burdens of taxation by the federal government as may be demanded for the proper exercise of its duties to civilization.

2. That all of these increased burdens demand for their success such conservation and care, above all other considerations, of our man power, as to make available for the efficient service of the nation whatever each man and woman can best be trained to do; and that such efficiency as the world has a right to expect of the United States cannot be realized until prompt and effective steps have been taken to educate our people in the control and prevention of those diseases which science has demonstrated to be preventable, with a view to the elimination of the waste from unnecessary illness, lingering inefficiency and premature death.

3. That those in authority, and having the right and opportunity of making, constraining and enforcing law, be urged to a realization to the paramount importance of the conservation of the human force of the individuals composing the nation, as distinguished from the material resources and mechanical devices which are of tremendous importance in this struggle only so long as adequately and effectively manned, by healthy and therefore productive men and women; with a view to the establishment of health departments clothed with the necessary authority, and provided with ample funds, to actually help all the people, whether crowded in the slums or on the avenues of the cities, or scattered on the high roads or by-paths of the country, to prevent

unnecessary disease and death; and realizing that in the present emergency that they be urged forthwith to construct and coordinate a national department of health from existing bureaus having health functions, making our United States Public Health Service, with its proud traditions and record of great achievement, the executive arm, with its Surgeon-General the head of the department, joining with it the bureaus of Vital Statistics and Chemistry and the Children's Bureau, with their present personnel and duties and creating such bureaus and activities as may effectively study and demonstrate the best methods in urban and rural sanitation, in home and public building ventilation, in housing, in public health nursing, in all of the multiple complex health problems of our nation, a proper solution of which will give it the power to settle right the great world problems as it knows best how to settle.

4. That, supporting the constitution, we understand that the police power, under which all health authority is constituted, is reserved to the states, and that such a national department of health would and should be but a strategic board, planning and demonstrating campaigns against existing or threatening diseases which produce suffering, inefficiency or death. It is urged that the states, respectively, provide for their health department such men and money as may be necessary for them to effectively reach and help all the people wherein endemic disease exists or epidemic disease threatens, and to establish and equip such county or district health department with an all-time executive, and such nursing and other aids as their varying needs may make necessary, all under civil service, their tenure of office being determined not in terms of years, but by economic administration and progressive decrease in disease and death rate, and increase in efficiency of the citizens of each jurisdiction.

5. That we proudly recall to the country that we shall send our best trained and most proficient physicians, surgeons and nurses to the most dangerous and deadly duty at the front. The first aid to the wounded boys that represent America there; and we confidently urge on the conscience of the American people not only a proper solution of these—the paramount problems of this struggle, but the adequate protection of our women and children of our country during and after our absence, from the maladministration of quacks and charlatans, faddists and sectarians, nostrum vendors and "patent medicine" fakirs, who have been loudest to acclaim their meticulous merits in times of peace and prosperity and will be found as conspicuous by their utter uselessness and worthlessness in the emergency of war.

Your committee would request that the House of Delegates take up Dr. McCormack's resolution specifically for action. As suggested in our previous report, the present status of this resolution is that of lying on the table. We desire to call it up for consideration. Under Chapter XIII, of the By-Laws, this action seems necessary to have the report become effective. It says:

No memorial, resolution or opinion of any character whatever shall be issued in the name of the American Medical Association unless it has been approved by the House of Delegates.

Your committee has further reconsidered the method of presenting this report to the proper government authorities, and desires to recommend that if adopted by the House of Delegates, it go through the regularly constituted officers of the House of Delegates to the government officials.

On separate motions, duly seconded and carried, the sections of the report were adopted.

Dr. Arthur T. McCormack, Kentucky, moved that the memorial presented at the first meeting of the House of Delegates be approved by the House of Delegates. Seconded.

After discussion by Drs. H. G. Wetherill, Arthur T. McCormack, Southgate Leigh and M. L. Graves, Dr. C. E. Cantrell, Texas, moved as a substitute motion that the memorial be referred, with power, to the special committee appointed to act in the matter presented by Dr. Frank Billings, Chicago.

Seconded and carried.

Dr. S. G. Kahn, Utah, moved to reconsider the action taken by the House at a previous meeting in assigning the number of units to the sections.

Seconded and carried.

Dr. S. G. Kahn, Utah, then moved that the Section on Diseases of Children be given the same number of units that it previously had. Seconded.

After discussion by Drs. C. H. Good, Stewart R. Roberts, George A. Moleen, L. R. DeBuys, Alexander Lambert, Abraham Jacobi, E. Eliot Harris and H. M. McClanahan, on motion of Dr. C. Eliot Harris, which was duly seconded and carried, the privileges of the floor were granted to Dr. Isaac A. Abt, Illinois, to speak on the subject.

After discussion by Dr. Abt and Dr. C. E. Cantrell, Dr. Arthur T. McCormack moved, as a substitute motion, that that section of the report of the Reference Committee on Reports of Officers now under consideration be amended so as to assign to each of the sections of the Scientific Assembly six units.

The substitute motion was seconded and carried unanimously.

The secretary presented the following resolution from the Section on Pharmacology and Therapeutics:

The Section on Pharmacology and Therapeutics instructs its delegate to the House of Delegates to present the following:

That this section favors the organization of pharmacists in the army on a basis analogous to that of dentists, insuring them a definite status in the army.

On motion of Dr. Arthur T. McCormack, Kentucky, which was duly seconded and carried, the resolution was referred to the special committee of which Dr. C. H. Mayo is chairman.

Seconded and carried.

The secretary read a communication from the Section on Stomatology in which the section advised the House of Delegates that the following resolution had been adopted by the section, defining the qualifications of applicants for Associate Fellowship in the Association which the section proposed to require before endorsing applicants, and asked the approval of the House of Delegates of this action of the section. The resolution is as follows:

Resolved, That applicants for Associate Fellowship holding the degree of D.D.S. or its equivalent, and members of their local, county or state dental organizations, before their application is approved by the section, must be considered by the executive committee of the section and must be endorsed by at least two members of this executive committe as having attained to a position in the dental profession either by virtue of original research work, or through some meritorious service rendered to the profession or public, which, in the judgment of the executive committee of the section, warrants favorable action on the applications.

The House of Delegates approved this action of the Section on Stomatology.

On motion, duly seconded and carried, the House of Delegates adjourned *sine die*.

THE REGISTRATION AT NEW YORK

The total registration at the New York Session was 5,047. Below are given two summaries, one by sections and one by states:

REGISTRATION BY SECTIONS

Practice of Medicine	1,258
Surgery, General and Abdominal	973
Obstetrics, Gynecology and Abdominal Surgery	365
Ophthalmology	401
Laryngology, Otology and Rhinology	352
Diseases of Children	166
Pharmacology and Therapeutics	36
Pathology and Physiology	83
Stomatology	47
Nervous and Mental Diseases	219
Dermatology	122
Preventive Medicine and Public Health	203
Genito-Urinary Diseases	133
Orthopedic Surgery	105
Proctology and Gastro-Enterology	136
Registrations without specifying any one section	348

REGISTRATION BY STATES

Alabama	14	Nevada	3
Arizona	1	New Hampshire	19
Arkansas	10	New Jersey	321
California	58	New Mexico	4
Colorado	37	New York	2,062
Connecticut	186	North Carolina	47
Delaware	10	North Dakota	7
District of Columbia	58	Ohio	202
Florida	11	Oklahoma	14
Georgia	36	Oregon	15
Idaho	2	Pennsylvania	552
Illinois	137	Rhode Island	50
Indiana	84	South Carolina	29
Iowa	47	South Dakota	10
Kansas	25	Tennessee	37
Kentucky	30	Texas	48
Louisiana	19	Utah	5
Maine	29	Vermont	25
Maryland	80	Virginia	51
Massachusetts	233	Washington	9
Michigan	93	West Virginia	36
Minnesota	71	Wisconsin	38
Mississippi	4	Wyoming	2
Missouri	60	Guest	199
Montana	7		
Nebraska	20		5,147

THE PATRIOTIC MEETING

A patriotic meeting was held at the Hippodrome, New York City, June 7, 1917.

The Hippodrome, which has a seating capacity of about 6,000, was filled to its utmost capacity.

Previous to the speech making, Sousa's band rendered a "Southern Rhapsody" and "Sheridan's Ride." Mademoiselle Frances Alda, costumed in flags typical of each country, sang, "Rule Britannia," "La Marseillaise," and the "Star-Spangled Banner," accompanied by Sousa's band and the Metropolitan Opera Chorus.

Dr. Alexander Lambert, president of the Medical Society of the State of New York, called the meeting to order at 8:45 p. m.

After stating that this meeting was held "to express our loyalty to our country and to show our patriotism," he introduced as the first speaker of the evening, Hon. John Purroy Mitchel, Mayor of New York City, who said:

Address by Hon. John Purroy Mitchel

Mr. President, Ladies and Gentlemen of the American Medical Association: It is a grateful privilege to be permitted to come here, representing the city of New York, and to say to the members of this great Association that New York extends a most cordial and hearty welcome. New York is glad to receive you within her hospitable gates and to assure you of her appreciation of your services rendered to mankind. This Association, the greatest of any representing the medical profession, numbering, I am told, over 80,000, comes here to hold its annual convention, and this meeting tonight is to consider means whereby this Association and the physicians and surgeons of the United States may serve our common country in this great crisis that now confronts us. (Applause.)

This Association has already rendered signal and distinguished services to the country and to the profession that it represents. This profession, the highest of the civil lay professions, has already through the ages given ample evidence of unlimited service to mankind of which it is capable, and now, when the United States finds that all the resources of our country, physical, financial and human, are demanded for service in this great world struggle, the physicians and surgeons of the United States have given the same response to that cause that they have always given at every time of a national crisis in this country. (Applause.)

One of the splendid and inspiring things which we see, as a result of this war, is the sacrificial spirit in which the men and women of the United States have responded to the nation's call. Germany said to the world that there was doubt as to America's real spirit in this matter; that there was doubt as to the patriotism of the people of the United States. My friends, I wish to say to you that the nation's call for funds with which to conduct this war is one answer to that challenge, and the other is the splendid response of the young manhood of America made two days ago in answer to the call for registration. (Applause.) There is no doubt about the patriotism of the people of the United States. All it asks is organization, direction, opportunity to serve, and the service will be there.

We are going into this great struggle for democracy, for the direction of popular self-government and the ideals for which America stands in the world. All the resources of our country will be devoted to it, and I know that if I had the authority I could speak with certainty that every member not only of this Association but of the profession which it represents in the United States is ever ready to render the service which may be required of you, and that service will be rendered to the fullest extent under whatever circumstances it may be asked. (Loud applause.)

Dr. Lambert then introduced Hon. Dudley Field Malone, who said, in part:

Address by Hon. Dudley Field Malone

New York is not only proud of the circumstances under which you are here, but proud of the fact that we have had a short respite before more harrowing times in which it might not be possible for you to get here.

You have been called together and summoned to a patriotic meeting to ask men to voice their sentiments and your sentiments with regard to the state of the nation and the duty of its citizenship. There is no man who does not feel his entire inadequacy to represent the collective scientific men and the American patriotism of the physicians and surgeons of the United States, and so I feel a little embarrassed. And yet there is a duty that stretches clear before every man and every woman in America, and the first duty is, it seems to me, that America shall not underestimate the power or the resources of the common enemy. At the beginning of the European war, Germany controlled a population of 70,000,000 people, and today she dominates 176,000,000 people of whom 82,000,000 are in abject slavery. Those are the circumstances and the pan-Germanic power which we together with our allies face as an enemy of world liberty and world democracy. And, my fellow citizens, it will not be sufficient that this vast army of 10,000,000 men, marshaled through our patriotism and a quick response of the young manhood of the nation, be mobilized and trained and made skilful for the contest and adequate to represent America and the allied cause, but there are other things to be done, not abroad, but at home in order to make certain the victory for ourselves against the common enemy. We cannot be of assistance to heroic England, to poverty-stricken France, to worried Italy, and to uncertain Russia unless we as a people put industry, energy and enthusiasm behind the cause of the government and the purposes of America in this war. While we have no quarrel with the German people, while we have a supreme contempt for German autocracy, if the aims of German autocracy are to be backed up by a united German people, then the whole resources of the United States will be devoted to fighting not only the the kaiser but the German people as well. (Applause.)

America can be of no aid to the allies and cannot win this war unless America can rely on the enthusiastic aid, the advice and untiring efforts of the American women. We cannot win this war by the amount of our arms, and it is almost axiomatic to say that a nation to succeed in a warfare like this must be both efficient and just. To be efficient she must mobilize her resources; she must centralize her resources by direct authority; she must marshal men of large business experience to control trade and commerce needed for the purposes of war. We must think clearly and think ahead, and we must profit by the untoward experiences of England and France. This is an emergency the like of which nations have not faced before. With our hopes, with our national and international aspirations and determinations, let us realize that the emblem of our country must not mean an empty symbol; that the stripes of red mean not the stripes of license and unrestricted speech and anarchy; that these stripes of red are stripes of blood—the blood of millions of men who have been willing to die for the institutions that we intend shall prevail in the world. (Applause.) These stripes of white are not the anemia of cowardice which quails before man's duty under these great circumstances; these stripes of white are the stripes of pure motive and parchment on which institutions and the character of the institutions of our nation are written, and the blue means the loyal firmament into which all our states have been swung as principalities in a common union, so that today we are a united people, holding up our heads, standing forth in battle array, taking up arms with industrial fervor to help England and France and Italy and Russia and other nations, not only that German autocracy shall be destroyed, but that the basis of permanent world peace may be secured. (Loud applause.)

Dr. George E. Vincent, president of the Rockefeller Foundation, was introduced and said, in part:

Address by Dr. George E. Vincent

Members of the American Medical Association: In your collective capacity, you take pride in what you have done for medical education and for the standards of your profession. As individuals you become satisfied with your successful careers. You feel a thrill of enthusiasm when you think of what your profession stands for. When you remember the great traditions of knowledge, skill and professional loyalty, you can point with pride to the members of your profession. You can point with pride to what members of your profession have done in foreign lands. They have rendered service which has won the admiration of mankind. You feel a glorious thrill of belonging to the medical profession. But now, you yourselves, in your individual capacity, and as an organization, are face to face with a real situation, and you

in the undercurrent of your thought, in the background of your minds, are asking yourselves the question, what can we do to show our loyalty to the profession and to the nation? Your skill, your investigation, your technic and cleverness are a great national asset, but the question which your fellow citizens are putting to you now is, what are you going to do in this great hour of the nation's need? And you have no doubt what that answer is going to be. You know what your loyalties are, and you are ready to show that the glories of your profession will find concrete expression in service in the field and in the hospital. Already members of your profession are in France; still others are on the sea, and there are hundreds of medical men here today who are ready to go when the call comes. The success of your service to the country will depend not on your skill or technic, but on the ideals of your country which you stedfastly hold in mind and become a real inspiration to your deeds. We are all facing a problem which so stirs the heart, and so firmly fixes the will, that as a united people we shall go steadily on to victory. (Applause.) After all, it is the soul of a people that counts; it is not the resources, it is not technic, it is not all the material things that make a nation. No. It is the soul of a nation; it is the thoughts of its citizens, the impulses which stir their hearts. (Applause.)

It is a precarious thing, a somewhat pathetic thing now to be a Russian, but I feel that Russia is not going to desert the allies, but is going to find unity, is going to find stability, is going to feel the support of our friendship, and as we rally to her support, Russia is going to find herself groping toward the light and ultimately, before this war is over, achieving a new unity and feeling that she is a new Russia which represents the dawn of democracy as one of the great nations of the world. (Applause.)

Let us remember heroic Belgium and recall the fact that patriotism is not a question of square miles, but is a question of quality of citizenship, loyalty to common ideals, and devotion to a common cause.

After referring to opportunity and the rendering of service, Dr. Vincent said:

Men and women of the medical profession, I congratulate you on what you have to offer to the nation, I congratulate you on the great opportunity you have to organize yourselves for the useful purposes of this great nation, and that you have resolved that your skill and your knowledge and your courage and your devotion shall be put at the service of your country, not with the thought of sacrifice, but in order that you in your own lives may fulfil this mighty purpose. Be strong in order that we may help the weak. Be just in order that we may defend the right. Be magnanimous. Be disinterested in order to rebuke aggression, and fight hard—fight the enemy with all our resources—fight until we win victory for peace and for the welfare and harmony and brotherhood of all mankind. (Loud applause.)

Address by Col. Theodore Roosevelt

When Col. Theodore Roosevelt was introduced the audience arose and gave him an enthusiastic ovation which lasted two or three minutes. When quiet was restored, Mr. Roosevelt said, in part:

I feel that the time has passed in this country for rhetoric or for conversation. (Laughter and applause.) The time has come when as a people we are to decide for ourselves whether hereafter we are to rank with the nations that do the things or with the nations that talk about those who do them. (Applause.)

Mr. Roosevelt then spoke at length on the question of service, of rights and privileges, saying that they go hand in hand with responsibility. In referring to the medical profession, he said:

Now friends, when I speak to you doctors of service, I speak to members of a profession which is honorably distinguished; I am tempted to say honorably distinguished above all other lay professions by the emphasis which they put on service over and above the reward for service. I do not mean for a moment that the doctor or anyone else should be indifferent to the reward. I do not like tom fools. I expect a doctor who is worthy of his salt, as I expect every man else from necessity, to have a reward given him for his service. He owes it to himself, his wife and his children. He owes it to the community. If he cannot pull his own weight, he cannot hope to pull anyone else's.

All I ask of the people of this country is that in the service of citizenship they shall apply the same rules that you men of the medical profession have applied as part of the ethics of your profession. In this crisis, I want you all to think not of the sacrifices you will have to make, but of the glorious opportunity that is yours to render service. If you are fit for citizenship, you will make sacrifices, whatever they may be. It is not so much you will deserve any extraordinary credit, but if you do not make sacrifices, if you do not render the service, then you are an abject creature who should be hunted out of the society of self-respecting men and women. I want to make the man who does not render service feel the force of that statement. What we need to hold ever before our eyes is not the incidental sacrifice but the high honor and privilege of being permitted to render the service. Every young man of the right type will eagerly long for a chance to render such service and will count himself thrice fortunate if he once secures a chance to render it, no matter what price in life or limb he may pay for it. (Applause.)

If we go home from this great meeting and let our patriotism evaporate in cheering, and waving of flags and listening to stirring tunes, and then say we hope the allies will win, we will have shown ourselves not to be the sons of the men who wore the blue or the gray in the Civil War, and unfit to claim spiritual heirship with the men of '76 who fought under Washington. (Applause.)

What I have said about service is especially applicable to the young doctors. Surgeons are sorely needed for our allies and for ourselves. We can hardly form any conception of the sufferings among the people of Belgium, Russia, Serbia, and Roumania. We have got to help our allies. Let us remember that England today has hardly more than one medical officer for every thousand men, and that in civil life there are in England towns of 15,000 and 20,000 people where there are only two or three elderly doctors left to take care of all of them. The United States needs for this war 40,000 medical practitioners and she has got about 5,000. We have got just about one eighth of the number we need. If we do not get those men, you will see our young recruits die like sheep in the camps where they concentrate, not through their fault, but because proper care has not been provided for them. Remember, these practitioners should be young men under 35, and they should be taken so as not to disrupt the medical schools and teaching hospitals. I want to say to you people here who are not doctors that your sons, your kinsfolk will be going to these camps and if you do not provide proper care for them they will die in these camps. And remember this: You cannot have them cared for if you do not give the surgeon-general power commensurate with responsibility. (Applause.) We are in war, and we have got to see to it that one man shall not through carelessness jeopardize the lives of his associates.

See what we did in building the Panama Canal. Panama had been a byword for lack of health. We could not have built that great canal if we had permitted unhygienic conditions to be perpetuated. We were able to build it because we took a trained medical man, gave him the power to take care of the health of the people on the isthmus, a power commensurate with his responsibility, and then sat back and saw him exercise that power well. That man is now surgeon-general of the army of the United States—Dr. William C. Gorgas. (Applause.) Give Gorgas and those associated with him the power commensurate with the responsibility of the tasks which they are to perform, make them absolute in their control over the health of the camps, and so far as necessary over the health conditions surrounding the camps, and then hold them to a rigid accountability for the exercise of that power and they will do things. (Applause.)

After referring to registration day and the large number of young men that registered, Mr. Roosevelt closed by saying:

We are in this giant war both for the sake of our national interest and for the sake of civilization and humanity throughout the world. For two years before we finally and reluctantly went to war, Germany had been engaged in a steady and reckless campaign of murder against American women and children and unarmed men. Germany had struck blows at international right and justice, and unless Germany is signally punished for what she has done, the whole movement for international fair dealing and brotherhood will have been put back for centuries. To the conquered countries she has behaved with a systematic and appalling brutality which is literally unparalleled among civilized nations since the close of the hideous religious wars of the seventeenth century.

I wish every American could read the book just published by Arthur Gleason, entitled, "Our Part in the Great War." One is appalled at the horror and the fearful cruelties he recounts, and no American who reads it can feel anything but shame if we do not instantly take effective action to rebuke those cruelties and defend ourselves. No American who reads it, if he has a spark of manhood and the American spirit in his soul, can fail to feel his heart hardened with the resolute purpose to fight for the right, and that it is his privilege to do his part in seeing that this nation goes steadfastly on in this war until its efforts and those of the allies are crowned with complete and overwhelming victory; and let every man within the hearing of my voice feel as much as every man throughout this nation feels, that his children ought to turn from him in shame unless he does his duty, unless he does all that within him lies, to bring victory which will make the American flag once more the flag of the brave and the free, the flag of civilization, of humanity, the flag of freedom, and of protest against wrong doing to all the nations of mankind. (Loud and prolonged applause.)

At the conclusion of the speech-making, Sousa's band rendered "The Invincible Eagle" and the soul stirring march "Hands Across the Sea."

THE SCIENTIFIC ASSEMBLY

THE OPENING GENERAL MEETING

Tuesday Evening, June 5

The opening meeting of the Association was held in the Grand Ball Room of the Hotel Waldorf-Astoria, and was called to order at 8:30 p. m. by the President, Dr. Rupert Blue, Washington, D. C.

Bishop Charles Sumner Burch delivered the invocation.

Address of Welcome

Dr. Wendell C. Phillips, chairman of the Committee on Arrangements, was introduced and said:

Mr. President, Ladies and Gentlemen, Guests, and the Profession of the Empire State: It falls on me, as chairman of the Committee on Arrangements, to have the honor of welcoming you to the metropolis of our country for your annual conclave.

It is now thirty-eight years since the American Medical Association met in the city of New York, and just before I came here I glanced over the President's address, delivered on that occasion by the late Lewis H. Sayre, who was the President of the American Medical Association at that time, and I learn that the entire membership of the Association thirty-eight years ago was about 6,150, and I believe the membership today is approximately 70,000, so that we now have at our annual conclave sometimes as many present as the entire membership at that time.

It is a great pleasure to have you come to New York at this time and enjoy some of the beautiful balmy weather of this famous summer resort. We all know how you have been suffering with cold and rains in other parts of the country, and we now welcome you to the sunshine of this metropolis. You have not had a chance to get warm since the first of last November. I need not tell you that our weather is exactly like what you have had in the last few days. People sometimes talk about the heat of New York. We do not know what it is here. The weather is always sunshiny in New York.

During the past few days you have had an opportunity to observe some of the medical and surgical activities of this city as you find arranged in the clinical sessions of the program, which has been gotten up for your benefit and pleasure, and the Committee on Arrangements certainly hopes that you will enjoy some of these privileges.

Before I go further, I must make an excuse for the absence of the mayor of our city. There is a slip on the part of the printer and some neglect on the part of the chairman of the Committee on Arrangements to have had the name of the mayor down for an address of welcome, because he wrote me that it would be impossible for him to be present on this occasion. Mayor Mitchell is a scrupulous man who always keeps his engagements, and he felt very much annoyed when his name was on the program. However, he expects to be with us on Thursday night and will deliver an address on that occasion, when our meeting, our patriotic meeting, will be held in the Hippodrome. We hope you will all arrange to be present on that occasion.

When the war came, it seemed to the Committee on Arrangements and the Entertainment Committee that it would be in better taste if we were to arrange for a patriotic meeting rather than the usual social entertainment in the form of a reception to the President, and through the kind offer of his friends and our friend, Dr. Alexander Lambert, Col. Theodore Roosevelt has consented to talk at the meeting on Thursday night. We shall also have Dr. George E. Vincent speak to us on that occasion and Madame Alda will sing in costume the national anthems of the three principal allies. We think it is going to be quite a night, and we hope you will all enjoy it. Tickets for admission to the Hippodrome may be obtained at the headquarters at the Hotel Astor.

I am not going to take too much time, but I have one more thing to say in connection with the medical profession of this great city. In other parts of the country, notably in Johns Hopkins and elsewhere, we have heard a great deal said about the "dead line." We have no dead line in the medical profession in New York. Men are as good at a hundred years as they are when they are younger as far as we can see, and we have two or three notable instances at this time. I have a letter in my pocket which was written by Dr. Thomas Addis Emmet, now in his ninetieth year, in which he says he regrets it is not possible for him to be present with us, but that he is with us in spirit tonight. (Applause.)

Some of you who graduated many years ago will remember one of the teachers in one of your colleges, a man now in his ninety-fifth year, still an active member of our State Board of Charities, and I believe he is beginning to write a very important volume of reminiscences. He is as hearty and active and as young in spirit as ever. I have no doubt that a great many of you thought he was dead a good many years ago. I have the very great pleasure in having you see that we have no dead line. [Here the speaker introduced Dr. Stephen Smith, now in his ninety-fifth year. The audience rose and gave Dr. Smith an enthusiastic ovation.] I think you will admit we are quite lively here in New York. We have another perennial member of the profession, one who has many more birthdays than any other man in America—Dr. Abraham Jacobi. (Applause.) [The audience rose and gave Dr. Jacobi an ovation similar to that given to Dr. Smith.]

Lastly, I bid you welcome to our city, welcome to our hospitals, welcome to our social festivities, and may you go away from New York thinking more of it than you did when you came. (Applause.)

President Blue then introduced Dr. Alexander Lambert, President of the Medical Society of the State of New York, who delivered the following address:

ADDRESS OF WELCOME BY THE PRESIDENT OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

Mr. President, Members of the American Medical Association, Ladies and Gentlemen: It is with keen pleasure that the medical profession of New York welcomes the American Medical Association. It is more than a generation now since New York has had this pleasure and this honor. The generation of medical men that welcomed this society then have in a great part laid down their work and ceased from their labors, and with the exception of our few beloved friends here at our side, the activities of the work have devolved on what was to them the younger generation. The development of this country has grown in that time so that you of the western slope, you of the Northwest and Middle West look on us here as the effete East. A great nation has grown up and developed in this country since that time—a generation ago—and of that great nation New York has become the heart. From it the arteries run to its uttermost parts. From it the life-giving capital pours forth and is sent out in recurrent streams to build up and make possible the steady growth and wide development of the nation. Through it, in all these years, has been sent out new blood from many lands to help

develop and build up its vast territories, and back to it have come in returning veins the products from all the land that must be sent forth in the commerce with all the world.

It is peculiarly fitting that the American Medical Association should return to New York at intervals, because the American Medical Association was first conceived in the mind of a young and vigorous New York physician, Noah Davis, when in 1844, at the annual meeting of the Medical Society of the State of New York, in Albany, Dr. Davis, a delegate from the Broome County Medical Society, proposed a series of resolutions declaring in favor of the adoption of a fair standard of general education for students before commencing the study of medicine; of lengthening the annual courses of medical college instruction to at least six months, and the grading of the curriculum of studies; and have all examinations for license to practice medicine conducted by state boards, independent of the colleges.

As a result of the agitation then brought about, there assembled, May 1, 1846, in the hall of the medical department of New York University, about 100 delegates representing medical societies and institutions of sixteen of the twenty-six states of the Union. Again through the motion of Dr. Davis, committees were formed to report on the four following propositions at a convention to be held in Philadelphia in May, 1847:

First, that it is expedient for the medical profession of the United States to institute a national medical society;

Second, that it is desirable that a uniform and elevated standard of requirements for the degree of M.D. should be adopted by all the medical schools of the United States;

Third, that it is desirable that all young men before being received as students of medicine should have acquired a suitable preliminary education;

Fourth, that it is desirable that the medical profession of the United States should be governed by the same code of medical ethics.

When May, 1847, came around there assembled in Philadelphia representatives from twenty-eight medical schools and forty medical societies, being the organized medical institutions of twenty-two of the twenty-six states of the Union. After full discussion, the four propositions were adopted and a complete constitution, by-laws and code of ethics were also adopted. This, of course, was not done without opposition, and it must be confessed that the main opposition came, as one might expect, from New York and Boston, for these centers have always shown an individualistic rather than a collective tendency. In Baltimore, finally, in 1843, the first regular meeting of the American Medical Association took place, and it has since regularly met in annual convention with the exception of the early years of the great Civil War in this country.

The preface of the original constitution of the American Medical Association declared that the purposes of this Association were for cultivating and advancing medical knowledge; for elevating the standard of medical education; for promoting the usefulness, honor and interests of the medical profession; for enlightening and directing public opinion in the duties and requirements of medical men; for exciting and encouraging emulation and concert of action in the profession, and for facilitating and fostering friendly intercourse between those engaged in it.

It is interesting that after the Association has reached the three score years and ten of its existence it stands for the same purposes for which it was originally founded. It is today the controlling force and the active power toward the continual development and improvement in medical education. Through its Council on Medical Education it has raised and it has set the standards of medical education in this country. It has been true in its endeavor to improve its own profession, and has been true to the principles on which its existence was based.

It is another strange coincidence, as Dr. Phillips has already mentioned, that thirty-six years ago, in this city, the President of the American Medical Association at that time, Dr. Lewis Sayre of New York, proposed that the responsibility of disseminating medical knowledge throughout the country should not be confined to the transactions of this society but should be performed by means of a medical journal. Again a great idea affecting the American Medical Association sprang from the brain of a busy New York physician, and the best and most active medical journal of the world today has been the result. It needed the vigorous and growing West to develop that journal, and this was done through the youthful vigor and through the devotion of Dr. Simmons, and the profession today honors him for the work he has done and for the monument he has raised which, truly, is to him—and will be in the future—a monument more lasting than brass. Again can we confidently say that the American Medical Association has fulfilled and developed the best means of disseminating medical knowledge throughout the wide extent of this country.

Another object for which the American Medical Association was founded was to disseminate a code of ethics or a standard under which the members of its great profession could act in their intercourse with each other and with the world. That code, like all moral abstract ideas, has been the cause in this society and in the profession of many bitter differences of opinion. But it is gratifying to realize today that in the medical profession at least there is a frank willingness to acknowledge that however opinions of details may differ there is a full realization and acknowledgment that with the rights given to the profession by the state there go certain duties which must be lived up to, and the force of the public opinion within the profession is a stern monitor which insists that the duties and rights must go hand in hand and that the responsibility of these must be accepted.

It was in New York that the main division and bitter split on the code of ethics came, and it is with a keen pleasure that the profession of the state of New York and of the county of New York can welcome the American Medical Association with all the old quarrels forgotten and all the injuries therefrom healed, so that you are welcomed tonight by a united and harmonious profession.

Since the last meeting in New York, the growth of the Association has been such that the state of New York alone contains in its membership of the state society many more members than were contained in the national society at that time and, as a matter of fact, at the semicentennial celebration in 1897 it was proudly stated that the American Medical Association contained nearly 9,000 members. Today the Medical Society of the State of New York contains nearly that number, and the American Medical Association contains close on 80,000. This is but little realized either by the profession or by the public at large, and in welcoming you tonight it seems worth while to remind you how many things there are about the American Medical Association to which, when you are assembled in convention as you are tonight, you may point with pride, and how few things there really are regarding the American Medical Association that you have to view with alarm.

New York has shown you in the last two days its enormous practical advantages as a medical center, the great wealth of clinical material on which its medical schools found their knowledge and with which the medical students are instructed. We have endeavored to present to you the foundation on which the scientific knowledge of medicine is built—that is, the clinical study at the bedside of the various manifestations of the morbid processes that we know as disease—and to show also the many modern ways of dealing with the various medical and surgical situations that may arise. We have also endeavored to bring together for your information and study all the allied subjects which touch the medical profession. We have endeavored to show you the practical application of nursing throughout this city. We have endeavored to show you the working of the enormous health department and the mechanism by which the health of the city is protected and through which the sanitation of the city is performed; to show you also how all this can be used for educational value to instruct and teach the public how it is protected and how, through that knowledge, they may protect themselves. We have further endeavored to bring to your notice, and for your information and instruction, how the many problems of the building and maintenance of hospitals may best be solved. We have gone further, and we have shown a new development hardly yet a decade old—we have endeavored to show you the means by which the human side of the hospital must in the future develop and how hospitals must and, in fact, are at present broadening their influence and their care over the patients that come to their wards. Hospital social service has humanized the hospitals of this city as nothing else has done, and has humanized the hospitals in this country in the many cities in which it has been undertaken and so well developed; for this idea, starting in Boston, has spread throughout the country. Hospital social service has developed that side of medicine which deals with the environment of the patient in its relation to sickness and injury, and it deals with the strain of that environment in the life of the patient. Through its influence and through the ideas developed therefrom we have come to realize that while the hospital is a place for the care of the sick and the

injured, it is also a place from which physicians are ready to gaze humanely out on humankind. It has enormously broadened the outlook of medicine; it has developed enormously the possibilities of surgery, for it has broadened the outlook of medicine by extending the influence of hospital care out through the complete convalescence and also greatly prevented the recurrence of disease in its patients through the regulation of their lives and environment. It has extended the usefulness of surgery in that it has given the opportunity of follow-up work to show the surgeon the results he has been able to obtain in restoring his injured patient to usefulness and economic value and efficiency.

We have, in this session in New York, brought together for the first time, for your study and consideration, all the associated interests that are indispensable to the development of medicine in its relation to the patients and to the hospitals through which so much work of the medical profession must be done.

New York welcomes you to her hospitality. She welcomes you to all she has to give for the pleasure and entertainment of mankind, and her reputation on that score is not small. We realize that such opportunities here are so widespread and so many that in playing the host to you we know you prefer to be left alone to your own devices in this regard, and we have thought the broadest hospitality was to accede to your wishes in this matter.

We appreciate that as we welcome you we are standing under a shadow so broad and so deep that it is not fully realized by the majority of the people. We cannot clearly foresee the future. We cannot foretell what demands this war may bring on this Association. A goodly number of its members have already gone to give their aid as best they can to those who need it. Many, many more must follow and will follow. In this war the medical corps has suffered proportionately the greatest losses; but where danger lies there lie honor and distinction also. What will be the results of this war on the meetings of this Association we must let the future decide. In the present we heartily welcome you to this meeting of the American Medical Association in New York, and we offer you New York's heartiest welcome and her hospitality in fullest abundance.

Dr. Walter P. James, President of the New York Academy of Medicine, was introduced and said:

ADDRESS OF WELCOME BY THE PRESIDENT OF THE NEW YORK ACADEMY OF MEDICINE

Mr. President, Ladies and Gentlemen: Dr. Lambert has just given you a warm welcome on the part of the medical profession of New York State, and I am expected to say a word of welcome for the medical profession of this city on behalf of the New York Academy of Medicine. After all, New York City is just one part of the state. After the welcome by Dr. Lambert, I cannot help thinking of the farmer who cut a large hole in his barn door for the dog and a small one for the cat (laughter), but this gathering tonight is worthy of a very hearty welcome, for the American Medical Association, above and beyond most gatherings that I know of represents team play on the part of a great profession. President Wilson has said that this war would be won only by team play, and we are convinced of the truth of his remark. Team play is what distinguishes man from the lower animals. Team play carried to a higher point is what distinguishes the higher groups of mankind from the lower, and, after all, that makes us civilized when we come to the final analysis. What makes us able to conquer is our forces arranged as team play. The value and importance of team play have been discovered by our profession. I know of no other profession that has been able to get together gatherings of this sort with one idea, each working with the other in the most perfect kind of team play.

I was impressed with this feature of our own profession one night during the past winter when, at a meeting of the New York Academy of Medicine, I happened to see in the audience a man who did not belong there, although I was glad to see him. He was a lawyer who is president of one of the largest and most important trust companies in this city. After the meeting I spoke to him and he said to me, "This must be a very unusual gathering, is it not?" "Not at all," I said; "It is a gathering of doctors such as is seen in other large cities all over the country. In the large cities there are larger gatherings, and in the smaller cities there are smaller gatherings, doing the same thing." "Well," said the lawyer, "all I can say is that I congratulate the medical profession, for I know of no other profession that could hold such a meeting as I have seen tonight." "What do you mean?" I said. He replied, "I have reference to the kindliness, the helpfulness, the absolutely unalloyed interest on the part of each member of your profession in every other man's work." Ladies and gentlemen, I thought that was a great compliment to our profession.

The relations existing between the medical profession and the public are becoming closer and more intimate every day. For instance, in the task that has to do with preventive medicine we are beginning to find out that we can accomplish very little unless we have the people with us. In other words, we must have team play between the profession and the public.

This morning, at a meeting of the House of Delegates, a strong resolution was passed advocating the transfer of the quarantine station of New York City to the national government under the United States Public Health Service. There is a measure I fancy that is reasonable to every person here. I have never heard medical men in this neighborhood who have had a word to say against it. Through the efforts of the medical profession of New York City and the Medical Society of the State of New York, we have secured from our legislature at Albany a bill authorizing the transfer of the quarantine station to the United States Public Health Service, with the necessary steps having been authorized by Congress. When we consider that the Public Health Service in Washington maintains an elaborate health service throughout the entire world, and officers of that service are scattered through Europe and Asia for the express purpose of ascertaining all the facts that can be ascertained about communicable diseases in those countries, with a view of preventing the conveyance of dangerous communicable diseases to our people, you can readily appreciate the importance of the public health work of this country. And how can any one help saying it is impossible to have team play in quarantine work, team play in preventive medicine in the United States today, without having all the quarantine stations in the hands of one governing body? As the situation is today, Baltimore is waiting to come in as soon as New York does.

I remember talking with one of our legislators a short time ago when I made this remark: "I do not suppose, after all, what the doctors say to a legislator carries any weight." The legislator replied, "Don't you believe it; I know of no body of men in the country which legislators are as much afraid of as they are of doctors." I said to him, "How do you account for that?" "Well," he replied, "in the first place, doctors go through the community and visit every house. In the second place, they have the confidence of the people. In the third place, and, as a rule, they are invariably men who know what they are about, and they have no ax to grind."

I should like to see the members of this association go through the country imbued with the idea that the quarantine stations of the United States should be under the United States government and placed in the hands of the Public Health Service.

Gentlemen, with these few words of enthusiastic commendation of the ability of the medical profession to play good, straight-forward, honest and effective team work, I, too, on the part of the medical profession of New York City bid you a most affectionate, hearty and enthusiastic welcome to the town. (Applause.)

Dr. Rupert Blue, in introducing and installing the President, Dr. Charles H. Mayo of Rochester, Minn., said:

To introduce one who needs no introduction to any scientific assembly of the world; to present to you a man whose name is and always will be held in affectionate memory by thousands whom his skilful hands have given surcease from pain, and above all to relinquish the high honor of the presidency of the American Medical Association to one so highly respected and so much beloved by us all, is indeed a great honor. When one seeks a member of our profession who combines personal virtue and high ideals with scientific acumen and tactful technic with the fearlessness of a soldier and the tenderness of a woman, one turns instantly to one who has given of himself and of his substance to the end that humanity may live in peace and the science of medicine may advance. He who combines all these qualities is our President, Dr. Charles Mayo. (Loud applause.)

President Mayo then delivered his address, on "War's Influence on Medicine," which was published in The Journal, June 9, 1917, p. 1673.

Adjourned.

MINUTES OF THE SECTIONS

SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order at 9:40 by the chairman, Dr. William D. Haggard, Nashville, Tenn.

Dr. William D. Haggard, the chairman, stated that Dr. Eugene H. Pool, New York, secretary, had been called to the colors and asked that a motion be made to have Dr. J. A. Vietor, New York, act in his place for the 1917 meeting, which was done.

Dr. William D. Haggard, Nashville, Tenn., read the chairman's address, entitled "Surgery of the Spleen." No discussion.

Dr. Arthur Dean Bevan, Chicago, read a paper on "The Problem of Unnecessary Operations and of Incompetent Surgeons." Discussed by Drs. James E. Moore, Minneapolis, and Arthur Dean Bevan, Chicago.

Dr. John B. Deaver, Philadelphia, moved that a committee of ten be appointed by the chairman to further Dr. Bevan's ideas relative to this vital question.

The motion was seconded.

Dr. William M. Robertson, Warren, Pa., offered an amendment to have the committee report to the Judicial Council, for such action as may be deemed proper, with instructions to the delegate from this section to report this action to the House of Delegates.

This amendment was accepted by Dr. Deaver, and the motion as amended put and carried. (House of Delegates not advised of this motion).

The chairman announced he would appoint the committee at a later session.

Dr. Donald C. Balfour, Rochester, Minn., read a paper on "The Surgical Significance of Gastric Hemorrhage." Discussed by Drs. Fred B. Lund, Boston, and Donald C. Balfour, Rochester, Minn.

Dr. Lewis L. McArthur, Chicago, sent a telegram regretting that he was unable to be present. He specially regretted this as his name appeared on the program for an article on "Modification in the Technic of Gastric Surgery."

Dr. Willard Bartlett, St. Louis, read a paper on "A New Operation for Floating Kidney." Discussed by Drs. Hubert A. Royster, Raleigh, N. C.; Daniel N. Eisendrath, Chicago; Philip Marvel, Atlantic City, N. J.; C. E. Cantrell, Greenville, Texas; Martin B. Tinker, Ithaca, N. Y., and Willard Bartlett, St. Louis.

Dr. Robert C. Coffey, Portland, Ore., read a paper on "Intravisceral and Intra-Abdominal Pressure." Discussed by Drs. Edward Martin, Philadelphia, and Robert C. Coffey, Portland, Ore.

WEDNESDAY, JUNE 6—AFTERNOON

Dr. Allen B. Kanavel, Chicago, read a paper on "Clinical and Experimental Data in Relation to Fat Transplantation." Discussed by Drs. Alexius McGlannan, Baltimore, and Allen B. Kanavel, Chicago.

The chairman said that since Dr. Bertram M. Bernheim, Baltimore, would be obliged to leave for active war duty, Thursday, when he was on the program for a paper, he would entertain a motion that Dr. Bernheim read his paper now. The motion was made, seconded and carried.

Dr. Bertram M. Bernheim, Baltimore, read a paper on "Sodium Citrate Blood Transfusion: A Comparison." Discussed by Drs. George I. Miller, Brooklyn; Richard Lewisohn, New York; Arthur H. Bogart, Brooklyn; J. Shelton Horsley, Richmond, Va., and Bertram M. Bernheim, Baltimore.

Dr. William O'N. Sherman, Pittsburgh, read a paper on "The Abortive Treatment of Infection." Discussed by Drs. Charles L. Gibson, New York; George W. Hawley, Bridgeport, Conn.; J. W. Long, Greensboro, N. C.; R. W. Corwin, Pueblo, Colo.; E. S. Van Duyn, Syracuse, N. Y., and William O'N. Sherman, Pittsburgh.

Dr. Parker Syms, New York, read a paper on "The Evolution of Cancer of the Breast." Discussed by Drs. Daniel N. Eisendrath, Chicago, and Parker Syms, New York.

Dr. E. Wyllys Andrews, Chicago, read a paper on "Absorbable Metal Clips for Buried Sutures and Ligatures, and Special Alloy for Rapid Absorption." No discussion.

Dr. Harry M. Sherman, San Francisco, read a paper on "The Closure of Cleft Palate: A Technic and the Reasons for It." Discussed by Drs. Vilray P. Blair, St. Louis; Truman W. Brophy, Chicago; W. B. Swift, Boston, and Harry M. Sherman, San Francisco.

THURSDAY, JUNE 7—MORNING

Dr. Willy Meyer, New York, read a paper on "The Rectangular Flap Incision for Operations Within the Upper Abdomen." Discussed by Drs. Robert E. Farr, Minneapolis; Fred B. Lund, Boston, and Willy Meyer, New York.

Dr. Fred B. Lund, Boston, read a paper on "Tumor of the Intercarotid Body." Discussed by Drs. Stanley Stillman, San Francisco, and Fred B. Lund, Boston.

Dr. William Linder, Brooklyn, read a paper on "The Diagnosis of Acute Pancreatitis, with Report of Thirty-Three Cases." Discussed by Drs. John B. Deaver, Philadelphia; Ernest Laplace, Philadelphia, and William Linder, Brooklyn.

Dr. Hugh McKenna, Chicago, read a paper on "Surgery of Bones and Joints, with Especial Reference to the Open Operative Treatment of Fractures, and a Method of Arthroplasty in Ankylosis of the Elbow Joint." Discussed by Drs. Philip H. Kreuscher, Chicago; R. H. Gibbons, New York, and Hugh McKenna, Chicago.

Dr. J. Rilus Eastman, Indianapolis, read a paper on "Gunshot Fractures." Preceding the discussion of this paper, Dr. George W. Hawley, Bridgeport, Conn., showed moving pictures of a new fracture frame combining traction and suspension with fluoroscopic control, especially in military fractures, devised by himself.

Dr. Eastman's paper was then discussed by Drs. Leonard Freeman, Denver; Bernard H. Oberembt, Milwaukee, Wis., and Frank P. Corrigan, Cleveland.

THURSDAY, JUNE 7—AFTERNOON

The following officers were elected: Chairman, Dr. E. Starr Judd, Rochester, Minn.; vice chairman, Dr. Robert C. Coffey, Portland, Ore.; secretary, Dr. Eugene H. Pool, New York; assistant secretary, Dr. George P. Miller, Philadelphia; delegate, Dr. Floyd W. McRae, Atlanta, Ga.; alternate, Dr. Nelson M. Percy, Chicago.

The chairman said: Dr. Pool, our secretary, has been called to Fort Benjamin Harrison, and therefore has been unable to be with us and to serve, but I am sure the section is indebted to his substitute, Dr. John A. Vietor, who has acted so satisfactorily in his absence.

Dr. Charles H. Frazier, Philadelphia, read a paper on "Choice of Method in Operations on the Pituitary Body." Discussed by Drs. Charles E. Elsberg, New York; F. S. Marshall, Muskegon, Mich., and Charles H. Frazier, Philadelphia.

The following papers were read as a symposium on "Exophthalmic Goiter":

Dr. E. C. Kendall, Rochester, Minn.: "Studies in Experimental Hyperthyroidism."

Dr. George W. Crile, Cleveland, sent a paper on "Exophthalmic Goiter," which, on motion by the section, was read by Dr. William D. Haggard, Nashville, Tenn.

Dr. Charles N. Dowd, New York: "Constitutional Disturbances Which Come with Chronic Goiter."

These three papers were discussed by Drs. A. J. Ochsner, Chicago; Martin B. Tinker, Ithaca, N. Y.; Solomon Solis Cohen, Philadelphia; John Rogers, New York; E. C. Kendall, Rochester, Minn., and Charles N. Dowd, New York.

The acting secretary, Dr. John A. Vietor, read the following list of names as the members appointed by the chairman to study the problem of unnecessary operations and of incompetent surgeons: Drs. A. D. Bevan, Chicago; William J. Mayo, Rochester, Minn.; George W. Crile, Cleveland; John B. Deaver, Philadelphia; George E. Brewer, New York; Emmet Rixford, San Francisco; Fred B. Lund, Boston; Kenneth A. J. McKenzie, Portland, Ore.; J. M. T. Finney, Baltimore, and William D. Haggard, Nashville.

Dr. Ernest A. Codman, Boston, read a paper on "Advantages of the End-Result System to Surgical Science." Discussed by Drs. John D. Bonnar, Buffalo; Harry M. Sherman, San Francisco, and E. M. Stanton, Schenectady, N. Y.

Dr. Samuel Robinson, Rochester, Minn., read a paper on "The Resection of Lobes of the Lung." Discussed by Drs. Howard Lilienthal, New York; Willy Meyer, New York, and Samuel Robinson, Rochester, Minn.

FRIDAY, JUNE 8—MORNING

A joint session was held with the Section on Pathology and Physiology.

The following papers were read and discussed separately as a symposium on "Anesthesia":

Dr. Willis D. Gatch, Indianapolis: "Anesthesia in the Curriculum and Clinic." Discussed by Drs. Arthur Dean Bevan, Chicago; E. D. Lee, New York; S. J. Meltzer, New York; A. F. Erdman, Brooklyn; Torald Sollmann, Cleveland; Kenneth A. J. McKenzie, Portland, Ore.; F. W. Pinneo, Newark, N. J., and Willis D. Gatch, Indianapolis.

Dr. Conrad Georg, Jr., Ann Arbor, Mich.: "Pathologic Pulmonary Changes from Endotracheal Insufflation Anesthesia in Experimental Lung Surgery." Discussed by Drs. Willy Meyer, New York; Charles H. Peck, New York; S. J. Meltzer, New York; Charles A. Elsberg, New York; Samuel Robinson, Rochester, Minn.; Franz J. A. Torek, New York, and Conrad Georg, Jr., Ann Arbor, Mich.

The chairman introduced Dr. Charles H. Mayo, who spoke as follows:

It is like getting home again to get back to the surgical section. Other duties have kept me away for the first time from much of the work, but I want to commend the work of this section. I have been going over it. There were only three men who did not appear to read their papers; one, Dr. Crile, sent his from London to be read and it was read, and Dr. L. L. McArthur wired that it was impossible for him to come, but that it was the first time in thirty-seven years that he had failed to appear when his name had been on the printed program, showing that it was unavoidable. I want to commend the management of this section, which is an easy one to manage, by our worthy chairman. And just a moment to say that the reason all the sections are easy to manage this year is to be found in the wonderful organization and efficiency of the committees of the state in preparing everything possible for the section work. We all feel a deep obligation to that committee, and I am sure we shall all return home with renewed enthusiasm from attending the greatest meeting ever held by the greatest medical association in the world.

Dr. Frank C. Mann, Rochester, Minn.: "Shock During General Anesthesia." Discussed by Drs. Fenton B. Turck, New York; S. J. Metzler, New York, and Frank C. Mann, Rochester, Minn.

The chairman introduced the vice chairman, Dr. Robert C. Coffey, Portland, Ore., and relinquished the chair to him.

Dr. Evarts A. Graham, Mason City, Iowa: "Toxic Factors of Some of the Common Anesthetic Substances." Discussed by Dr. C. Henry Davis, Chicago.

Dr. A. J. Ochsner made a motion, which was seconded and carried, that the section pass a vote of appreciation of the work of the officers of the section which resulted in this magnificent and interesting program.

The paper by Dr. George E. Fell, Chicago, on "Artificial Respiration," was read by Dr. A. J. Ochsner, Chicago. Dr. Fell was too ill to attend the meeting.

SECTION ON OPHTHALMOLOGY

WEDNESDAY, JUNE 6—MORNING

The section was called to order at 9 o'clock by the chairman, Dr. William Zentmayer, Philadelphia.

The chairman announced that Dr. Edgar S. Thomson, New York, would act as secretary of the section in the absence of Dr. George S. Derby, who is abroad.

Dr. William Zentmayer, Philadelphia, read the chairman's address, the subject of the scientific portion of which was "The Eye and the Endocrine Organs." No discussion.

On motion the chairman's address was referred for action to the executive committee.

The secretary announced that Major Theodore C. Lyster of the United States Army would deliver an address in the meeting room at 9 p. m. on the visual tests required in the aviation service of the army.

Dr. Samuel Theobald, Baltimore, read a paper on "Some Observations Which Seem to Lend Support to a Long Discarded Theory of the Chief Function of the Oblique Muscles of the Eye." Discussed by Drs. Lucien Howe, Buffalo; Edward Jackson, Denver; Francis Valk, New York; Alexander Duane, New York; W. H. Bates, New York; Walter B. Lancaster, Boston; Will P. Walter, Evanston, Ill.; F. Park Lewis, Buffalo, and Samuel Theobald, Baltimore.

Dr. Edmond E. Blaauw, Buffalo, read a paper on "Binocular Single Vision: Leaving Out the Consideration of the Color Perception and the Problems of Strabismus." A stereoscopic test apparatus was exhibited. Discussed by Drs. Walter B. Lancaster, Boston; F. H. Verhoeff, Boston; George T. Stevens, New York; Francis Valk, New York; Linn Emerson, Orange, N. J.; Elmer G. Starr, Buffalo; Lucien Howe, Buffalo, and Edmond E. Blaauw, Buffalo.

Dr. Frederick H. Verhoeff, Boston, read a paper on "The Treatment of Hypopyon Keratitis."

Dr. William E. Shahan, St. Louis, read a paper on "Further Study of the Effects of Heat on the Eye" (with exhibition of instrument for application of heat to the eye).

These two papers were discussed by Drs. William C. Posey, Philadelphia; Edgar S. Thomson, New York; Peter N. K. Schwenk, Pihladelphia; John E. Weeks, New York; Elmer G. Starr, Buffalo; J. A. Donovan, Butte, Mont.; Melville Black, Denver; R. L. Randolph, Baltimore; S. Lewis Ziegler, Philadelphia; F. Park Lewis, Buffalo; L. Webster Fox, Philadelphia; William Zentmayer, Phialdelphia; Frederick H. Verhoeff, Boston, and William E. Shahan, St. Louis.

Dr. F. Park Lewis, Buffalo, read a paper on "Crystalline Deposits in the Eye." Discussed by Drs. Burton Chance, Philadelphia, and Melville Black, Denver.

WEDNESDAY, JUNE 6—AFTERNOON

The section was called to order at 2 o'clock by the chairman, Dr. William Zentmayer, Philadelphia.

On motion the section went into executive session.

Dr. Lucien Howe, Buffalo, chairman, presented the report of the Committee on Collective Investigation Concerning the Ocular Muscles. Dr. W. L. Pyle, Philadelphia, moved that the report of the committee be adopted. Seconded by Dr. C. D. Wescott, Chicago. Carried.

The scientific session was resumed and the following instruments and appliances were exhibited:

Dr. Norman W. Price, Niagara Falls, N. Y., exhibited a new phorometer which may be used comfortably by the patient at the bedside, and which measures accurately. The instrument consists of a dial graduated from 0 to 90 degrees, with a long arm and a mirror at the end in which the patient watches his own eye. The patient sits with his back to the light and the oculist turns the dial in front of the patient's eye. When it is directly in front the dial registers 0, and as it is turned down it will register anywhere up to 90 degrees. The dial turns on itself at all angles so that the angle can be obtained at any point. It can be used rapidly, taking only one quarter of the time of the ordinary phorometer.

Dr. Walter L. Pyle, Philadelphia, exhibited a model of a new trial frame for test lenses, the advantage of which is the ability to place it in firm position on the sides of the nose and the adjacent cheeks approximately in the position that the prospective spectacles or eye glasses will be worn. The frame can be lowered or raised by a screw; the two sides of the frame can be moved independently, of advantage in the numerous cases in which the eyes are unequally distant from the nose. A special construction permits the turning of the screw for lateral motion, over the eye opposite to the one being tested, thus avoiding obstruction by the examiner's hand. The frame is rigid without being heavy.

Dr. Henry H. Briggs, Asheville, N. C., exhibited a hook and link with which he demonstrated his method of shortening an ocular muscle, described in his paper in the program on "Tendon Shortening."

Dr. E. R. Crossley, Chicago, exhibited a model of his apparatus for immobilization of the head and eyelids during operations on the eyeball.

Dr. Edmond E. Blaauw, Buffalo, exhibited with his paper at the morning session an apparatus for determining stereoscopic vision.

Dr. Francis Valk, New York, exhibited, in the discussion on Dr. Blaauw's paper, apparatus for determining stereoscopic vision.

Dr. Alan C. Woods, Philadelphia, read a paper on "The Anaphylactic Basis of Sympathetic Ophthalmia: An Experimental Study." Discussed by Drs. George E. de Schweinitz, Philadelphia; J. W. Jervey, Greenville, S. C.; F. H. Verhoeff, Boston; Stewart B. Muncaster, Washington, D. C.; Mark J. Schoenberg, New York, and Alan C. Woods, Philadelphia.

Dr. Arthur J. Bedell, Albany, N. Y., read a paper on "Oxycephalia: Report of Three Cases, with Operation in One." No Discussion.

Dr. William B. Chamberlin, Cleveland, read a paper on "The Endonasal Operation on the Lacrimal Sac." Discussed by Drs. Harris P. Mosher, Boston, and Dr. William B. Chamberlin, Cleveland.

Dr. Frank C. Todd, Minneapolis, chairman of the executive committee, presented a resolution for the action of the section that had the approval of the executive committee, requesting the House of Delegates to permit the section to begin its sessions on Tuesday afternoon of the meeting instead of Wednesday morning, as at the present session.

On motion of Dr. G. E. de Schweinitz, Philadelphia, duly seconded, the action of the executive committee was approved, and the committee was instructed to present the matter to the House of Delegates. (Not transmitted to the House of Delegates).

Dr. Clifford B. Walker, Boston, read a paper on "Neurologic Perimetry and a Method of Imitating Daylight with Electrical Illumination." Discussed by Dr. Luther C. Peter, Philadelphia.

Dr. Walter R. Parker, Detroit, gave a "Demonstration of Pathologic Changes in the Optic Nerve in Cases of Artificially Induced Intracranial Pressure." No discussion.

THURSDAY, JUNE 7—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. William Zentmayer, Philadelphia.

The executive committee reported that it desired to endorse the suggestion of the chairman of the section concerning the appointment of a committee on social service as related to ophthalmology, and recommended that the present chairman appoint that committee.

The committee also recommended the appointment of Dr. Peter A. Callan, New York, as memorialist for Dr. W. B. Marple, New York, deceased, and Dr. Luther C. Peter, Philadelphia, as memorialist for Dr. Wendell Reber, Philadelphia, deceased.

On account of the absence of the secretary, Dr. George S. Derby, Boston, in Europe in military hospital medical service, the committee reported that Dr. Edgar S. Thomson, New York, had consented to act as secretary of the section during Dr. Derby's absence.

The term of Dr. Hiram Woods, Baltimore, as a member of the Board on Ophthalmic Examinations, had expired. It seemed desirable, in this initial period, that he be continued for another period of three years.

On motion, duly seconded, the report of the executive committee was adopted.

The following officers were elected: chairman, Dr. Alexander Duane, New York; vice chairman, Dr. F. Phinizy Calhoun, Atlanta, Ga.; acting secretary, Dr. Edgar S. Thomson, New York; delegate, Dr. Thomas B. Holloway, Philadelphia; alternate, Dr. McLeish.

Dr. Edward Jackson, Denver, chairman, read the report of the Committee on Standardizing Test Cards.

On motion, duly seconded, the report was adopted and the committee continued. The report will be found in the printed transactions of the section.

Dr. Edward Jackson, Denver, read the annual report of the American Board for Ophthalmic Examinations.

Dr. S. D. Risley moved the adoption of the report with its recommendations. Seconded and carried.

Dr. Walter R. Parker, Detroit, made a verbal report of the Committee on the Elliot Trephine Operation, which will be found in the transactions of the section, in which a request was made for funds for continuing the work of the committee.

Dr. S. D. Risley, Philadelphia, moved the continuance of the committee and the furnishing of funds. Dr. A. E. Bulson, Jr., Fort Wayne, Ind., suggested that the plea for funds be referred to the Knapp Testimonial Committee, as the section had no funds. He made this as an amendment to Dr. Risley's motion, and the amendment was accepted by Dr. Risley. The motion as amended then carried.

Dr. A. E. Bulson, Jr., Fort Wayne, Ind., read the Report of the Committee on the Knapp Testimonial Fund.

Dr. John E. Weeks, New York, moved that the report be accepted and filed. There were no objections and it was so ordered.

Dr. John E. Weeks, New York, read the report of the Committee on Award of the Knapp Medal, which will be found in the transactions. The committee awarded the medal to Dr. Walter R. Parker, Detroit, in recognition of the work described in 1916 in his paper on "The Relation of Choked Disk to the Tension of the Eyeball, an Experimental Study."

Dr. A. E. Bulson, Jr., moved that the report be accepted. It was seconded by Dr. S. D. Risley and the motion was carried.

Dr. A. E. Bulson, Jr., by direction of the chairman, presented the medal to Dr. Parker, who expressed his appreciation.

Dr. Frank Allport, Chicago, chairman of the Committee on Conservation of Vision, was not present, but sent a letter. This with a report made by Dr. Hiram Woods, Baltimore, will be found in the transactions; also a letter from Edward N. Van Cleave, managing director of the executive staff of the National Committee for the Prevention of Blindness, suggesting the continuance of the committee and the appointment of a New York member of the section to act as local chairman for Dr. Allport, and that it act with the national committee under the name of "The Committee on Conservation of Vision, American Medical Association, Cooperating with the National Committee for the Prevention of Blindness." The name of Dr. Walter B. Weidler of New York was suggested as the local acting chairman. Dr. Woods recommended that the suggestion of Mr. Van Cleave be accepted.

Dr. A. E. Bulson, Jr., moved that the section approve the plan as proposed and that the committee, as far as the section is concerned, continue the work as outlined. Seconded by Dr. S. D. Risley, and carried.

Nominations were made for members of the Committee on Award of the Knapp Medal. The following were selected: Drs. Walter R. Parker, Detroit; William H. Wilder, Chicago, and Arnold Knapp, New York.

Dr. Hiram Woods, Baltimore, presented a resolution which, after discussion and amendment, was adopted in the following form:

WHEREAS, It is officially stated that in the present crisis of our country the government will need the services of every available medical man; and

WHEREAS, The present number of ophthalmologists in the regular medical department and Officers Reserve Corps is too small to meet requirements; and further,

WHEREAS, The present classification of ophthalmologists as surgeons has a tendency to prevent volunteering because it is apt to assign to men of special training work for which they are unfitted, and to remove them from work of great importance which they can do, therefore be it

Resolved, By the Section on Ophthalmology of the American Medical Association, in session in New York, June, 1917, that the section respectfully makes the following recommendations:

1. That ophthalmologists be classed as a separate division of the medical department.

2. That a survey be made of the ophthalmologists of the United States for duty in various lines of work (examination of visual qualifi-

cations of recruits, aviation corps, signal corps, detection of malingerers, hospitals, etc.).

3. That the proper persons to make this survey are the members of the subcommittee on ophthalmology of the General Medical Board of the Council of National Defense.

4. That the section respectfully petitions the surgeons-general of United States military forces to appoint this subcommittee on ophthalmology to make a review of the ophthalmic profession of the country and submit to the departments lists of those best qualified to fulfil the various duties falling on ophthalmologists.

5. That the surgeons-general be further petitioned to follow the recommendations of this board in the assignment of work as closely as is consistent with the good of the service, requesting those selected by the board, but not members of the Officers Reserve Corps, to volunteer for such service as the board may designate. [Not transmitted to the House of Delegates.]

Dr. Edward Jackson, Denver, read a paper on "Conical Cornea, or Anterior Myopia."

Dr. Meyer Wiener, St. Louis, read a paper on "A New Operative Method for the Relief of Advanced Cases of Keratoconus, with Report of Two Cases."

These two papers were discussed by Drs. S. D. Risley, Philadelphia; Edward C. Ellett, Memphis, Tenn.; W. H. Wilder, Chicago; E. E. Blaauw, Buffalo; Hunter H. Turner, Pittsburgh; L. Webster Fox, Philadelphia; Edgar S. Thomson, New York; Edward Jackson, Denver, and Meyer Wiener, St. Louis.

Dr. George S. Derby's paper on "Interstitial Keratitis, with Special Reference to the End-Result," was on motion, in the absence of Dr. Derby in Europe, read in abstract by the secretary, Dr. Edgar S. Thomson, New York. Discussed by Arnold Knapp, New York; J. A. Fordyce, New York; F. Park Lewis, Buffalo; R. L. Randolph, Baltimore; Hiram Woods, Baltimore; E. E. Holt, Portland, Me.; F. H. Verhoeff, Boston; H. F. Stoll, Hartford, Conn., and W. H. Wilder, Chicago.

Dr. Sydney Walker, Jr., Chicago, read a paper on "Present Status of Corneal Transplantation and Experimental Data." Discussed by Drs. John E. Weeks, New York, and Sydney Walker, Chicago.

Dr. George E. de Schweinitz, Philadelphia, moved that the secretary be requested to convey to Dr. George S. Derby, for this section, cordial greeting, and to express the hope that the opportunity which has fallen to him and his colleagues abroad shall meet abundant success and that he and they shall escape the harm and the hurt which would necessarily threaten them in their stimulating and patriotic line of duty.

Dr. John E. Weeks, New York, seconded the motion and it carried unamimously.

Thursday, June 7—Afternoon

Dr. Henry H. Briggs, Asheville, N. C., read a paper on "Tendon Shortening." Discussed by Drs. Will P. Walter, Evanston, Ill.; J. W. Jervey, Greenville, S. C.; David W. Wells, Boston; Frank C. Todd, Minneapolis; Blech, Los Angeles; George A. Moore, Palmer, Mass., and Henry H. Briggs, Asheville, N. C.

Dr. Harry W. Woodruff, Joliet, Ill., read a paper on "Tendon Transplantation of the Eye Muscles." Discussed by Frank C. Todd, Minneapolis; Arthur S. Tenner, New York; Meyer Wiener, St. Louis, and Harry W. Woodruff, Joliet, Ill.

Dr. Leo J. Goldbach, Baltimore, read a paper on "Lymphatic Nodular Keratoconjunctivitis (Phlyctenules)."

Dr. Michael Goldenburg, Chicago, read a paper on "The Pathogenesis of Ophthalmia Eczematosa: A Preliminary Report."

These two papers were discussed by Drs. Richard J. Tivnen, Chicago; Hunter H. Turner, Pittsburgh; George F. Sullivan, Hoboken; H. W. Woodruff, Joliet, Ill.; A. E. Davis, New York; Leo J. Goldbach, Baltimore, and Michael Goldenburg, Chicago.

Drs. Aaron S. Green and Louis D. Green, San Francisco, presented a paper on "An Analysis of One Hundred and Forty-Six Consecutive Cases of Intracapsular Extraction of Senile Cataract." Discussed by Drs. H. F. Hansell, Philadelphia, and Aaron S. Green, San Francisco.

Dr. F. Park Lewis, Buffalo, introduced the following resolution:

Resolved, That the Section on Ophthalmology of the American Medical Association call the attention of the surgeons-general of the army and navy to the fact that conscripted men from regions infected with trachoma might be the source of a widespread epidemic of the disease, and that strict measures be adopted for the prevention of such a disaster. [Not transmitted to the House of Delegates.]

On motion the resolution was adopted.

Dr. William Zentmayer, the retiring chairman, made a few remarks thanking the section for assistance rendered and courtesies shown him.

Dr. Alexander Duane, the chairman elect, was inducted into office.

On motion of Dr. W. H. Wilder, Chicago, a vote of thanks was tendered to the retiring officers.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

Wednesday, June 6—Morning

The section was called to order at 9:30 by the chairman, Dr. H. W. Longyear, Detroit.

Dr. Longyear read the chairman's address, entitled "The Relations of the Gynecologist to the General Surgeon, Past and Present."

Dr. C. Henry Davis, Chicago, read a paper on "The relative Efficiency and Toxicity of Chloroform, Ether and Nitrous Oxid-Oxygen in Pregnancy and Labor." Discussed by Drs. Isadore L. Hill, New York; John Osborn Polak, Brooklyn, and E. B. Craigin, New York.

Dr. Arnold Sturmdorf, New York, read a paper on "The Pathologic and Clinical Significance of Chronic Endocervicitis." Discussed by Drs. Thomas S. Cullen, Baltimore; J. Riddle Goffe, New York; Robert L. Dickinson, Brooklyn; Henry P. Newman, San Diego, Calif., and Arnold Sturmdorf, New York.

A joint meeting was held with the Section on Nervous and Mental Diseases.

Dr. Arthur Stein, New York, read a paper on "Influence of Labor on the Brain Development of the Child." Discussed by Drs. Frederick Peterson, New York; E. B. Cragin, New York; Charles K. Mills, Philadelphia; G. L. Brodhead, New York; E. D. Fisher, New York; Alfred B. Spalding, San Francisco; Samuel J. Drusgin, New York; Adolph Meyer, Baltimore; Hugh T. Patrick, Chicago; Starr, New York; J. Ransohoff Cincinnati; P. B. Salatich, New Orleans; Charles R. Ball, St .Paul; Henry P. Newman, San Diego, Calif., and Arthur Stein, New York.

Wednesday, June 6—Afternoon

Dr. J. Morris Slemons, New Haven, Conn., read a paper on "The Value of Blood Pressure Estimations in the Practice of Obstetrics." Discussed by Drs. F. Ashley Faught, Philadelphia, and J. Morris Slemons, New Haven, Conn.

Dr. Frederick J. Taussig, St. Louis, read a paper on "Has the New Born Child with Sutured Cord a Better Start in Life? Comparative Study of 500 Cases." Discussed by Drs. George M. Boyd, Philadelphia; Charles S. Bacon, Chicago; Asa B. Davis, New York, and Frederick J. Taussig, St. Louis.

Dr. Jennings C. Litzenberg, Minneapolis, read a paper on "The Sacro-Iliac Joints in Obstetrics and Gynecology." Discussed by Drs. Edward Reynolds, Boston; Robert L. Dickinson, Brooklyn; Isadore L. Hill, New York, and Jennings C. Litzenberg, Minneapolis.

Dr. Alfred B. Spalding, San Francisco, read a paper on "Cesarean Section Scars: A Histologic Study of Four Specimens." Discussed by Drs. J. R. Losee, New York; Asa B. Davis, New York; James A. Harrar, New York; Nathaniel R. Mason, Boston; Clarence G. Bandler, New York; J. H. Carstens, Detroit; E. Gustav Zinke, Cincinnati, and Alfred B. Spalding, San Francisco.

Dr. Arthur H. Morse, New Haven, Conn., read a paper on "Premature Separation of the Normally Implanted Placenta." Discussed by Drs. James W. Markoe, New York; J. K. Quigley, Rochester, N. Y.; Alfred B. Spalding, San Francisco; Samuel J. Druskin, New York, and Arthur H. Morse, New Haven, Conn.

Dr. Louis J. Ladinski, New York, read a paper on "Ectopic Gestation." Discussed by Drs. E. Gustav Zinke, Cincinnati; J. H. Carstens, Detroit; William W. Golden, Elkins, W. Va.; Edward J. McOscar, Fort Wayne, Ind., and Louis J. Ladinski, New York.

THURSDAY, JUNE 7—MORNING

Dr. John W. Keefe, Providence, R. I., read a paper on "Prolapse of the Female Urethra." Discussed by Drs. Guy L. Hunner, Baltimore; Brooke M. Anspach, Philadelphia, and John W. Keefe, Providence, R. I.

Drs. Guy L. Hunner and George L. Stickney, Baltimore, presented a paper on "Further Notes on a Rare Type of Bladder Ulcer, with Report of Eighteen Cases." Discussed by Drs. Edward H. Richardson, Baltimore; D. N. Eisendrath, Chicago; Wineberg, N. Y.; Frank D. Reese, Cortlandt, N. Y.; P. B. Salatich, New Orleans; H. W. Longyear, Detroit, and Guy L. Hunner, Baltimore.

Dr. Axel F. W. Werelius, Chicago, read a paper on "Ureterotubal and Uretero-Uterine Anastomosis." Discussed by Drs. Julius H. Jacobson, Toledo, Ohio; Alfred A. Strauss, Chicago; D. N. Eisendrath, Chicago; P. B. Salatich, New Orleans; J. Henry Barbat, San Francisco; William P. Graves, Boston, and Axel F. W. Werelius, Chicago.

Dr. William P. Graves, Boston, read a paper on "Ovarian Organotherapy: A Preliminary Report." Discussed by Drs. Clarence G. Bandler, New York; Emil Novak, Baltimore; Lawrence W. Strong, New York; P. B. Salatich, New Orleans; Adam P. Leighton, Jr., Portland, Me., and William P. Graves, Boston.

Dr. Robert T. Morris, New York, read a paper on "Appendicitis and the Gynecologist." Discussed by Drs. John B. Deaver, Philadelphia; W. M. Polk, New York; Lee, New York; Emil Novak, Baltimore; Chester M. Echols, Milwaukee, Wis.; E. E. Montgomery, Philadelphia; Bernard Cohen, Buffalo; J. H. Carstens, Detroit; Guy L. Hunner, Baltimore, and Robert T. Morris, New York.

Dr. Robert E. Farr, Minneapolis, read a paper on "Technic and Scope of Local Anesthesia in Abdominal Surgery," illustrated by motion pictures. Discussed by Drs. Charles F. Nassau, Philadelphia; F. J. Keller, Patterson, N. J.; J. H. Jacobson, Toledo, Ohio; P. B. Salatich, New Orleans, and Robert E. Farr, Minneapolis.

THURSDAY, JUNE 7—AFTERNOON

The following officers were elected: chairman, Dr. Brooke M. Anspach, Philadelphia; vice chairman, Dr. R. E. Skeel, Cleveland; secretary, Dr. Sidney A. Chalfant, Pittsburgh; delegate, Dr. Horace G. Wetherill, Denver; alternate, Dr. Thomas S. Cullen, Baltimore.

Dr. John Osborn Polak, Brooklyn, read a paper on "Why the Menstrual Function Should Be Preserved in Double Suppurative Disease of the Tubes." Discussed by Drs. E. E. Montgomery, Philadelphia; Bertha Van Hoosen, Chicago; H. J. Boldt, New York; Harvey P. Jack, Hornell, N. Y.; R. H. Gibbons, New York; H. O. Marcy, Boston, and John Osborn Polak, Brooklyn.

Dr. Daniel N. Eisendrath, Chicago, read a paper on "Causes of Recurrence After Operations on the Bile Passages." Discussed by Drs. W. Wayne Babcock, Philadelphia; John B. Deaver, Philadelphia; E. MacD. Stanton, Schnectady, N. Y., and R. H. Gibbons, New York.

Dr. John B. Deaver, Philadelphia, read a paper on "Acute Pancreatitis." Discussed by Drs. Russell S. Fowler, Brooklyn, and R. H. Gibbons, New York.

Dr. Charles A. L. Reed, Cincinnati, read a paper on "Physiologic Colectomy." Discussed by Drs. Willard Bartlett, St. Louis; John G. Clark, Philadelphia; Fenton B. Turck, New York; Alfred A. Strauss, Chicago; R. H. Gibbons, New York, and Charles A. L. Reed, Cincinnati.

Dr. William J. Mayo, Rochester, Minn., read a paper on "Diverticulitis of the Large Intestine." Discussed by Drs. Roberts, Brooklyn; Miles F. Porter, Fort Wayne, Ind., and W. J. Mayo, Rochester, Minn.

Dr. J. Shelton Horsley, Richmond, Va., read a paper on "Personal Experience in the Surgical Treatment of Intestinal Stasis." Discussed by Drs. John W. Draper, New York, and Richard E. Brown, New York.

FRIDAY, JUNE 8—MORNING

Dr. Miles F. Porter, Fort Wayne, Ind., read a paper on "Cholecystostomy Versus Cholecystectomy." Discussed by Drs. Howard Lilienthal, New York; H. J. Boldt, New York; J. H. Carstens, Detroit; D. C. Strong, San Bernardino, Calif.; J. W. Vaughan, Detroit, and Miles F. Porter, Fort Wayne, Ind.

A telegram was received from Dr. Louis Frank, Louisville, Ky., offering to forward his paper that it might be read by title and published if it might be so received. It was stated that under the ruling of the House of Delegates, papers could not be published unless read in the section.

Dr. Horace G. Wetherill, Denver, delegate of the section to the House of Delegates, expressed his appreciation of election as delegate, and also his regret since he was necessarily absent from the scientific work.

A motion to thank Dr. Wetherill for his work as delegate to the House of Delegates was seconded and carried.

Dr. Stuart McGuire, Richmond, Va., read a paper on "Preparation of Anemic Patients for Operation." Discussed by Drs. Sidney A. Chalfant, Pittsburgh; Howard Lilienthal, New York; H. J. Boldt, New York, and P. B. Salatich, New Orleans.

Dr. J. Walter Vaughan, Detroit, read a paper on "When Is Cancer Operable?" Discussed by Drs. Henry Schmitz, Chicago; Clarence G. Bandler, New York, and J. Walter Vaughan, Detroit.

Dr. James F. Percy, Galesburg, Ill., read a paper on "The End-Results of the Treatment of Inoperable Uterine Cancer by Heat." Discussed by Drs. Herman J. Boldt, New York; F. Walcott Bancroft, New York; Leonard, New York; George B. Ward, New York; J. Shelton Horsley, Richmond, Va.; H. C. Bailey, New York; Frank L. Newton, Boston, and James F. Percy, Galesburg, Ill.

Dr. Henry Schmitz, Chicago, read a paper on "The Present Status of Radium Therapy in Diseases of Women." Discussed by Drs. Anthony Joseph Mendillo, New Haven, Conn., and Henry Schmitz, Chicago.

Dr. Abraham J. Rongy, New York, read a paper on "Prolapsus Uteri and Its Treatment." Discussed by Drs. Frank L. Newton, Boston; Jacob A. Ruben, Pittsburgh; Harry Aranow, New York; Harvey P. Jack, Hornell, N. Y., and Abraham J. Rongy, New York.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order by the chairman, Dr. Francis P. Emerson, Boston. Dr. Emerson then read the Chairman's Address.

Dr. George L. Richards, Fall River, Mass., moved that the Committee appointed at the Atlantic City meeting, consisting of Charles W. Richardson, Washington; H. P. Mosher, Boston and Burt R. Shurly, Detroit, be retained by this section. Motion seconded and carried.

Dr. Hubert Arrowsmith, Brooklyn, read a paper on "Peroral Endoscopy in the Diagnosis and Treatment of Diseased Conditions of the Respiratory and Upper Digestive Tracts." Discussed by Drs. Samuel Iglauer, Cincinnati; H. W. Frauenthal, New York; Chevalier Jackson, Philadelphia, and H. P. Mosher, Boston.

Major Theodore Charles Lyster, Washington, D. C., gave a short talk on the work of the men of this section in the present war.

Dr. Chevalier Jackson, Philadelphia, read a paper on "The Etiology of Foreign Bodies in the Larynx, Trachea, Bronchi

and Esophagus," with lantern demonstration. Discussed by Drs. Harris P. Mosher, Boston; Jacques Holinger, Chicago, and S. A. Friedberg, Chicago.

Dr. Joseph C. Beck, Chicago, read a paper on "The Surgery of the Tongue," with lantern demonstration. Discussed by Drs. George F. Keiper, Lafayette, Ind.; Sargent F. Snow, Syracuse, N. Y.; Lee M. Hurd, New York, and William R. Butt, Canton, Ohio.

Dr. Wendell C. Phillips of New York, presented moving pictures of a Simple Mastoid Operation.

WEDNESDAY, JUNE 6—AFTERNOON

Dr. Edward B. Dench, New York, read a paper on "Indications for the Mastoid Operation in Acute Otitis Media." Discussed by Drs. John F. Barnhill, Indianapolis; George W. MacKenzie, Philadelphia; George F. Keiper, Lafayette, Ind., and C. R. Holmes, Cincinnati.

Dr. Norval H. Pierce, Chicago, presented moving pictures of an operation on the ethmoid.

Dr. Norval H. Pierce, Chicago, read a paper on "Pathologic Conditions of the Nose, Epipharynx and Pharynx as Etiologic Factors in Aural Disease." Discussed by Drs. Cullen F. Welty, San Francisco, and George E. Shambaugh, Chicago.

Dr. Cullen F. Welty, San Francisco, read a paper on "Indications for the Radical Mastoid Operation." Discussed by Drs. Jacques Holinger, Chicago; George W. MacKenzie, Philadelphia, and Joseph C. Beck, Chicago.

Dr. John E. MacKenty, New York, read a paper on "Hemilaryngectomy and Total Laryngectomy," with lantern demonstration. Discussed by Drs. D. Crosby Greene, Boston; Henry W. Horn, San Francisco; Joseph C. Beck, Chicago, and La Fayette Page, Indianapolis.

Dr. Charles W. Richardson, Washington, D. C., read a paper on "Treatment of Acute Pulmonary Abscess." Discussed by Dr. George F. Cott, Buffalo, who presented lantern slides.

Dr. Otto J. Stein, Chicago, read a paper on "Sudden and Profound Loss of Hearing; Its Significance." Discussed by Drs. Henry S. Wieder, Philadelphia; T. O. Edgar, Dixon, Ill., and Cullen F. Welty, San Francisco.

THURSDAY, JUNE 7—MORNING

Dr. Louis Ostrom, Jr., Rock Island, Ill., showed a tonsil instrument, a modification of the Sluder tonsillotome.

Dr. A. A. Hayden, Chicago, showed a pillar suturing apparatus for the tonsil.

The chairman appointed the following committees:

Committee on Necrology: Drs. A. B. Duel and Emil Mayer.

Nominating Committee: Drs. H. W. Loeb, H. P. Mosher and Norval H. Pierce.

Dr. Greenfield Sluder, St. Louis, read a paper on "A Surgical Consideration of the Upper Paranasal Cells." Discussed by Drs. H. Holbrook Curtis, New York and Lee M. Hurd, New York.

The following papers were read as a symposium on "Vertigo."

Dr. George E. Shambaugh, Chicago: "Vertigo as a Symptom of Primary Disease of the Labyrinth."

Dr. Philip D. Kerrison, New York: "Aural Vertigo Occurring in Suppurative Disease of the Ear."

Dr. Theadore H. Weisenburg, Philadelphia: "Vertigo in Intracranial Disease."

Dr. Isaac H. Jones, Philadelphia: "Diagnosis of Vertigo, from Whatever Cause, by Ear Tests," with lantern demonstration.

These four papers were discussed by Drs. H. T. Patrick, Chicago; Wells P. Eagleton, Newark, N. J.; George W. MacKenzie, Philadelphia; Lewis Fisher, Philadelphia; E. L. Myers, St. Louis; Norval H. Pierce, Chicago; George F. Keiper, Lafayette, Ind.; Philip D. Kerrison, New York, and A. A. Hayden, Chicago.

THURSDAY, JUNE 7—AFTERNOON

Dr. T. J. Harris moved that the Executive Committee of this section be instructed to investingate, and report at the next meeting of this section, on the advisability of establishing a new journal on otolaryngology. Seconded and carried.

Dr. Elmer L. Kenyon moved that the Executive Committee be authorized and instructed to cooperate with the Board of Trustees in carrying out the new plans with reference to the publication of section papers. Seconded and carried.

The following officers were elected: chairman, Dr. Greenfield Sluder, St. Louis; vice chairman, Dr. Philip D. Kerrison, New York; secretary, Dr. L. W. Dean, Iowa City, Iowa; delegate, Dr. George L. Richards, Fall River; alternate, Dr. Ross H. Skillern, Philadelphia.

Dr. Emil Mayer read the report of the Committee on Necrology, which included the obituaries of Dr. Hudson K. Makuen, New York, and Dr. David Braden Kyle, Philadelphia.

Dr. Mayer also reported the successful result of the appeal to the physicians in the case of the widow of Dr. Jules Broeckaert, of Belgium.

Dr. T. J. Harris moved that the thanks of this section be extended to Dr. Emil Mayer for his work in connection with the Broeckaert Fund. Seconded and carried.

Dr. W. B. Chamberlain moved that the chairman appoint a committee of three to act as a permanent necrology committee. The chairman appointed, as this committee, Drs. Emil Mayer, W. B. Chamberlain, and T. J. Harris.

Dr. Dayton C. Miller, Cleveland, read a paper on "The Science of Musical Sounds." Discussed by Drs. H. P. Mosher, Boston; W. B. Swift, Boston; Jacques Holinger, Chicago, and Bertha Carol Downing, Worcester, Mass.

Dr. George L. Richards, Fall River, Mass., read a paper on "The Hearing Test from a Practical Standpoint." Discussed by Drs. W. B. Chamberlain, Cleveland; Cullen F. Welty, San Francisco; George W. MacKenzie, Philadelphia, and Jacques Holinger, Chicago.

FRIDAY, JUNE 8—MORNING

Dr. Henry W. Horn, San Francisco, read a paper on "The End-Results in the Treatment of Ozena by Means of Vaccine," with lantern demonstration. Discussed by Drs. J. G. Dwyer, New York; Thomas J. Harris, New York; L. A. Coffin, New York; H. W. Frauenthal, New York, and William R. Murray, Minneapolis.

Dr. Ross H. Skillern, Philadelphia, read a paper on "The Diagnosis and Treatment of Sinusitis in Infants." Discussed by Drs. Albert H. Beifield, Iowa City, Iowa; L. A. Coffin, New York, and Greenfield Sluder, St. Louis.

Dr. Lewis Fisher, Philadelphia, read a paper on "Simplicity of Technic in Submucous Resection of the Septum," with lantern demonstration. Discussed by Drs. W. W. Carter, New York; William R. Butt, Canton, Ohio; J. D. Lewis, Minneapolis; T. R. Chambers, Jersey City, and Emil Mayer, New York.

Dr. Greenfield Sluder presented forceps for dealing with the lateral wall of the antrum. These forceps are analogous to the exploratory puncture of the needle in the lower meatus.

Dr. Elmer L. Kenyon, Chicago, read a paper on "Disturbances of Voice Following Tonsillectomy: Their Causes and Prevention," with lantern demonstration. Discussed by Drs. I. W. Voorhees, New York; W. B. Swift, Boston; H. P. Mosher, Boston; D. J. McDonald, New York, and Jacob Braun, New York.

Dr. Julius Dworetzky, Otisville, N. Y., read a paper on "The Diagnosis of Tuberculous Laryngitis," with lantern demonstration. Discussed by Drs. H. W. Frauenthal, New York, and Emil Mayer, New York.

Dr. H. P. Mosher moved that vote of thanks be extended to the New York men for their work in connection with this meeting. Seconded and carried.

The retiring chairman, Dr. Francis P. Emerson, introduced the chairman-elect Dr. Greenfield Sluder, who expressed his appreciation of the honor conferred on him.

Dr. Emil Mayer moved that a vote of thanks be extended to the retiring officers for their work in making this program as valuable in a scientific way as any that has ever been presented before the section.

SECTION ON DISEASES OF CHILDREN

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order at 9:10 by the chairman, Dr. J. P. Sedgwick, Minneapolis. Dr. Sedgwick read the chairman's address, entitled "The Institution, Reestablishment and Maintenance of Breast Feeding." No discussion.

Dr. Isaac A. Abt, Chicago, read a paper on "The Technic of Wetnurse Management in Institutions." Discussed by Drs. Fritz Talbot, Boston; Henry M. Silver, New York; Jacob Sobel, New York; Richard J. E. Scott, New York; Charles Herrman, New York; Owen H. Wilson, Nashville, Tenn.; Charles L. Summers, Winston-Salem, N. C.; Leo Wolf, Buffalo; Frank S. Churchill, Chicago; E. J. Huenekens, Minneapolis; Chappell, Grand Rapids, Mich., and Isaac A. Abt, Chicago.

Dr. Bert R. Hoobler, Detroit, read a paper on "Problems Connected with the Production and Collection of Human Milk." Discussed by Drs. Thomas S. Southworth, New York; Henry I. Bowditch, Boston; William P. Lucas, San Francisco; Louis H. Schwartz, New York; Lawrence T. Royster, Norfolk, Va.; L. R. DeBuys, New Orleans; Walter J. Heimann, New York; R. R. Ferguson, Chicago; T. C. McCleave, Oakland, Calif.; Faison, Charlotte, N. C.; Oliver Hill, Knoxville, Tenn.; F. N. Rogers, Manchester, N. H.; Bert R. Hoobler, Detroit.

Dr. Harry M. McClanahan, Omaha, read a paper on "The Use of Lactic Bacilli Milk." Discussed by Drs. J. P. Crozer Griffith, Philadelphia, and Harry M. McClanahan, Omaha.

Dr. Thomas S. Southworth, New York, read a paper on "The Familial Tendency to Fat Incapacity in Infancy and Childhood." Discussed by Drs. Louis C. Ager, Brooklyn; Frank C. Neff, Kansas City, Mo.; Fritz Talbot, Boston; Bert R. Hoobler, Detroit; David E. English, Summit, N. J., and Thomas S. Southworth, New York.

WEDNESDAY, JUNE 6—AFTERNOON

Dr. Harry M. McClanahan explained to the members of the section about the action taken by the House of Delegates reducing the units allowed this section, which would result in decreasing the number of papers read to about half the number generally presented. Discussed by Drs. Isaac A. Abt, Chicago; William P. Lucas, San Francisco; Clifford G. Grulee, Chicago; L. R. DeBuys, New Orleans; T. C. McCleave, Oakland, Calif.; Richard J. E. Scott, New York; R. R. Ferguson, Chicago, and J. P. Sedgwick, Minneapolis.

Dr. William P. Lucas, San Francisco, made a motion that the chairman appoint a committee to draw up a protest to be presented tomorrow to the House of Delegates, in reference to its action in decreasing the units allowed this section, and that the entire section adjourn at 2 o'clock and proceed to the House of Delegates with our committee.

Seconded, and carried unanimously.

The chairman appointed the following committee as above outlined: Dr. William P. Lucas, San Francisco; Dr. Isaac A. Abt, Chicago; Dr. E. C. Fleischner, San Francisco.

Drs. E. C. Fleischner and K. F. Meyer, San Francisco, presented a paper on "Observations on the Presence of the Bacillus Abortus in Certified Milk." Discussed by J. P. Sedgwick, Minneapolis, and E. C. Fleischner, San Francisco.

Dr. Clifford G. Grulee, Chicago, read a paper on "Rumination in the First Year of Life." Discussed by Drs. R. Taylor, Minneapolis; John Lovett Morse, Boston; James H. Kerley, New York; I. H. Goldberg, New York, and Clifford G. Grulee, Chicago.

Drs. Lawrence R. DeBuys and Adolph Henriques, New Orleans, presented a paper on "The Effect of Body Posture on the Position and Emptying Time of the Stomach." Discussed by Drs. Louis C. Ager, Brooklyn; R. Taylor of Minneapolis, and L. R. DeBuys, New Orleans.

Dr. Louis Fischer, New York, read a paper on "Recent Literature Pertaining to Vitamins: Their Application in Infant Feeding." Discussed by Drs. Richard J. E. Scott, New York; Thomas S. Southworth, New York; I. H. Goldberger, New York, and Louis Fischer of New York.

Dr. William P. Lucas, San Francisco, read a paper on "A Study of Diarrheal Conditions Found in California, Especially in San Francisco, and a Comparison of Such Conditions in California and on the Atlantic Seacoast." Discussed by Drs. Lawrence T. Royster, Norfolk, Va.; Henry I. Bowditch, Boston; Jacob Sobal, New York; Isaac A. Abt, Chicago, and William P. Lucas, San Francisco.

Dr. Henry D. Chapin, New York, read a paper on "A Comparison Between Clinical Examination and Roentgenograms in Diseases of the Chest." Discussed by Drs. John Lovett Morse, Boston; A. C. Eastman, Springfield, Mass.; J. E. Benjamin, Cincinnati; I. S. Hirsch, New York, and E. S. Rimer, New York.

Dr. Isaac A. Abt, Chicago, chairman of the committee appointed to present protest to the House of Delegates, reported.

THURSDAY, JUNE 7—MORNING

Dr. Henry J. Cartin, Johnstown, Pa., read a paper on "Intubation of the Larynx." Discussed by J. F. Hogan, Baltimore; H. L. Whitney, Plymouth, Pa.; A. J. Bell, Cincinnati; Isaac A. Abt, Chicago, and Lawrence T. Royster, Norfolk, Va.

Dr. J. P. Crozer Griffith, Philadelphia, read a paper on "The Weight of Clothing in the First Five Years of Life." Discussed by Drs. Frank C. Neff, Kansas City, Mo., and J. P. C. Griffith, Philadelphia.

Dr. John Lovett Morse, Boston, read a paper on "Edebohls' Operation in Nephritis in Childhood." Discussed by Drs. J. S. Wall, Washington, and J. L. Morse, Boston.

Dr. Julius H. Hess, Chicago, read a paper on "Diagnosis of the Age of the Fetus by Roentgenograms." No discussion.

Drs. Albert Graeme Mitchell and J. Claxton Gittings, Philadelphia, presented a paper on "Phenolsulphonephthalein Elimination in Infants and Children." Discussed by Drs. J. P. Sedgwick, Minneapolis; J. S. Leopold, New York; J. L. Morse, Boston, and J. Claxton Gittings, Philadelphia.

Dr. Edgar J. Huenekens, Minneapolis, read a paper on "The Prophylactic Use of Pertussis Vaccine, Controlled by the Complement Fixation Test." Discussed by Drs. Alfred Hess, New York; John Foote, Washington, D. C.; H. L. F. Locke, Hartford, Conn.; Fisher, New York; Faison, Charlotte, N. C.; Luttinger, New York, and E. J. Huenekens, Minneapolis.

By unanimous vote it was decided to proceed immediately with the afternoon's program as, at the committee's suggestion, the entire section was to adjourn to the meeting of the House of Delegates in the afternoon, to protest against the proposed reduction in the time allotted the section.

The following officers were elected: chairman, Dr. Lawrence R. DeBuys, New Orleans; vice chairman, Dr. Richard M. Smith, Boston; delegate, Dr. T. C. McCleave, Oakland, Calif.

Dr. Richard M. Smith, Boston, read a paper on "Pyelitis in Infants: The Phenolsulphonephthalein Test."

Dr. Henry F. Helmholz, Evanston, Ill., read a paper on "Experimental Pyelitis in the Rabbit."

THURSDAY, JUNE 7—AFTERNOON

The section met, according to agreement, at the Academy of Medecine, where the House of Delegates was in session, and stayed the entire afternoon until the question of the reduction of the time allotted the Section on Diseases of Children was reached. The privilege of the floor of the House was accorded Dr. Isaac A. Abt, Chicago, who then presented to the House of Delegates the protest of the section. The House of Delegates finally assigned six units to each section of the Scientific Assembly.

At 5:45 the chairman called the section to order, and the following papers were read by title:

"A Series of Trophoneuroses, Probably Due to Infection," by Dr. Albert H. Beifeld, Iowa City, Iowa.

"Desensitization in the Treatment of Infantile Eczema," by Dr. Thomas B. Cooley, Detroit.

"The Allen Treatment of Diabetes in Children," by Charles E. Hansel, South Bend, Ind.

"The Method of Determining the Exact Dose of Tuberculin for the Individual Child with Pulmonary Tuberculosis, Whether that Dose be the Initial or any Subsequent Dose," by Dr. Myer Solis Cohen, Philadelphia.

Friday, June 8—Morning

A joint meeting was held with the Section on Nervous and Mental Diseases and the Section on Orthopedic Surgery. For a report of the proceedings, see the minutes of the Section on Orthopedic Surgery.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

Wednesday, June 6—Morning

The section was called to order by the chairman, Dr. Albion W. Hewlett, San Francisco, at 9:15. Dr. Hewlett read the chairman's address, entitled "Cooperation Between Pharmacology and Therapeutics."

Dr. Torald Sollmann, Cleveland, read a paper on "Crucial Test of Therapeutic Evidence." Discussed by Dr. Samuel J. Meltzer, New York.

Dr. Samuel J. Meltzer, New York, demonstrated his apparatus for the administration of oxygen under pressure, with remarks on the efficiency of the procedure. Discussed by Drs. Solomon Solis-Cohen, Philadelphia; Noble P. Barnes, Washington, D. C., and Samuel J. Meltzer, New York.

Dr. James E. Talley, Philadelphia, read a paper on "Acidosis in Morphinism." Discussed by Drs. Fred I. Lackenbach, San Francisco; Torald Sollmann, Cleveland; Ernest S. Bishop, New York, and James E. Talley, Philadelphia.

Dr. Charles C. Lieb, New York, read a paper on "The Action of Alcohol on the Isolated Mammalian Heart." Discussed by Drs. Samuel J. Meltzer, New York; Torald Sollmann, Cleveland; Solomon Solis-Cohen, Philadelphia; Walter J. Wilson, Jr., Detroit; Samuel J. Meltzer, New York, and Charles C. Lieb, New York.

Wednesday, June 6—Afternoon

Dr. Walter A. Bastedo, New York, read a paper on "A Discussion of Certain Measures for the Treatment of Pulmonary Edema in Pneumonia." Discussed by Drs. Samuel J. Meltzer, New York; Jacob Diner, New York; Walter J. Wilson, Jr., Detroit; Edward F. Wells, Chicago, and Walter A. Bastedo, New York.

The secretary, Dr. Cary Eggleston, New York, read the following resolution:

The Section on Pharmacology and Therapeutics instructs its delegate to the House of Delegates that it is the sense of this section that the question of the therapeutic value of alcohol, which has been long in dispute, remains yet undetermined, and that hasty action taken under the stress of present circumstances would not be wise or as reflecting the best therapeutic and pharmacologic opinion.

Furthermore, while recognizing the possible need of prohibition of the use of alcohol as a measure of public safety, it would ask that the two questions be considered separately on their respective merits. (See minutes, House of Delegates.)

Seconded by Dr. Torald Sollmann, Cleveland. Discussed by Drs. Samuel J. Meltzer, New York; William Benham Snow, New York; R. A. Hatcher, New York; Walter A. Bastedo, New York, and Jacob Diner, New York. Motion carried.

Dr. Cary Eggleston, New York, read a communication from the American Pharmaceutical Association moving that the members of this delegation who are not members of the Section on Pharmacology and Therapeutics be given the privilege of the floor. Motion carried

Dr. R. A. Hatcher, New York, read the following resolution:

The pharmaceutical service in the army is unsatisfactory because it is not recognized on a modern basis; there is no pharmaceutical corps devoted to the prosecutions of pharmaceutical duties. Pharmacists are compelled to enlist as privates without the hope of promotion to a commissioned rank as in the Dental and Veterinary Corps. A professionally trained pharmaceutical corps could be made invaluable to the Medical Corps as assistant both in the field and in hospitals. We earnestly urge the War Department to establish by congressional enactment a pharmaceutical corps with definite military standing and responsibilities. (See minutes, House of Delegates.)

Discussed by Drs. Torald Sollmann, Cleveland; J. F. Anderson, New Brunswick, N. J., and Fred I. Lackenbach, San Francisco.

Dr. Torald Sollmann, Cleveland, moved that the resolution be amended so that it be transmitted without an expression of opinion on the part of the section. Amendment seconded by Dr. Kirkland. Motion lost.

Original motion carried.

The following papers were read as a symposium on "Radioactive Therapeutic Measures":

Drs. Arthur Fenwick Holding and William Bayard Long, New York: "The Truth About the Therapeutic Value of Radioactive Methods," with lantern slides.

Dr. George E. Pfahler, Philadelphia: "The Possibilities and Limitations of Roentgenotherapy in Malignant Diseases," with lantern slides.

Dr. Henry K. Pancoast, Philadelphia: "Review of Cases of Sarcoma of the Throat and Sinuses Treated by Radium and Roentgen Rays."

Dr. Curtis F. Burnam, Baltimore: "New Growths of the Mediastinum, with Especial Reference to Their Treatment with Radium," with lantern slides.

Dr. Abraham G. Shortle, Albuquerque, N. M.: "Heliotherapy in the Treatment of Tuberculosis."

These five papers were discussed by Drs. William Benham Snow, New York; J. A. P. Millet, Boston; Albert Soiland, Los Angeles; C. E. Alliaume, Utica, N. Y.; George E. Pfahler, Philadelphia, and Curtis F. Burnam, Baltimore.

Thursday, June 7—Morning

The following officers were elected: chairman, Dr. Arthur D. Hirschfelder, Minneapolis; vice chairman, Dr. Walter A. Bastedo, New York; secretary, Dr. Cary Eggleston, New York; delegate, Dr. Albion W. Hewlett, San Francisco; alternate, Dr. Torald Sollmann, Cleveland.

Drs. Richard Weil and Russell L. Cecil, New York, presented a paper on "Observations on the Excretion of Dyes." Discussed by Drs. Arthur D. Hirschfelder, Minneapolis; R. A. Hatcher, New York; Fred I. Lackenbach, San Francisco; Otto Raubenheimer, Brooklyn; William Salant, Washington, D. C., and Russell L. Cecil, New York.

Dr. Walton Forest Dutton, Tulsa, Okla., read a paper on "Innovations in Intravenous Medication." Discussed by Drs. Fred I. Lackenbach, San Francisco; Torald Sollmann, Cleveland; Jacob Diner, New York; J. F. Anderson, New Brunswick, N. J.; Cary Eggleston, New York; Joseph L. Miller, Chicago; W. W. Tompkins, Charleston, W. Va.; Otto Raubenheimer, Brooklyn, and Walton Forest Dutton, Tulsa, Okla.

Dr. Joseph L. Miller, Chicago, read a paper on "The Nonspecificity of Vaccine Therapy." Discussed by Drs. Jacob Diner, Brooklyn; John F. Anderson, New Brunswick, N. J.; Abraham G. Shortle, Albuquerque, N. M.; Russell L. Cecil, New York; Torald Sollmann, Cleveland; Fred I. Lackenbach, San Francisco; Walton Forest Dutton, Tulsa, Okla.; R. G. Torrey, Philadelphia; Cleon W. Symonds, New York; W. W. Tompkins, Charleston, W. Va.; W. A. Womer, New Castle, Pa., and Joseph L. Miller, Chicago.

Dr. Newton E. Wayson, Washington, D. C., read a paper on "Prophylactic Use of Vaccines in the Great War." Discussed by Drs. Fred I. Lackenbach, San Francisco; J. F. Anderson, New Brunswick, N. J.; Herman Spitz, Nashville, Tenn.; Walton F. Dutton, Tulsa, Okla.; Carl C. Warden, Ann Arbor, Mich., and Newton E. Wayson, Washington, D. C.

Thursday, June 7—Afternoon

Dr. Arthur D. Hirschfelder, Minneapolis, read a paper on "Further Studies on the Development of Edema in Mustard Oil Conjunctivitis." Discussed by Drs. Torald Sollmann, Cleveland, and Carl Voegtlin, Washington, D. C.

Drs. Henry F. Moore and Alan M. Chesney, New York, presented a paper on "Ethyl Hydrocuprein (Optochin) in the Treatment of Acute Lobar Pneumonia." Discussed by Drs. Arthur D. Hirschfelder, Minneapolis; Rufus I. Cole, New York, and Henry F. Moore, New York.

Drs. S. Marx White and R. Edwin Morris, Minneapolis, presented a paper on "A Study of the Eggleston Method of

Administering Digitalis." Discussed by Drs. Otto Raubenheimer, Brooklyn; Carl Voegtlin, Washington, D. C.; Harold Wilson, Detroit; Cary Eggleston, New York, and S. Marx White, Minneapolis.

Dr. Cary Eggleston, New York, read a paper on "Influence of Large Doses of Digitalis and Digitoxin on the Blood Pressures in Man." Discussed by Dr. S. Marx White, Minneapolis.

SECTION ON PATHOLOGY AND PHYSIOLOGY

WEDNESDAY, JUNE 6—MORNING

The section was called to order at 9:40 by the chairman, Dr. James Ewing, New York. Dr. Ewing read the chairman's address, entitled "The Influence of the War on Medical Science."

Dr. Dallas B. Phemister, having been called to the colors, was not present to read his paper, on "The Manner in Which Ossification Occurs in Different Pathologic Processes." It was directed that a minute be entered noting the cause of his absence.

Dr. W. Landram McFarland, New York, read a paper on "The Pigmentation of the Hind Gut: Its Clinical Significance." Discussed by Drs. R. A. Lambert, New York; Alfred F. Hess, New York; James Ewing, New York; John W. Draper, New York; J. M. Lynch, New York, and W. Landram McFarland, New York.

Dr. William Salant, Washington, D. C., read a paper on "The Importance of Diet as a Factor in the Production of Pathologic Changes." Discussed by Dr. Robert A. Hatcher, New York; Alfred F. Hess, New York, and William Salant, Washington, D. C.

Dr. W. M. L. Coplin, Philadelphia, read a paper on "Defective Angiogenesis as a Factor in the Production of Primary Renal Aplasia, Hypoplasia and Dysplasia." Discussed by Drs. James Ewing, New York, and W. M. L. Coplin, Philadelphia.

WEDNESDAY, JUNE 6—AFTERNOON

The chairman announced that in the evening at 9 o'clock, on the eighth floor of the Hotel Astor, an examination would be held for applicants for the Aviation Corps, at which time twenty-five men would be examined, affording an opportunity to see the application of the rather unique tests required.

Drs. J. H. Black and R. B. McBride, Dallas, Texas, presented a paper on "The Colloidal Gold Chlorid Test: The Nature of the Solution and Its Application to Diseases of the Central Nervous System."

Dr. Lloyd D. Felton, Baltimore, read a paper on "Cerebrospinal Fluid and the Colloidal Gold Chlorid Test."

These two papers were discussed by Drs. L. H. Cornwall, New York; S. S. Hindman, Toledo, Ohio; A. M. Moody, Chicago; J. H. Black, Dallas, Texas, and Lloyd D. Felton, Baltimore.

Dr. Carl C. Warden, Ann Arbor, Mich., read a paper on "The Nature of the Syphilitic Antigen." No discussion.

Drs. P. T. Bohan and L. A. Lynch, Kansas City, Mo., presented a paper on "A More Delicate Wassermann Reaction Depending on the Use of Larger Quantities of Blood Serum." Discussed by Drs. Benjamin Gruskin, Chicago; J. W. Smith, Jr., New York; S. S. Hindman, Chicago; James Ewing, New York, and L. A. Lynch, Kansas City, Mo.

Dr. Albert J. Hodgson, Waukesha, Wis., read a paper on "Clinical Evidence of Distinct Types in the Pathology of Diabetes Mellitus." Discussed by Drs. E. P. Joslin, Boston, and A. J. Hodgson, Waukesha, Wis.

THURSDAY, JUNE 7—MORNING

Dr. Harry Dubin, Philadelphia, read a paper on "The Relation Between Bile and Phenol Production in the Intestine." Discussed by Drs. I. O. Palefski, New York, and Harry Dubin, Philadelphia.

Dr. R. B. Gradwohl, St. Louis, read a paper on "A Comparison of the Chemical Findings in Blood and Spinal Fluid, with Special Reference to Urea Nitrogen, Uric Acid, Creatinin and Sugar." Discussed by Drs. Jerome S. Leopold, New York; Ernest Bishop, New York, and R. B. H. Gradwohl, St. Louis.

Dr. Louis F. Bishop, New York, read a paper on "The Pathologic Physiology of the Heart as Revealed by the Polygraph and Electrocardiograph." No discussion.

Dr. W. G. MacCallum, New York, read a paper on "An Apparatus for the Study of Dissociation of Oxyhemoglobin." No discussion.

Drs. Isaac Levin and B. Joseph, New York, presented a paper on "The Morphologic Appearance of Cancer Clinically Cured by Means of Radium and Roentgen Rays." Discussed by Drs. Henry Schmitz, Chicago; Albert Woelfel, Chicago; James Ewing, New York, and Isaac Levin, New York.

Dr. Louis B. Wilson, Rochester, Minn., read a paper on "Experimental Lesions in the Cervical Sympathetic Ganglions and Thyroids of Goats." Discussed by Drs. S. B. Wolbach, Boston, and Louis B. Wilson, Rochester, Minn.

Dr. S. Frederic Coonley and Stanley L. Wang, New York, presented a paper on "The Occurrence of Tubercle Bacilli in the Breast Milk of Tuberculous Women." No discussion.

THURSDAY, JUNE 7—AFTERNOON

The following officers were elected: chairman, Dr. Louis B. Wilson, Rochester, Minn.; vice chairman, Dr. Francis Carter Wood, New York; secretary, Isabella C. Herb, Chicago.

Dr. Eli Moschowitz, New York, read a paper entitled "A Critique of Banti's Disease." No discussion.

Dr. Edward C. Rosenow, Rochester, Minn., read a paper on "Immunologic Studies in Poliomyelitis." Discussed by Drs. Myer Solis Cohen, Philadelphia; C. G. Bull, New York; J. M. Rosenthal, Philadelphia, and Edward C. Rosenow, Rochester, Minn.

Dr. John Saliba, Elizabeth City, N. C., read a paper on "Ether Therapy in Surgical Infections and Its Effect on Immunity." No discussion.

Dr. S. B. Wohlbach, Boston, read a paper on "The Etiology and Pathology of Rocky Mountain Spotted Fever." Discussed by Drs. Louis B. Wilson, Rochester, Minn., and S. B. Wohlbach, Boston.

Dr. William Litterer, Nashville, Tenn., read a paper on "Study of the Streptothrix Isolated in Two Cases of Rat-Bite Fever." No discussion.

FRIDAY, JUNE 8—MORNING

A joint meeting was held with the Section on Surgery, General and Abdominal. For a report of the proceedings, see the minutes of that section.

SECTION ON STOMATOLOGY

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order at 9:45 a. m. by the chairman, Dr. Arthur D. Black, Chicago.

The following papers were read as a symposium on "The Principles Involved in Chronic Mouth Infections in Their Relation to General Diseases":

Dr. Arthur D. Black, Chicago: "Roentgenographic and Microscopic Studies of the Tissues Involved in Chronic Mouth Infections" (Chairman's Address).

Discussed by Drs. T. L. Gilmer, Chicago; G. O. Mills, New York; John E. Nyman, Chicago; E. T. R. Rhein, New York; Arthur Zentler, New York; Augustus S. Dowling, and Louis Goldstine, New York.

Dr. Kurt H. Thoma, Boston: "Chronic Diseases of the Mouth of Interest to both Physician and Dentist."

Meyer L. Rhein, New York: "The Retention of Devitalized Teeth Without Danger of Focal Infection."

These two papers were discussed by Drs. G. O. Mills, New York; Morris I. Schamberg, New York; T. W. Brophy, Chicago; Louis Goldstine, New York; Frederick B. Moorehead, Chicago; Arthur Zentler, New York; Meyer L. Rhein, New York; Kurt H. Thoma, Boston, and Arthur D. Black, Chicago.

Dr. William C. Fisher, New York, proposed the following resolution, which was carried:

To the House of Delegates: The following resolutions were passed by the Section on Stomatology and were recommended to your body for favorable consideration:

Resolved, That applicants for associate fellowship in the American Medical Association holding the degree of D.D.S. or its equivalent and members of their local county or state dental organizations before their application is approved by the section must be considered by the executive committee of the section and must be endorsed by at least two members of this executive committee as having attained to a position in the dental profession, either by virtue of original research work done or some meritorious service rendered to the profession or public which shall, in the judgment of these members of the executive committee of the section, warrant favorable action on the application. (See minutes, House of Delegates.)

Wednesday, June 6—Afternoon

The meeting was called to order at 2 p. m. by the chairman, Dr. Arthur D. Black, Chicago.

The following officers were elected: chairman, Dr. Frederick B. Noyes, Chicago; vice chairman, Dr. Henry S. Dunning, New York; secretary, Dr. Eugene S. Talbot, Chicago; delegate, Dr. William C. Fisher, New York; Executive Committee, Thomas L. Gilmer, Chicago, and Frederick B. Moorehead, Chicago.

The secretary, Dr. E. E. S. Talbot, Chicago, presented a number of applications for membership which were referred to the Executive Committee for investigation and report.

The secretary was directed to forward a letter of good wishes to Vice Chairman Henry S. Dunning, in France.

The following papers were read as a symposium on "Cancer of the Oral Cavity":

Dr. L. Duncan Bulkley, New York: "Epithelioma or Cancer of the Oral Cavity."

Drs. John W. Bransfield and George M. Dorrance, Philadelphia: "Treatment of Cancer of the Mouth by Electrical Cautery, With or Without Operative Measures."

These two papers were discussed by Drs. Joseph C. Bloodgood, Baltimore; Morris I. Schamberg, New York; Vilray P. Blair, St. Louis; Louis C. LeRoy, New York; M. C. Smith, Lynn, Mass.; Thomas L. Gilmer, Chicago; Frederick B. Moorehead, Chicago; L. Duncan Bulkley, New York; George M. Dorrance, Philadelphia, and Arthur D. Black, Chicago.

Dr. Joseph M. Levy, New York, read a paper on "Preliminary Report of Investigations as to the Frequency of Metastatic Eye Infections from Primary Dental Foci." Discussed by Drs. Meyer L. Rhein, New York; Morris I. Schamberg, New York; James Kelsey, Erie, Pa.; G. V. I. Brown, Milwaukee, Wis., and Joseph M. Levy, New York.

Thursday, June 7—Afternoon

Dr. John B. Roberts, Philadelphia, read a paper on "A Composite Osteoplastic Closure of Clefts of the Hard Palate." Discussed by Drs. George V. I. Brown, Milwaukee, Wis.; T. W. Brophy, Chicago, and John B. Roberts, Philadelphia.

Dr. Morris I. Schamberg, New York, read a paper on "Bone Surgery as Applied to the Jaws, with Special Reference to Bone Regeneration."

Dr. T. W. Brophy, Chicago, introduced a patient with cleft palate.

Dr. George V. I. Brown, Milwaukee, Wis., read a paper on "A New Operation for the Immediate Surgical Separation of the Superior Maxillary Bones to Widen the Nares for the Improvement of Respiratory and Other Conditions."

These two papers were discussed by Drs. John B. Roberts, Philadelphia; F. L. Stanton, New York; R. E. Mercer, New York; T. W. Brophy, Chicago, and George V. I. Brown, Milwaukee, Wis.

Dr. W. Wayne Babcock, Philadelphia, read a paper on "'Soup Bone' Implants for the Correction of Defects of the Skull and Face." Discussed by Drs. George V. I. Brown, Milwaukee, Wis.; T. W. Brophy, Chicago; W. J. Younger, Paris; C. B. Cortright, Brooklyn; Morris I. Schamberg, New York, and W. Wayne Babcock, Philadelphia.

Dr. William C. Fisher reported the adoption by the House of Delegates of the resolution passed by the section on the preceding day.

SECTION ON NERVOUS AND MENTAL DISEASES

Wednesday, June 6—Morning

The meeting was called to order by the chairman, Dr. Bernard Sachs, New York.

Dr. Bernard Sachs, New York, read the chairman's address, entitled "The Truth About Intraspinal Injections in the Treatment of Syphilis of the Nervous System."

Dr. Bernard Sachs, chairman, said that it seemed advisable to the section yesterday, in the report to the Council of Scientific Assembly, that among other sections, the neurologic section was to be reduced to three units in any given meeting, and not to exceed six papers in any given unit. Dr. Sachs said the reduction from five units to three would materially restrict the program. He would ask that a resolution be drawn up to be presented at the next meeting.

Dr. C. R. Ball, St. Paul, moved that an energetic protest be made against reduction of the section to three units.

Dr. C. F. MacDonald, New York, seconded this motion, which was unanimously carried after being discussed by Dr. G. A. Moleen, Denver, and Dr. Bernard Sachs, New York.

Dr. C. R. Ball moved that a committee of five be appointed to draw up an energetic protest to present to the House of Delegates against any reduction of the units of the section. This motion was carried after being discussed by Dr. W. A. Jones, Minneapolis; Dr. Bernard Sachs, New York; Dr. A. L. Skoog, Kansas City, Mo., and Dr. Woodson, Cincinnati.

The chairman then appointed a committee consisting of Dr. J. Ramsay Hunt, New York; Dr. C. R. Ball, St. Paul; Dr. Peter Bassoe, Chicago; Dr. H. T. Patrick, Chicago, and Dr. Adolf Meyer, Baltimore, to draw up a protest to present to the House of Delegates. (Communication not received by House of Delegates).

Dr. Pearce Bailey, New York, addressed the meeting on the subject of "Neurologic and Psychiatric Units for Army and Navy Hygiene." Dr. W. I. Wolfstein, Cincinnati, suggested the advisability of distributing literature to the section on the subject.

Dr. Adolf Meyer, Baltimore, read a paper on "Progress in Psychiatric Teaching." Discussed by Drs. Ernest Zueblin, Cincinnati; Tom A. Williams, Washington, D. C., and Adolf Meyer, Baltimore.

Dr. Owen Copp, Philadelphia, read a paper on "State Organization for Mental Hygiene." Discussed by Drs. Adolf Meyer, Baltimore; E. E. Mayer, Pittsburgh, and Leo M. Crafts, Minneapolis.

A joint meeting was held with the Section on Obstetrics, Gynecology and Abdominal Surgery. For a report of the proceedings, see the minutes of that section.

Wednesday, June 6—Afternoon

Dr. David I. Wolfstein, Cincinnati, read a paper on "Hysterical Lethargy." Discussed by Drs. H. T. Patrick, Chicago; T. Diller, Pittsburgh; Joseph Collins, New York; D. S. Booth, St. Louis; Tom A. Williams, Washington, D. C.; Charles W. Kidder, Woodstock, Vt.; H. I. Gosline, Trenton, N. J., and David I. Wolfstein, Cincinnati.

Dr Francis R. Fry, St. Louis, read a paper on "The Neurasthenic at the Threshold."

Dr. Theodore Diller, Pittsburgh, read a paper entitled "The Psychoneuroses: How Shall We Look on Them Today?"

Dr. Edward E. Mayer, Pittsburgh, read a paper on "The Medicolegal Problems of the Traumatic Neuroses."

These three papers were discussed by Drs. H. T. Patrick, Chicago; D. S. Booth, St. Louis; Alfred Gordon, Philadelphia; A. W. Ives, Detroit; D. I. Wolfstein, Cincinnati; Tom A. Williams, Washington, D. C.; A. L. Skoog, Kansas City, Mo.; C. R. Woodbury, Clifton Springs, N. Y.; C. Woodson, Cincinnati; Bernard Sachs, New York; Theodore Diller, Pittsburgh, and E. E. Mayer, Pittsburgh.

Dr. Alfred Gordon, Philadelphia, read a paper on "Psychoses Other than Paretic Dementia in Syphilitic Individuals." Discussed by Drs. E. E. Mayer, Pittsburgh;

C. Woodson, Cincinnati; C. R. Ball, St. Paul, and Alfred Gordon, Philadelphia.

THURSDAY, JUNE 7—MORNING

Dr. Leo M. Crafts, Minneapolis, read a paper on "The Early Recognition of Multiple Sclerosis, with Report of Twelve Cases." Discussed by Drs. A. L. Skoog, Kansas City; E. E. Mayer, Pittsburgh; C. R. Ball, St. Paul; D. I. Wolfstein, Cincinnati; G. A. Moleen, Denver; Bernard Sachs, New York; F. R. Starkey, Detroit; Hayes Woods, Canton, China; E. D. Fisher, New York, and L. M. Crafts, Minneapolis.

Dr. George Wilson, Philadelphia, read a paper on "Progressive Muscular Atrophy: Charcot-Marie-Tooth Type." Discussed by Drs. Bernard Sachs, New York; W. A. Jones, Minneapolis, and Peter Bassoe, Chicago.

Dr. Simon P. Goodhart, New York, read a paper on "Metabolism of Muscular Dystrophy." Discussed by Drs. Janney, New York, and Leo M. Crafts, Minneapolis.

Dr. Edward D. Fisher, New York, read a paper on "Report of a Case of Syringomyelia with Operation: The Difference Between It and Amyotrophic Lateral Sclerosis." Discussed by Drs. M. Neustaedter, New York; Isador Abrahamson, New York, and E. D. Fisher, New York.

Dr. Nathaniel S. Yawger, Philadelphia, read a paper on "Familial Head Nystagmus in Four Generations, Associated with Ocular Nystagmus." Discussed by Dr. Isador Abrahamson, New York.

THURSDAY, JUNE 7—AFTERNOON

The following officers were elected: chairman, Dr. Charles Eugene Riggs, St. Paul; vice chairman, Dr. Charles W. Hitchcock, Detroit; delegate, G. A. Moleen, Denver; alternate, C. R. Ball, St. Paul.

Dr. Andrew L. Skoog, Kansas City, Mo., read a paper on "Cerebrospinal Fluid Pressure." Discussed by Drs. William A. Leszynsky, New York, and Andrew L. Skoog, Kansas City, Mo.

Dr. George W. Hall, Chicago, read a paper on "Organic Changes in the Central Nervous System, Due to Probable Focal Infections." Discussed by Dr. H. T. Patrick, Chicago; Munro, North Carolina, and George W. Hall, Chicago.

Dr. Israel Strauss, New York, read a paper on "Sciatica and Its Treatment." Discussed by Drs. William Leszynsky, New York; C. R. Ball, St. Paul; H. T. Pershing, Denver; Tom Williams, Washington, D. C.; D. I. Wolfstein, Cincinnati; H. T. Patrick, Chicago, and Israel Strauss, New York.

Drs. Isador Abrahamson and Hyman Climenko, New York, presented a paper on "Pituitary Disease: Study of One Hundred Cases." Discussed by Drs. Walter Timme, New York; D. I. Wolfstein, Cincinnati, and Isador Abrahamson, New York.

Drs. Marcus Neustaedter and E. Banzhaf, New York, presented a paper on "The Antipoliomyelitis Horse Serum." No discussion.

Dr. Howell T. Pershing, Denver, read a paper on "Persistent Treatment of Epilepsy." Discussed by Drs. L. P. Clark, New York; W. J. Dawson, Eldridge, Calif.; W. H. Kidder, Oswego, N. Y.; N. Pashayan, Schnectady, N. Y.; Leo M. Crafts, Minneapolis; E. D. Fisher, New York, and Howell T. Pershing, Denver.

The following resolution was passed:

The members of the Section on Nervous and Mental Diseases wish to express themselves as strongly opposed to any curtailment of the official time which has heretofore been allotted for the work of the section.

It is believed that this section, by reason of the scope and diversity of subjects represented, is second only in importance to the Section on the Practice of Medicine and the Section on Surgery. It includes not only the large field of nervous diseases and psychiatry, but also the special developments of neuropathy, psychopathology and neurologic surgery. It is also concerned with many essential problems, such as mental hygiene and mental defectives, criminal psychology and other subjects of great economic importance.

Furthermore, we would emphasize the fact that there is never any dearth of material for presentation at the meetings of this section; indeed, it is frequently necessary because of the limitations of the program to refuse meritorious papers.

If, however, for editorial reasons it should be deemed advisable to select only certain papers from the program for publication in THE JOURNAL, the members of this section would acquiesce very cordially in any such revision.

If the time heretofore allotted to the Section on Nervous and Mental Diseases should be curtailed, in spite of the earnest protest of its members, it would then become necessary to form an additional section in order to meet the requirements of this important field.

We believe that such a division would be unfortunate and that all subjects relative to the nervous system should receive consideration under the one head. [Not transmitted to House of Delegates.]

FRIDAY, JUNE 8—MORNING

A joint meeting was held with the Section on Diseases of Children and the Section on Orthopedic Surgery. For the proceedings, see the minutes of the Section on Orthopedic Surgery.

SECTION ON DERMATOLOGY

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order at 9:15 a. m. by the chairman, Dr. Henry R. Varney, Detroit.

Dr. Henry R. Varney, Detroit, read the chairman's address, entitled "The Hospital Opportunities and Responsibilities for the Syphilitic."

The following papers were read as a symposium on "The Economic Importance and Teaching of Syphilis":

Dr. John A. Fordyce, New York: "The Teaching of Syphilis."

Dr. C. Morton Smith, Boston: "The Teaching of Syphilis."

Dr. Walter J. Heimann, New York: "The Teaching of Syphilis."

Dr. Henry H. Hazen, Washington, D. C., read an abstract prepared by Major Mathew A. Reasoner of points which were to have been covered in the promised joint paper by Major Henry J. Nichols, Fort Bliss, Texas, and Major Mathew A. Reasoner, Washington, D. C., entitled "The Economic Importance of Syphilis."

These three papers and the abstract were discussed by Drs. Harry G. Irvine, Minneapolis; Augustus Ravogli, Cincinnati; Frank Edward Simpson, Chicago; Thomas W. Murrell, Richmond, Va.; Jay F. Schamberg, Philadelphia; Harold N. Cole, Cleveland; James Herbert Mitchell, Chicago; Isadore Rosen, New York; Franklin W. Cregor, Indianapolis; John H. Stokes, Rochester, Minn.; Boleslaw Lapowski, New York; John A. Fordyce, New York; C. Morton Smith, Boston, and Walter J. Heimann, New York.

Drs. Jay Frank Schamberg, John A. Kolmer and George W. Raiziss, Philadelphia, presented a paper on "A Study of the Manner in Which Mercury Is Absorbed When Administered by Inunction." Discussed by Drs. Boleslaw Lapowski, New York; William A. Pusey, Chicago, and Jay Frank Schamberg, Philadelphia.

Dr. Henry H. Hazen, Washington, D. C., made an explanatory statement in relation to steps to abrogate the United States patents on salvarsan. Dr. Jay Frank Schamberg, Philadelphia, explained action taken by the United States government in 1862 with reference to enemy patents. On motion the subject was passed for consideration at the afternoon session.

The chairman appointed the following Nominating Committee: Drs. F. G. Harris, Chicago; George M. MacKee, New York, and Howard Morrow, San Francisco.

WEDNESDAY, JUNE 6—AFTERNOON

The following officers were elected: chairman, Dr. Henry H. Hazen, Washington, D. C.; vice chairman, Dr. Ernest Dwight Chipman, San Francisco; secretary, Dr. Walter J. Heimann, New York.

The question of the abrogation of the United States patent on salvarsan, laid over during the forenoon, was discussed by Drs. C. Augustus Simpson, Washington, D. C.; Henry H. Hazen, Washington, D. C.; Sigmund Pollitzer, New York, and William A. Pusey, Chicago. On motion of Dr. C. Augustus Simpson (amended by Dr. William A. Pusey) the following resolution was passed:

Resolved, That it is the sense of the Section on Dermatology of The American Medical Association, which is representative of the American medical profession in the treatment of syphilis, that the United States patents on salvarsan be abrogated. (Not transmitted to House of Delegates.).

The following papers were read as a symposium on "Neoplasms":

Dr. J. Frank Fraser, New York: "Mycosis Fungoides: A Study of Seven Cases."

Dr. Harold N. Cole, Cleveland: "The Skin Changes in Hodgkin's Disease."

Dr. Fred Wise, New York: "Lymphadenosis Cutis Universalis, Associated with Generalized Erythrodermia and Atrophy of the Skin."

These three papers were discussed by Drs. Henry H. Hazen, Washington, D. C.; Adam Kemble, Washington, D. C.; Sigmund Pollitzer, New York, and Walter J. Heimann, New York.

Dr. Samuel E. Sweitzer, Minneapolis, read a paper on "An Analysis of Forty-One Cases of Skin Cancer." Discussed by Drs. Fred Wise, New York; Everett S. Lain, Oklahoma City; Walter J. Heimann, New York; Shepherd; J. C. Bateson, Scranton, Pa.; F. G. Harris, Chicago; Harold N. Cole, Cleveland; L. B. Mount, Albany, N. Y.; James M. King, Nashville, Tenn.; Franklin W. Cregor, Indinapolis; Henry H. Hazen, Washington, D. C., and Compton, Washington, D. C.

Drs. Joseph Zeisler and Erwin Paul Zeisler, Chicago, presented a paper on "Primary Nonpigmented Sarcoma of the Skin." Discussed by Dr. George M. MacKee, New York.

Dr. Augustus Ravogli, Cincinnati, read a paper on "Clinical Considerations on Epidermolysis Bullosa." Discussed by Drs. Harold N. Cole, Cleveland; Shepherd; William A. Pusey, Chicago; Frank E. Simpson, Chicago, and Augustus Ravogli, Cincinnati.

THURSDAY, JUNE 7—FORENOON

The supplemental report of the Nominating Committee was presented, and Dr. Sigmund Pollitzer, New York, was elected delegate and Dr. John A. Fordyce, New York, alternate.

Dr. Howard Morrow, San Francisco, read a paper on "The Treatment of Impetigo Contagiosa." Discussed by Drs. John E. Lane, New Haven, Conn.; W. C. Brownson, Asheville, N. C.; McConnell, New York; Samuel E. Sweitzer, Minneapolis; Everett S. Lain, Oklahoma City, and Harold N. Cole, Cleveland.

Dr. George Manghill Olson, Minneapolis, read a paper on "Argyria Localis Due to Organic Silver Preparations." Discussed by Drs. William A. Pusey, Chicago, and William B. Trimble, New York.

Dr. C. Augustus Simpson, Washington, D. C., read a paper on "Primrose Dermatitis: Its Relationship to Anaphylaxis." Discussed by Dr. Philip Kilroy, Springfield, Mass.; Walter J. Heimann, New York, and William A. Pusey, Chicago.

Dr. John E. Lane, New Haven, Conn., read a paper on "Perlèche." Discussed by Drs. Harold N. Cole, Cleveland; William A. Pusey, Chicago; Philip Kilroy, Springfield, Mass.; George Manghill Oleson, Minneapolis, and W. C. Brownson, Asheville, N. C.

On motion of Dr. F. G. Harris, Chicago, the following resolution was adopted unanimously by rising vote:

Resolved, That a vote of thanks be given to the local clinical committee expressing our appreciation of their excellent clinic and their other cordial hospitalities.

On behalf of the local clinical committee, Dr. Walter J. Heimann made graceful acknowledgment, in the absence, as he said, of Dr. Howard Fox.

The newly elected chairman and secretary were inducted into office, and after their brief speeches of acceptance, the section adjourned.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order at 9:25 by the chairman, Dr. Otto P. Geier, Cincinnati.

In the absence of Dr. A. M. Harvey, Chicago, secretary, the chairman under authority conferred by motion, duly passed, appointed Dr. D. B. Lowe, Akron, Ohio, temporary secretary.

Dr. Otto P. Geier read the chairman's address, entitled "Adequate Medical Service of the Future." Discussed by Mr. Lee K. Frankel, New York, and Dr. Joseph Goldberger, Washington, D. C.

Dr. Henry M. Bracken, Minneapolis, read and moved the adoption of the following resolutions:

WHEREAS, Preventive medicine is of growing importance;

WHEREAS, The Section on Preventive Medicine and Public Health of the American Medical Association brings men who are interested more especially in public health work to its meetings, and

WHEREAS, The treatment of special subjects relating to preventive medicine requires concentration as to time; therefore, be it

Resolved, That the Section on Preventive Medicine and Public Health, through its representatives in the House of Delegates, hereby requests that its work at the annual sessions of the American Medical Association be extended to six units, and that it be permitted to hold its meetings each day until the work is completed. (See minutes, House of Delegates.)

Dr. W. S. Rankin, Raleigh, N. C., seconded the motion; Dr. William C. Rucker, Washington, D. C., offered an amendment that a committee of three be appointed to present the resolutions before the House of Delegates; the resolutions with the proposed amendment were favorably discussed by Drs. S. S. Goldwater, New York; Haven Emerson, New York, and Otto P. Geier, Cincinnati, and adopted; whereupon the chairman appointed as such committee Drs. Bracken, Rankin and Rucker.

Dr. W. S. Rankin, Raleigh, N. C., read a paper on "The New Public Health." Discussed by Drs. Henry M. Bracken, Minneapolis; William C. Rucker, Washington, D. C., and Arthur T. McCormack, Bowling Green, Ky.

Dr. David L. Edsall, Boston, read a paper on "The Diagnostic Clinic as a Factor in Higher Standards of Medical Practice." Discussed by Drs. Otto P. Geier, Cincinnati; Roger S. Morris, Cincinnati; Robert Pollock, San Diego, Calif., and Mr. S. I. Dublin, New York.

The paper of Dr. Sidney M. McCurdy, Youngstown, Ohio, on "The Industrial Dispensary as a Contribution to Public Health" was read by Dr. William C. Rucker, Washington, D. C. Discussed by Dr. George M. Kober, Washington, D. C.

Dr. John Newell Hurty, Indianapolis, read a paper on "The All-Day School Dispensary in the Prevention of Disease." Discussed by Drs. Taliaferro Clark, Washington, D. C.; J. C. Palmer, Syracuse, N. Y.; Herman N. Bundesen, Chicago; John Newell Hurty, Indianapolis, and Otto P. Geier, Cincinnati.

WEDNESDAY, JUNE 6—AFTERNOON

The meeting was called to order at about 2:15 by the chairman, Dr. Otto P. Geier, Cincinnati.

The chairman appointed Drs. Henry M. Bracken, Minneapolis; C. E. Ford, New York, and B. S. Warren, Washington, D. C., a nominating committee, to report on Thursday.

Prof. Irving Fisher, New Haven, Conn., delivered an address on "The Need for Compulsory Health Insurance." Discussed by Drs. Herbert J. Cronin, Cambridge, Mass., and E. F. Cody, New Bedford, Mass.

Mr. Frederick L. Hoffman, Newark, N. J., read a paper on "Facts and Fallacies of Compulsory Sickness Insurance." Discussed by Drs. Eden V. Delphey, New York; Aaron Grover Baldwin, East Orange, N. J.; L. W. Zwisohn, New York, and George W. Everson, Brooklyn.

The paper of Mr. M. W. Alexander, West Lynn, Mass., on "The Industrial Aspect" was read by Dr. C. D. Shelby, Toledo, Ohio. Discussed by Dr. Henry W. Berg, New York.

These three papers were then discussed by Drs. Gordon A. Bates, Toronto, Canada, and William S. Gottheil, New York, the latter moving the adoption of the following resolution:

Resolved, That after full discussion and careful consideration of the subject, the Section on Preventive Medicine and Public Health of the American Medical Association hereby instructs its delegate to the House of Delegates of the American Medical Association to oppose the scheme for compulsory health insurance in every way possible.

Seconded. Discussed by Drs. L. I. Harris, New York; Otto P. Geier, Cincinnati; Henry M. Bracken, Minneapolis. A motion by Dr. Otto P. Geier, Cincinnati, to amend by addi-

tion of the words "We protest against the ill considered action of the House of Delegates in approving the health insurance bill at this time, and that they be asked to reconsider their action, and postpone action until further study," seconded by Dr. Eden V. Delphey, New York, and discussed by Drs. Edward L. Spitzer, New York; B. S. Warren, Washington, D. C.; Henry W. Berg, New York; Henry M. Bracken, Minneapolis and others, was lost; whereupon the original motion and the general subject were discussed by Drs. John P. Davin and L. I. Harris, New York; M. L. Harris, Chicago; Henry W. Berg, New York; G. W. Schereschewsky, Pittsburgh; Eden V. Delphey, New York; Edward L. Spitzer, New York; B. S. Warren, Washington, D. C., and W. S. Rankin, Raleigh, N. C. A motion to table was lost by a vote of 20 ayes to 24 noes, and the original motion on the resolution as read was adopted.

THURSDAY, JUNE 7—MORNING

The meeting was called to order at 9:35 by the chairman, Dr. Otto P. Geier, Cincinnati.

Dr. Franklin H. Martin, Chicago, read a paper on "Preparations for Public Health During War." Discussed by Col. H. J. Goodwin, British Army; Drs. Otto P. Geier, Cincinnati; William C. Rucker, Washington, D. C.; John T. Nagle, New York; S. W. Welch, Montgomery, Ala.; H. C. Coe, New York, and Herman N. Bundesen, Chicago.

Dr. W. Irving Clark, Jr., Worcester, Mass., read a paper on "The Protection of the Health of the Worker in War."

The following officers were elected: chairman, Dr. W. S. Rankin, Raleigh, N. C.; vice chairman, Dr. Haven Emerson, New York; secretary (for three years), Dr. Don B. Lowe, Akron, Ohio; delegate, Dr. Otto P. Geier, Cincinnati; alternate, Dr. C. St. Clair Drake, Springfield, Ill.; Executive Committee, Drs. Otto P. Geier, Cincinnati; William C. Rucker, Washington, D. C., and C. Hampson Jones, Baltimore.

Dr. H. C. Coe, New York, read a paper on "The Medical Student as a Medicomilitary Cadet."

Dr. W. S. Rankin, Raleigh, N. C., offered the following resolution:

WHEREAS, The protection of the national health is a matter of paramount importance, particularly at the present time; and

WHEREAS, To accomplish this it is necessary that there be a close communication of all health agencies of the nation, the states and the municipalities; therefore, be it

Resolved, That the Section on Preventive Medicine and Public Health urges the House of Delegates to memorialize Congress, to the end that Senate Joint Resolution No. 63 be speedily enacted into law. (See minutes, House of Delegates.)

Seconded and adopted.

The paper by Dr. H. C. Coe was discussed by Drs. David L. Edsall, Boston, and Francis E. Fronczak, Buffalo.

The paper by Dr. W. Irving Clark, Jr., was discussed by Drs. John R. Williams, Rochester, N. Y.; David L. Edsall, Boston; T. R. Crowder, Chicago; G. W. Schereschewsky, Pittsburgh; Oscar F. Dowling, New Orleans; Herbert J. Cronin, Cambridge, Mass.; R. W. Corwin, Pueblo, Colo; W. Irving Clark, Jr., Worcester, Mass., and Otto P. Geier, Cincinnati.

THURSDAY, JUNE 7—AFTERNOON

The meeting was called to order at 2:15 by the chairman, Dr. Otto P. Geier, Cincinnati.

Dr. W. W. Peter, Shanghai, China, read a paper on "Some Aspects of the Public Health in China." Discussed by Drs. F. J. Tooker, China and New York; Rowland G. Freeman, New York; Haven Emerson, New York; N. W. Brown, Nanking, China, and W. W. Peter, Shanghai, China.

Dr. D. B. Armstrong, Framingham, Mass., read a paper on "Community Health and Tuberculosis Demonstration." Discussed by Drs. S. Adolphus Knopf, New York; D. B. Armstrong, Framingham, Mass.; Morris Hirschberg, New York, and Haven Emerson, New York.

Dr. A. F. Hess, New York, read a paper on "Prophylactic Therapy of Rickets in a Negro Community." Discussed by Drs. Haven Emerson, New York; J. Sobel, New York, and A. F. Hess, New York.

Dr. Haven Emerson, New York, moved the adoption of the following resolution:

Having heard the report of the beginnings of a public health education movement in China initiated by the National Medical Association, the China Medical Missionary Association and the Young Men's Christian Association, be it

Resolved, By the Section on Preventive Medicine and Public Health that this section express its sympathetic interest in the joint activities of these bodies and a hope that their work will stimulate the Chinese people to the task of conserving their national health. [Not transmitted to House of Delegates.]

Seconded and carried.

Dr. R. W. Corwin, Pueblo, Colo., read a paper on "Health: Preparedness in Time of Peace or When in Health." No discussion.

Dr. J. H. Mason Knox, Baltimore, read a paper on "The Place of Infant Welfare in an Institution of Hygiene." Discussed by Drs. William Welch, Baltimore; William T. Chapin, New York; Rowland G. Freeman, New York; A. F. Hess, New York, and J. H. Mason Knox, Baltimore.

SECTION ON GENITO-URINARY DISEASES

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order by the vice chairman, Dr. Carl L. Wheeler, Lexington, Ky., at 9:30.

Drs. Frederick W. Robbins and Frank C. Scabury, Detroit, presented a paper on the "Treatment of Chancroids." Discussed by Drs. Noah E. Aronstam, Detroit; Herman L. Kretschmer, Chicago; Charles W. Bethune, Buffalo; B. S. Barringer, New York; J. L. Boogher, St. Louis; G. G. Smith, Boston; Irwin E. Colgin, Waco, Texas, and Frederick W. Robbins, Detroit.

Dr. Anton G. Rytina, Baltimore, read a paper on "Clinical Consideration of Verumontanum Diseases Based on Histopathology." Discussed by Drs. C. M. Harpster, Toledo; J. B. Cross, Buffalo; O. S. Lowsley, New York; Leo Buerger, New York; Theodore Baker, Pittsburgh; R. H. Herbst, Chicago, and Anton G. Rytina, Baltimore.

Dr. Eugene Fuller, New York, read a paper on "External Urethrotomy and Seminal Vesiculotomy Combined in a Single Operative Procedure." Discussed by Drs. E. O. Smith, Cincinnati; R. H. Gibbons, New York, and Engene Fuller, New York.

Dr. Edward G. Ballenger, Atlanta, Ga., showed moving pictures of various genito-urinary operations and procedures.

WEDNESDAY, JUNE 6—AFTERNOON

Dr. George G. Smith, Boston, read a paper on "Bladder Disturbances Due to Nerve Lesions." Discussed by Drs. W. C. Quinby, Boston; Bransford Lewis, St. Louis; John T. Geraghty, Baltimore; J. L. Boogher, St. Louis; Martin Krotoszyner, San Fransisco; W. F. Braasch, Rochester, Minn.; Edward L. Keyes, Jr., New York; Charles W. Bethune, Buffalo; Winfield Ayres, New York, and George C. Smith, Boston.

Dr. Bransford Lewis, St. Louis, read a paper on "Vesical Diverticula: Operation in Two Cases, with Remarks on Technic."

Dr. John T. Geraghty, Baltimore, read a paper on "A Study of the Results of Treatment of Various Types of Bladder Tumors."

Dr. Benjamin S. Barringer, New York, read a paper on "Radium Treatment of Bladder and Prostatic Carcinoma."

These three papers were discussed by Drs. Edward L. Keyes, Jr., New York; W. F. Braasch, Rochester, Minn.; G. G. Smith, Boston; Leo Buerger, New York; Martin Krotoszyner, San Francisco; W. C. Quinby, Boston; Bransford Lewis, St. Louis; John T. Geraghty, Baltimore, and B. S. Barringer, New York.

THURSDAY, JUNE 7—MORNING

The secretary read the resolution adopted by the House of Delegates in regard to the number of units for each section. He said he did not think, from his experience while secretary,

that three units, with a maximum of eighteen papers, would be sufficient, and he felt that there should be at least four units.

Dr. H. A. Fowler, Washington, D. C., offered the following resolution:

Believing that the action recently taken by the House of Delegates whereby the number of units of the program of the Section on Genito-Urinary Diseases has been reduced to three is insufficient for the needs of the section, the members of the section emphatically protest against such action, and request that the minimum number of units be not less than four.

The resolution was adopted.

The following nominating committee was appointed: Dr. Herman L. Kretschmer, Chicago, chairman; Dr. G. G. Smith, Boston, and Dr. H. G. Bugbee, New York.

Dr. Harry A. Fowler, Washington, D. C., read a paper on "Syphilis of the Bladder." Discussed by Drs. Martin Krotoszyner, San Francisco; G. G. Smith, Boston; Charles J. Watterston, Birmingham, Ala., and Harry A. Fowler, Washington, D. C.

The following papers were read as a symposium on "Roentgenographic and Clinical Diagnosis of Lithiasis in the Urinary Tract":

Dr. Eugene W. Caldwell, New York: "Review of a Series of Roentgenographic Examinations of the Urinary Tract."

Dr. Leon T. Lewald, New York: "The Differential Diagnosis of Lesions of the Urinary Tract from Those of the Gastro-Intestinal Tract, with Special Reference to Concretions in the Appendix."

Dr. Edward L. Young, Jr., Boston: "The Clinical Diagnosis of Lithiasis of the Urinary Tract."

Dr. Henry G. Bugbee, New York: "Clinical Study of Lithiasis Based on a Series of One Hundred and Ninety-Eight Cases."

These four papers were discussed by Drs. Henry K. Pancoast, Philadelphia; W. F. Braasch, Rochester, Minn.; H. L. Kretschmer, Chicago; Abraham Hyman, New York; James W. Hunter, Norfolk, Va.; H. A. Fowler, Washington, D. C.; G. G. Smith, Boston; A. M. Wose, Syracuse, N. Y.; V. D. Lespinasse, Chicago; B. S. Barringer, New York; J. E. Burns, Baltimore; A. J. Crowell, Charlotte, N. C.; C. M. Harpster, Toledo, and Edward L. Young, Boston.

The following officers were elected: chairman, Dr. Edward L. Keyes, Jr., New York; vice chairman, Dr. Martin Krotoszyner, San Francisco; secretary, Dr. W. F. Braasch, Rochester, Minn.; delegate, Dr. E. O. Smith, Cincinnati; alternate, Dr. Oliver Lyons, Denver.

THURSDAY, JUNE 7—AFTERNOON

Dr. Martin Krotoszyner, San Francisco, read a paper on "The Intravenous Phlorizin Test."

Drs. Benjamin A. Thomas and Joseph C. Birdsall, Philadelphia, presented a paper on "Comparative Results of a Number of Functional Kidney Tests on a Series of Patients."

These two papers were discussed by Drs. Robert H. Greene, New York; B. S. Barringer, New York; Abraham Hyman, New York; W. F. Braasch, Rochester, Minn.; A. G. Rytina, Baltimore; H. L. Kretschmer, Chicago; George W. Stark, Syracuse, N. Y.; John T. Geraghty, Baltimore, Martin Krotoszyner, San Francisco, and Benjamin A. Thomas, Philadelphia.

Dr. Herman L. Kretschmer, Chicago, read a paper on "The Value of Making a Routine Leukocyte Count on the Urine in Infections of the Higher Urinary Tract." Discussed by Drs. Martin Krotoszyner, San Francisco; W. C. Quinby, Boston, and George A. Wyeth, New York.

Dr. Abraham Hyman, New York, read a paper on "Surgical Diseases of the Urinary Tract in Children." Discussed by Drs. Leo Buerger, New York; H. L. Kretschmer, Chicago; Martin Krotoszyner, San Francisco; C. G. Bandler, New York, and Abraham Hyman, New York.

Dr. Charles E. Barnett, Fort Wayne, Ind., read a paper on "Polycystic Kidney." Discussed by Drs. Robert C. Bryan, Richmond, Va.; A. J. Crowell, Charlotte, N. C.; A. G. Rytina, Baltimore; B. A. Thomas, Philadelphia; O. S. Lowsley, New York; Martin Krotoszyner, San Francisco; John H. Cunningham, Jr., Boston; Herman L. Kretschmer, Chicago, and Charles E. Barnett, Fort Wayne, Ind.

SECTION ON ORTHOPEDIC SURGERY

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order by the chairman, Dr. Edwin W. Ryerson, Chicago, at 9:30 a. m. Dr. Ryerson read the chairman's address entitled, "The Care of Cripples as a Problem for Each Individual State." No discussion.

Dr. Wallace Blanchard, Chicago, read a paper on "Treated and Untreated Osteochondritis of the Hip." Discussed by Drs. John Joseph Nutt, New York; Percy W. Roberts, New York; Frederick J. Gaenslen, Milwaukee, Wis.; Samuel C. Baldwin, Salt Lake City; James W. Sever, Boston; Emil S. Geist, Minneapolis, and Wallace Blanchard, Chicago.

Dr. John Joseph Nutt, New York, read a paper on "Neurotization of Paralyzed Muscle: A Clinical and Laboratory Study," with a lantern demonstration by Dr. Frank J. Fraser, New York. Discussed by Drs. Arthur Steindler, Iowa City, Iowa; Walter Truslow, Brooklyn; Carl H. Bucholz, Boston; Henry Keller, New York; James W. Sever, Boston; Reginald H. Sayre, New York; H. W. Frauenthal, New York; W. C. Campbell, Memphis, Tenn., and John Joseph Nutt, New York.

Dr. Carl H. Bucholz, Boston, read a paper on "The Lame and Stiff Shoulder." Discussed by Drs. Walter Truslow, Brooklyn; Walter M. Brickner, New York; Wallace Blanchard, Chicago; Melvin S. Henderson, Rochester Minn.; E. D. Oppenheimer, New York; R. O. Meisenbach, Buffalo, and Carl H. Bucholz, Boston.

Dr. Henry B. Thomas, Chicago, read a paper on "Arthritis and Foreign Protein." Discussed by Drs. Walter G. Stern, Cleveland; R. O. Meisenbach, Buffalo, and Henry B. Thomas, Chicago.

Dr. Horace R. Allen, Indianapolis, read a paper on "Fractures." Discussed by Drs. Robert E. Farr, Minneapolis; J. D. Griffith, Kansas City; Edwin W. Ryerson, Chicago; Joseph E. Root, Hartford, Conn.; John Ridlon, Chicago; Albert H. Freiberg, Cincinnati; Henry Keller, New York; Roland Hammond, Providence, R. I.; A. A. Crane, Waterbury, Conn.; Eugene A. McCarthy, Fall River, Mass.; Samuel C. Baldwin, Salt Lake City; Melvin S. Henderson, Rochester, Minn.; J. D. Griffith, Kansas City, Mo.; R. O. Meisenbach, Buffalo, and Horace R. Allen, Indianapolis.

WEDNESDAY, JUNE 6—AFTERNOON

The following papers were presented as a symposium on "Poliomyelitis":

Dr. Charles Ogilvy, New York: "Study of a Group of One Hundred and Ten Cases of Poliomyelitis, from the Acute Attack to the Present Time."

Dr. E. D. Ebright, Coney Island, N. Y.: "The Orthopedic Treatment of Acute and Convalescent Poliomyelitis."

Dr. Samuel W. Boorstein, New York: "The Treatment of Anterior Poliomyelitis at Fordham Hospital."

These three papers were discussed by Drs. Charlton Wallace, New York; Walter Truslow, Brooklyn; Henry B. Thomas, Chicago; Willis C. Campbell, Memphis, Tenn.; J. D. Griffith, Kansas City, Mo.; Walter G. Stern, Cleveland; J. H. Eugene Rosamond, Memphis, Tenn.; Peter Bassoe, Chicago; Charles Ogilvy, New York; E. D. Ebright, Coney Island, N. Y., and Samuel W. Boorstein, New York.

Dr. Russell A. Hibbs, New York, read a paper on "The Treatment of Spinal Deformities Caused by Infantile Paralysis." Discussed by Drs. Emil S. Geist, Minneapolis; Fred J. Fassett, Seattle; John Ridlon, Chicago; Horace R. Allen, Indianapolis; Albert H. Freiberg, Cincinnati; E. D. Ebright, Coney Island, N. Y.; James W. Sever, Boston; Walter Truslow, Brooklyn, and Russell A. Hibbs, New York.

Dr. Michael Hoke, Atlanta, Ga., read a paper on "The Correction of Skeletal Defects of the Lower Extremities Resulting from Poliomyelitis," with lantern demonstration

and moving pictures. Discussed by Drs. Charles LeRoy Lowman, Los Angeles; J. D. Griffith, Kansas City, Mo.; Walter Truslow, Brooklyn; Russell A. Hibbs, New York, and Michael Hoke, Atlanta, Ga.

With the consent of the section, the chairman appointed Dr. Charlton Wallace, New York, to act as vice chairman in the place of Dr. Robert B. Osgood, who was absent in Europe; and Drs. Charlton Wallace and Charles G. Stern, Cleveland, in the places on the Executive Committee made vacant by the absence of Drs. Nathaniel Allison, St. Louis, and Leonard W. Ely, San Francisco.

THURSDAY, JUNE 7—MORNING

Dr. Frank E. Peckman, Providence, R. I., read a paper on "The Treatment of Scoliosis." Discussed by Drs. Albert H. Freiberg, Cincinnati; John Ridlon, Chicago; Royal Whitman, New York; E. H. Arnold, New Haven, Conn.; Virgil P. Gibney, New York; Frank E. Peckham, Providence, R. I., and James W. Sever, Boston.

Robert Jones of England was nominated for recommendation to be elected Honorary Member of the American Medical Association.

Dr. Royal Whitman, New York, read a paper on "Operative Orthopedics." Discussed by Drs. Samuel Kleinberg, New York; Edwin W. Ryerson, Chicago; Melvin S. Henderson, Rochester, Minn.; Henry Keller, New York; Royal Whitman, New York, and Albert H. Freiberg, Cincinnati.

Drs. Robert B. Osgood and Edward C. Bull, Boston, presented a paper on "The Operative Treatment of Tuberculosis of the Knee Joint in Adults." Discussed by Drs. M. S. Henderson, Rochester, Minn.; John Ridlon, Chicago; Mark H. Rogers, Boston; James A. O'Reilly, St. Louis; Henry Keller, New York; Arthur Steindler, Iowa City, Iowa; E. H. Arnold, New Haven; F. J. Gaenslen, Milwaukee, Wis.; Edwin W. Ryerson, Chicago; John Ridlon, Chicago; John Dunlop, Washington, and Edward C. Bull, Boston.

THURSDAY, JUNE 7—AFTERNOON

The following officers were elected: chairman, Dr. Albert H. Freiberg, Cincinnati; vice chairman, Dr. Fred. J. Fassett, Seattle; secretary, Dr. Henry B. Thomas, Chicago; delegate, Dr. John Ridlon, Chicago; alternate, Dr. J. D. Griffith, Kansas City, Mo.

Report of the Tuberculosis Committee was called for. In the absence of the chairman, Dr. Leonard W. Ely, San Francisco, one of the members of the committee, Dr. James A. O'Reilly, St. Louis, made a motion that the committee be abolished. The motion was seconded and carried.

Dr. Russell A. Hibbs, New York, in the absence of the chairman of the Preparedness Committee, Dr. Joel E. Goldthwait, Boston, read the report of the committee, together with an attached list of equipment. On motion, duly seconded, the report was accepted as read.

A motion was made that the same committee, already appointed from the American Orthopedic Association, be made also a committee of the Section on Orthopedic Surgery of the American Medical Association, for the purpose of taking up with the government and its various officials the details of orthopedic preparedness. Of this committee Dr. Joel E. Goldthwait, Boston, was chairman. The motion was seconded and carried. (Not transmitted to the House of Delegates).

Dr. R. O. Meisenbach, Buffalo, offered the following resolution:

WHEREAS, The Canadian government has experienced considerable difficulty in regard to the feet of its soldiers:

Resolved, That it is the sense of the Section on Orthopedic Surgery of the American Medical Association that the attention of the proper authorities should be called to the fact, and the possibility of avoiding this difficulty by appointing an orthopedic surgeon on the exemption boards that are now being formed.

This resolution was adopted. (Not transmitted to the House of Delegates).

Dr. Henry Ling Taylor, New York, made a motion that the attention of the Preparedness Committee be called to the fact that the soldiers, particularly in training camps, do not have long enough hours of sleep, in consideration of the strenuous work that they are called on to perform. The motion was seconded and carried. (Not transmitted to the House of Delegates).

Drs. William Sharpe and Benjamin P. Farrell, New York, presented a paper entitled "A Further Report of the First Sixty-Five Cases of Cranial Decompression for Selected Cases of Spastic Paralysis Due to Hemorrhage." Discussed by Drs. Fred J. Fassett, Seattle, and William Sharpe, New York.

Dr. James W. Sever, Boston, read a paper on "The Results of the Treatment of Obstetric Paralysis." Discussed by Drs. John Dunlop, Washington; A. S. Taylor, New York; J. A. Nutter, Montreal; John J. Nutt, New York, and James W. Sever, Boston.

Dr. Walter M. Brickner, New York, read a paper on "Pain in the Arm: Subdeltoid (Subacromial) Bursitis," illustrated by slides and moving pictures. Discussed by Drs. Eli Moschowitz, New York (lantern slides); Arthur H. Bogart, Brooklyn; Fred J. Fassett, Seattle; James A. O'Reilly, St. Louis; Milton G. Wasch, Brooklyn; H. O. Wolff, New York; John Dunlop, Washington, D. C., and Walter M. Brickner, New York.

Dr. Frederick J. Gaenslen, Milwaukee, Wis., read a paper on "Simplified Technic of Laminectomy." Discussed by Dr. Edwin W. Ryerson, Chicago.

Drs. Henry Ling Taylor and George Barrie, New York, presented a paper on "Juxta-Articular Bone Lesions of the Hip." Discussed by Drs. E. D. Oppenheimer, New York; Henry Ling Taylor, New York, and George Barrie, New York.

FRIDAY, JUNE 8—MORNING

A joint meeting was held with the Section on Nervous and Mental Diseases and the Section on Diseases of Children.

The meeting was called to order at 9:10 by Dr. Bernard Sachs, chairman of the Section on Nervous and Mental Diseases.

Dr. T. C. McCleave, Oakland, Calif., made a motion that the secretary of his section be requested to inform the secretary of the American Medical Association that it was the wish of the sections that hereafter no important action affecting the sections be taken by the Association without first sending notice to the sections that such action was contemplated. The motion was seconded and carried.

The following papers were read as a symposium on "Infantile Paralysis":

Dr. George Draper, New York: "Early Diagnosis and Specific Treatment of Poliomyelitis."

Dr. Charles Herrman, New York: "Contagiousness of Acute Poliomyelitis."

Dr. Haven Emerson of the Department of Health of New York City was then asked to speak about the epidemic of the disease there last summer, after which the following papers of the symposium were read:

Dr. Frederick Tilney, New York: "Recent Additions to Our Knowledge of Poliomyelitis."

Dr. LaSalle Archambault, Albany, N. Y.: "The Hematogenous Invasion of the Cerebrospinal Axis in Poliomyelitis."

Dr. Henry L. K. Shaw, Albany, N. Y.: "Results of the Present Epidemic of Infantile Paralysis."

Dr. Robert W. Lovett, Boston: "Treatment of Infantile Paralysis, with Especial Reference to a Study of the New York State Cases."

These papers were discussed by Drs. Herman Schwartz, New York; Reginald H. Sayre, New York; Horace Greeley, Brooklyn; William C. Hager, Brooklyn; Henry Keller, New York; Alexander Spingarn, Brooklyn; George Draper, New York; Charles Herrman, New York, and LaSalle Archambault, Albany.

After the adjournment of the joint meeting, the Section on Diseases of Children remained.

Dr. T. C. McCleave, Oakland, Calif., made a motion that a vote of thanks be given by the Section on Diseases of Children to Drs. Charles G. Kerley, New York; A. Jacobi, New York, and H. M. McClanahan, Omaha. The motion was seconded, and was carried unanimously.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, JUNE 6—MORNING

The meeting was called to order by the chairman, Dr. Dwight H. Murray, Syracuse, N. Y.

Dr. Murray read the chairman's address, entitled "Our Section: Retrospect and Prospect." No discussion.

A motion was entertained to place this address before the executive committee for action.

Dr. Martin E. Rehfuss, Philadelphia, read a paper on "Achylia." Discussed by Drs. Charles D. Aaron, Detroit; Albert F. R. Andresen, Brooklyn; Max Einhorn, New York; Louis Lefrak, New York; Seymour Basch, New York; J. W. Weinstein, New York; J. O. Polefski, Newark; Harris Weinstein, New York; B. B. Vincent Lyon, Philadelphia, and Martin E. Rehfuss, Philadelphia.

The following papers were read as a symposium on "Chronic Diarrheas Due to Enterocolonic Conditions":

Dr. Samuel G. Gant, New York: "Chronic Diarrheas Due to Enterocolonic Conditions: The Surgical Point of View."

Dr. Julius Friedenwald, Baltimore: "Chronic Diarrheas Due to Enterocolonic Conditions: The Medical Point of View."

Dr. John L. Jelks, Memphis, Tenn.: "Rectal and Sigmoidal Conditions in Chronic Diarrhea."

These three papers were discussed by Drs. Charles D. Spivak, Denver; Thomas Chittenden Hill, Boston; Nathan Rosewater, Cleveland; Frank Clark Yeomans, New York; J. Rawson Pennington, Chicago; Alfred J. Zobel, San Francisco; Horace W. Soper, St. Louis; Harris Weinstein, New York; J. W. Weinstein, New York; Dwight H. Murray, Syracuse; Samuel G. Gant, New York; Julius Friedenwald, Baltimore, and John L. Jelks, Memphis, Tenn.

Dr. Jerome M. Lynch, New York, read a paper on "Statistical and Clinical Review of Four Hundred and Fifty Cases of Cancer of the Rectum and Colon." Discussed by Drs. George B. Evans, Dayton, Ohio; Frank Clark Yeomans, New York; William M. Beach, Pittsburgh; Dwight H. Murray, Syracuse; John L. Jelks, Memphis, Tenn.; Louis J. Hirschman, Detroit, and Jerome M. Lynch, New York.

WEDNESDAY, JUNE 6—AFTERNOON

The following officers were elected: chairman, Dr. Anthony Bassler, New York; vice chairman, Dr. Alois B. Graham, Indianapolis; secretary, Dr. Horace W. Soper, St. Louis; delegate, Dr. Louis J. Hirschman, Detroit; alternate, Dr. J. C. Johnson, Hamilton, Ala.

Drs. G. Reese Satterlee and W. W. Eldredge, Jr., New York, presented a paper on "The Symptomatology of the Nervous System in Chronic Intestinal Toxemia." Discussed by Drs. S. Russell Verbrycke, Jr., Washington, D. C.; Fenton B. Turck, New York; E. E. Smith, Columbus, Ohio; Nathan Rosewater, Cleveland, and G. Reese Satterlee, New York.

Dr. Lewis Gregory Cole, New York, read a paper on "Mucosal Type of Gastric and Duodenal Ulcer." Discussed by Drs. William H. Stewart, New York; Dudley D. Roberts, Brooklyn; I. H. Levy, Syracuse, N. Y.; H. K. Dunham, Cincinnati; Fenton B. Turck, New York; Charles D. Spivak, Denver; J. W. Weinstein, New York, and Lewis Gregory Cole, New York.

Dr. Emmett H. Terrell, Richmond, Va., read a paper on "A Further Report of the Use of Quinin and Urea in the Treatment of Hemorrhoids." Discussed by Drs. Collier F. Martin, Philadelphia; A. E. Chace, New York; D. C. McKenney, Buffalo; George B. Evans, Dayton, Ohio, and Emmett H. Terrell, Richmond, Va.

Dr. J. Rawson Pennington, Chicago, read a paper on "Anal and Rectal Fistula." Discussed by Drs. William M. Beach, Pittsburgh; A. E. Chace, New York; R. W. Jackson, Fall River, Mass.; Fenton B. Turck, New York; B. Gruskin, Chicago; Dwight H. Murray, Syracuse; Louis J. Hirschmann, Detroit; T. C. Martin, Washington, D. C., and J. Rawson Pennington, Chicago.

THURSDAY, JUNE 7—MORNING

The following resolution was offered by the Executive Committee:

The Executive Committee of the Section on Gastro-Enterology and Proctology advise the appointment of a committee of five to confer with and offer its services to the National Council of Defense for the purpose of standardizing the dietetics of the Army.

The resolution was entertained as a motion duly made, seconded and carried, and the chairman, Dr. Dwight H. Murray, Syracuse, N. Y., appointed the following members to act on this committee of five: chairman, Dr. Martin E. Rehfuss, Philadelphia; and Drs. William G. Morgan, Washington, D. C.; Dudley D. Roberts, Brooklyn; Dwight H. Murray, Syracuse, N. Y., and William M. Beach, Pittsburgh. (Not transmitted to the House of Delegates).

Dr. William G. Morgan, Washington, D. C., read a paper on "Gastric Conditions in Spastic Constipation." Discussed by Drs. I. Harris Levy, Syracuse, N. Y.; Louis M. Gompertz, New Haven, Conn.; Max Einhorn, New York; Dwight H. Murray, Syracuse, N. Y.; Charles D. Spivak, Denver; Nathan Rosewater, Cleveland; David Bercinsky, New Haven, Conn, and William G. Morgan, Washington, D. C.

The following papers were read as a symposium on "Chronic Constipation":

Dr. Horace W. Soper, St. Louis: "Autointoxication in Chronic Constipation."

Dr. Granville S. Hanes, Louisville, Ky.: "Enterocolonic Conditions in Chronic Constipation."

Dr. Alois B. Graham, Indianapolis: "Rectal Conditions in Chronic Constipation."

These three papers were discussed by Drs. Henry Illoway, New York; Dudley D. Roberts, Brooklyn; Walter A. Bastedo, New York; Joseph C. Bloodgood, Baltimore; Emmett H. Terrell, Richmond, Va.; Jerome Myers, New York; Martin E. Rehfuss, Philadelphia; W. L. Chapman, Providence, R. I.; Milton J. Lichty, Cleveland; Thomas Charles Martin, Washington, D. C.; J. A. Ruben, Pittsburgh, and G. Reese Satterlee, New York.

Dr. John W. Draper, New York, read a paper on "Dynamic and Adynamic Intestinal Obstruction." Discussed by Drs. Joseph C. Bloodgood, Baltimore; John Bryant, Boston; Jerome M. Lynch, New York, and John W. Draper, New York.

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, JUNE 6—MORNING

The chairman, Dr. Henry A. Christian, called the meeting to order.

Dr. Charles W. McClure, 697 Huntington Avenue, Boston, served as secretary in the absence of the secretary, Dr. James S. McLester, who was operated on Saturday (four days ago) for acute appendicitis. The section instructed the chairman to wire Dr. McLester the sympathy of the section and their hope for his rapid convalescence.

The chairman, Dr. Henry A. Christian, Boston, read a paper on "Visceral Disturbances in Patients with Cutaneous Lesions of the Erythema Group." No discussion.

Dr. Frank Smithies, Chicago, read a paper on "Clinical Manifestations of Gallbladder Disease: A Study of 1,000 Cases," and illustrated the paper with lantern slides. Discussed by Drs. David Riesman, Philadelphia; G. M. McCaskey, Indianapolis; P. S. Roy, Washington, D. C.; Edward F. Wells, Chicago, and Frank Smithies, Chicago.

Dr. Douglas Vanderhoof, Richmond, Va., read a paper on "Dilated Duodenum, with Especial Reference to Chronic Duodenal Obstruction in Visceroptosis." Discussed by Drs. Lewis A. Conner, New York; George R. Satterlee, New York; F. B. Turck, New York; W. L. Bierring, Des Moines, Iowa; F. W. White, Boston, and Douglas Vanderhoof, Richmond, Va.

The chairman appointed Drs. W. S. Thayer, Baltimore; W. L. Bierring, Des Moines, Iowa; W. F. Cheney, San Francisco, and G. M. McCaskey, Indianapolis, to serve as a nominating committee.

Dr. Alfred Stengel, Philadelphia, read a paper on "Clinical Features of Prolonged and Severe Secondary Anemia."

Dr. L. V. Barker, Baltimore, read a paper on "Methods and Results in the Treatment of Pernicious Anemia." These two

papers were discussed together by Drs. Henry A. Christian, Boston; N. E. Brill, New York; G. R. Minot, Boston; C. H. McCaskey, Indianapolis; Frank Smithies, Chicago; Edward Lindeman, New York; E. L. Tuohy, Duluth, Minn.; A. Castelli, New York; Alfred Stengel, Philadelphia, and L. F. Barker, Baltimore.

Dr. K. M. Lynch, Charleston, S. C., read a paper on "Clinical and Experimental Study of a Lymphoid Splenomegaly With and Without Leukocythemia," and illustrated the paper with lantern slides. Discussed by Drs. Alfred Stengel, Philadelphia, and K. M. Lynch, Charleston, S. C.

WEDNESDAY, JUNE 6—AFTERNOON

Dr. F. M. Pottenger, Monrovia, Calif., read a paper on "The Vegetative Nervous System in Pulmonary Tuberculosis." Discussed by Drs. Walter Timmee, New York; Frank Smithies, Chicago; S. Solis-Cohen, Philadelphia; M. Fishberg, New York; Ernest Zueblin, Cincinnati, and F. M. Pottenger, Monrovia, Calif.

Dr. Joseph H. Pratt, Boston, read a paper on "The Value of Prolonged Rest in the Treatment of Pulmonary Tuberculosis." Discussed by Drs. W. L. Dunn, Asheville, N. C.; S. A. Knopf, New York; Ernest Zueblin, Cincinnati; F. M. Pottenger, Monrovia, Calif; M. Fishberg, New York, and Joseph H. Pratt, Boston.

Dr. Rufus I. Cole, New York, read a paper on "Report of Studies Concerning Acute Lobar Pneumonia." Discussed by Drs. Lawrence Litchfield, Pittsburgh; David Bovaird, New York; S. J. Meltzer, New York, and Rufus I. Cole, New York.

Dr. I. Chandler Walker, Boston, read a paper on "Studies on the Cause and Treatment of Bronchial Asthma." Discussed by Drs. W. T. Longcope, New York; M. J. Gottlieb, New York; M. I. Knapp, New York; Ernest Zueblin, Cincinnati; L. F. Bishop, New York; G. N. Jack, Buffalo; S. Solis-Cohen, Philadelphia, and I. Chandler Walker, Philadelphia.

Dr. Theodore B. Barringer, Jr., New York, read a paper on "Studies of the Heart's Functional Capacity," and illustrated his paper with lantern slides. Discussed by Drs. T. Stuart Hart, New York; H. B. Williams, New York; W. P. St. Lawrence, New York, and T. B. Barringer, Jr., New York.

Dr. Stewart R. Roberts, Atlanta, Ga., read a paper on "A Study of Arterial Sounds," and illustrated the paper with charts. Discussed by Drs. A. E. Roussel, Philadelphia; R. A. Bate, Louisville, Ky., and Stewart R. Roberts, Atlanta, Ga.

Dr. Charles W. McClure, Boston, read a paper on "The Vital Capacity of the Lungs and Its Relation to the Clinical Conditions in Heart Disease," and illustrated the paper with lantern slides. Discussed by Drs. Joseph H. Pratt, Boston; T. B. Barringer, Jr., New York; R. G. Pierce, Cleveland, and Charles W. McClure, Boston.

Dr. Roger S. Morris, Cincinnati, read a paper on "The Percussion and Roentgen-Ray Findings After Injections of the Pericardium," and illustrated the paper by charts and lantern slides. Discussed by Drs. Charles S. Williamson, Chicago (with charts); Alfred Meyer, New York, and Roger S. Morris, Cincinnati.

Dr. James B. Herrick, Chicago, read a paper on "A Clinical Study of 200 Cases of Angina Pectoris." Discussed by Drs. S. Neuhoff, New York; S. R. Roberts, Atlanta, Ga.; James B. Herrick, Chicago, and Joseph H. Pratt, Boston.

Dr. Marcus A. Rothschild, New York, read a paper on "Electrocardiographic Changes Associated with Myocardial Involvement, with Special Reference to Prognosis," and illustrated with lantern slides. Discussed by Drs. W. G. McCallum, New York; H. B. Williams, New York; E. Liebmann, New York; James B. Herrick, Chicago, and M. A. Rothschild, New York.

THURSDAY, JUNE 7—AFTERNOON

The first order of business was the report of the committee to nominate officers. The committee reported as follows: chairman, Dr. Lawrence Litchfield, Pittsburgh; vice chairman, Dr. A. W. Hewlett, San Francisco; secretary, Dr. J. S. McLester, Birmingham, Ala.; delegate, Dr. W. J. Stone, Toledo, Ohio.

It was moved and seconded that the report of the nominating committee be acepted and the secretary be instructed to cast a ballot for the section. Seconded and carried.

Dr. Pottenger moved that the arrangement of section meetings remain as it is at the present time with a shortening of the program to twenty-five papers. Seconded and carried.

Dr. Elliott P. Joslin, Boston, read a paper on "The Blood Lipoids in Diabetes." Discussed by Drs. R. Geyelin, New York; F. M. Allen, New York, and Horace Gray, Boston.

Dr. Warren Coleman, New York, read a paper on "The Influence of the High Calory Diet on the Course of Typhoid Fever." Discussed by Drs. E. F. Du Bois, New York; D. D. Roberts, Brooklyn; C. H. Breitenbach, Dayton, Ohio; Max Einhorn, New York; E. P. Joslin, Boston; A. E. Roussel, Philadelphia; H. A. Christian, Boston, and Warren Coleman, New York.

Dr. B. B. Vincent Lyon, Philadelphia, read a paper on "Gastric Crises of Spinal Syphilis: A Clinical and Laboratory Study of Four Cases." Discussed by Drs. Joseph Sailer, Philadelphia; David Riesman, Philadelphia; W. H. Mercur, Pittsburgh; F. M. Pottenger, Monrovia, Calif.; G. M. Luden, Rochester, Minn., and B. B. Vincent Lyon, Philadelphia.

Dr. Frank Billings, Chicago, read a paper on "A Study of Chronic Arthritis," and illustrated his paper by lantern slides and charts. Discussed by Drs. E. C. Rosenow, Rochester, Minn.; J. J. Walsh, New York; H. A. Christian, Boston, and Frank Billings, Chicago.

Dr. Sydney R. Miller, Baltimore, read a paper on "Bence-Jones Proteinuria: The Frequency of Its Occurrence, the Criteria of Its Presence, and Its Possible Relationship to Nephritis with Hypertension." Discussed by Drs. H. G. Beck, Baltimore; H. A. Christian, Boston, and S. R. Miller, Baltimore.

Dr. Arthur F. Chace, New York, read a paper on "The Dietetic Treatment of Nephritis, Controlled by the Chemical Examination of the Blood," illustrated by lantern slides.

Dr. Franklin C. McLean, New York, read a paper on "Nephritis from the Standpoint of Urea Excretion," illustrated with lantern slides.

Dr. Albert A. Epstein, New York, read a paper on "Nature and Treatment of Chronic Parenchymatous Nephritis (Nephrosis)." These three papers were discussed by Drs. H. O. Mosenthal, Baltimore; E. P. Du Bois, New York; Victor C. Myers, New York; H. A. Christian, Boston; L. F. Bishop, New York; Nathan Rosewater, Cleveland, and Albert A. Epstein, New York.

The chairman: This brings the session to a close. To some of you my attitude in adhering strictly to the rule that the time allowed for discussion be limited may seem a little harsh, but I felt that it was a rule that should be adhered to and endeavored to treat all alike.

A rising vote of thanks was given to Dr. Christian for his services in acting as chairman of the section.

AWARDS IN THE SCIENTIFIC EXHIBIT

The following is a list of awards made in the Scientific Exhibit at the annual session of the association in New York last week:

GOLD MEDAL. Dr. B. S. Oppenheimer, Cardiographic Laboratory, Mt. Sinai Hospital, New York. Electrocardiographic exhibit, illustrating pathological physiology of the cardiac mechanism.

SILVER MEDAL. Dr. Victor Lespinasse, Chicago. An exhibit on obstructive sterility.

BRONZE MEDAL. Department of Obstetrics, Yale University, Medical School. An exhibit on placental pathology.

CERTIFICATES OF MERIT. 1. Dr. William L. Coplin, Philadelphia. A collection of hypoplastic kidneys.

2. Dr. Charles S. Williamson, Chicago. Casts of hearts and exudates from an experimental study of pericarditis with effusion.

3. Mayo Clinic, Rochester, Minn.

4. Dr. Alfred A. Strauss, Chicago. Charts and specimens illustrating (a) Pylorectomy by submucous fascial transplant method; (b) Reconstruction of the pylorus by fascial transplants after resection for ulcer.

5. Washington University, St. Louis. Exhibit on heredity, development of hypophysis, cleidocranial dysostosis.

6. Dr. John Shelton Horsley, Richmond, Va. Illustration of original surgical procedures.

Marriages

HAROLD HOUSTON JONES, M.D., Winfield, Kan., to Miss Madeline Tiniry of Kansas City, Mo., at St. Joseph, Mo., May 19.

BUFORD MOURSE COLBY, M.D., St. Joseph, Mo., to Miss Alice Malony of Kansas City, Mo., at St. Joseph, May 19.

DANIEL CLARK WHARTON SMITH, II, M.D., Baltimore, to Miss Edwina Caven Hensel of Haverford, Pa., June 2.

ANDREW JACKSON WARREN, M.D., to Miss Margaret Lyle Spurgeon, both of Hillsboro, N. C., June 12.

FRANK E. HURRLE, M.D., Little Rock, Ark., to Miss Mary V. Walker of Pine Bluff, Ark., April 17.

JOSEPH EARLE MOORE, M.D., to Miss Grace Douglas Barclay, both of Baltimore, May 24.

HERMAN LAURENCE DOWD, M.D., to Miss Alice Richard, both of New York, May 24.

FRED W. BUCKLEY, M.D., to Miss Louise Sabin, both of Beatrice, Neb., May 23.

Deaths

Thomas Palmer Satterwhite, M.D., Louisville, Ky.; University of Louisville, 1857; aged 82; formerly a Fellow of the American Medical Association and fourth vice president in 1895-1896; one of the most widely known practitioners of Kentucky; from 1863 to 1869 demonstrator of anatomy in his alma mater; for many years surgeon to Sts. Mary and Elizabeth and the City hospitals, Louisville; for twelve years president of the board of commissioners of the Kentucky Central State Hospital, Lakeland; surgeon for the Big Four, Southern, and Chesapeake and Ohio systems; once president of the Association of Surgeons of the Southern Railway; physician and surgeon for the Louisville School of Reform for many years; the first to inaugurate a free dispensary in Louisville; died at his home, June 3, from cerebral hemorrhage.

Julius O. Schlotterbeck, Ann Arbor, Mich.; University of Michigan, Ph.C., 1888; B.S., 1891; University of Bern, Ph.D., 1896; Professor of Pharmacognosy, University of Michigan School of Pharmacy and Dean of the School; formerly a member of the Council on Pharmacy and Chemistry of the American Medical Association (1905-8); a member of many scientific societies, and the author of many papers on plant chemistry and related subjects; died at Ann Arbor, Mich., May 31, after a long illness from liver disease.

Luther Anson Todd, M.D., St. Joseph, Mo.; College of Physicians and Surgeons in the city of New York, 1900; aged 42; a Fellow of the American Medical Association, professor of anatomy in the Ensworth-Central Medical College, St. Joseph; chief surgeon to the St. Joseph and Grand Island Railroad and to the St. Joseph Street Railway Co.; formerly president of the board of health of St. Joseph; died in an interurban car near Camden Point, Mo., May 22; from cerebral hemorrhage.

Harry Mayham Keator, M.D., Roxbury, N. Y.; College of Physicians and Surgeons in the City of New York, 1902; aged 43; a Fellow of the American Medical Association and a member of the New York Academy of Medicine; clinical assistant at the Presbyterian Hospital and Vanderbilt Clinic, New York, and demonstrator of physiology in his alma mater; who has been ill with tuberculosis, is reported to have committed suicide, at the home of his sister, in Oneonta, N. Y.

William Charles Walser, M.D., Livingston, Staten Island, N. Y.; College of Physicians and Surgeons in the City of New York, 1873; aged 66; a member of the Medical Society of the State of New York; for many years chief surgeon to the S. R. Smith Infirmary, now the Staten Island Hospital, and consultant to the Nursery and Child's Hospital, Fort Richmond; once president of the Staten Island Medical Society; died at his home, May 21.

Henry Pinckney Frost, M.D., Boston; University of Maryland, Baltimore, 1889; aged 48; a Fellow of the American Medical Association, and a member of the American Neurological Association and American Medico-Psychological Association; superintendent of the Boston State Hospital, Mattavan; formerly assistant superintendent at the Willard and Buffalo (N. Y.) state hospitals; died in the Boston State Hospital, May 23, from pneumonia.

Foster Thayer, M.D., Riverhead, N.Y.; Bellevue Hospital Medical School, 1866; aged 74; acting assistant surgeon, U. S. Navy, during the Civil War; assistant surgeon in the army of the Argentine Republic in 1867 and 1868; medical director of the Mutual Benefit Association of Suffolk County; for nearly half a century a practitioner of Riverhead; died at his home, May 18.

David Arthur Jay, M.D., Lemars, Iowa; College of Physicians and Surgeons, Keokuk, 1890; aged 48; formerly a Fellow of the American Medical Association; for sixteen years president of the Eldon Big Four Fair Association; a member of the Association of Military Surgeons of the United States; died at the family home, near Agency, Iowa, May 12.

Edmund Janes Palmer, M.D., New York; College of Physicians and Surgeons in the City of New York, 1881; aged 60; a Fellow of the American Medical Association, and a member of the New York Society for Medical Jurisprudence; for thirty years chief physician to St. Luke's Home, New York; died at his home, May 28.

Isaac Winter Heysinger, M.D., Philadelphia; Jefferson Medical College, 1867; aged 75; a veteran of the Civil War; a member of the commission which supervised the consruction of the Rittersville, Pa., State Hospital; well known as a writer, artist, linguist, and musician, died at his home, May 18, from heart disease.

Emanuel Hochheimer, M.D., New York; New York University, New York; aged 62; a Fellow of the American Medical Association; visiting physician to the Montefiore Home and Yonkers Home for the Aged and Infirm; physician to the New York City Asylum for the Insane; died at his home, May 29.

Simon John Tunstall, M.D., Brighouse Station, near Vancouver, B. C.; McGill University, Montreal, 1875; aged 64; once president of the Canadian Medical Association, and one of the founders of the Vancouver Medical Association; died at his home, March 15, from hemorrhage of the stomach.

Junius D. Young, M.D., Stockton, Calif.; University of California, San Francisco, 1881; aged 59; a member of the Medical Society of the State of California; chief of the medical staff of the Stockton State Hospital for the Insane for more than thirty years; died at his home, May 23.

David Geiger Garland, M.D., Carney's Point, N. J.; University of Louisville, Ky., 1913; aged 27; formerly of Huntington, W. Va.; but for the last fifteen months assistant chief surgeon for E. I. du Pont de Nemours & Co.; died at White Haven, Pa., May 13, from tuberculosis.

Everal Caleb Haviland, M.D., Keene, N. H.; Albany, N. Y., Medical College, 1904; aged 39; a Fellow of the American Medical Association; for six years assistant physician to the Brattleboro, Vt., Retreat, and for two years city physician of Keene; died at his home, May 27.

Thomas J. Kane, M.D., Paterson, N. J.; Long Island College Hospital, Brooklyn, 1872; aged 71; a member of the Medical Society of New Jersey; died in St. Joseph's Hospital, Paterson, May 26, three days after an operation for the relief of intestinal disease.

Cornelius O'Connor, M.D., Kansas City, Mo.; Kentucky School of Medicine, Louisville, 1885; aged 64; a Fellow of the American Medical Association; for many years a member of the staff of St. Joseph Hospital, Kansas City; died in that institution, May 31.

Robert Home, Jr., M.D., Toronto, Ont.; University of Toronto, Ont., 1913; aged 26; captain, Royal Army Medical Corps, who went to Europe with the first Canadian expeditionary force, in August, 1914; is reported to have been killed in battle.

James Roy Freeland, M.D., Pittsburgh; University of Pennsylvania, Philadelphia, 1904; aged 33; a Fellow of the American Medical Association, and a specialist in obstetrics and gynecology; died at his home in East End, Pittsburgh, May 28.

William James Squire, M.D., Buffalo; University of Buffalo, N. Y., 1893; aged 57; died at his home, April 28.

Frank Holland, M.D., Atlanta, Ga.; Atlanta Medical College, 1879; aged 61; died at his home, May 7.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SOME MISBRANDED "COUGH REMEDIES"*

Barker's Remedy for Catarrh, Coughs, Colds and Rheumatism.—Henry W. Barker, who traded as the H. W. Barker Medical Co., Sparta, Wis., manufactured "H. W. Barker's Remedy for Catarrh, Coughs, Colds and Rheumatism." This nostrum was sold under claims that would lead the public to believe that it was effective as a remedy for, and for the prevention of, "catarrh," *la grippe,* hay fever, croup, whooping cough, tonsillitis and all catarrhal affections of the throat, lungs, stomach and mucous membrane and that it would also prevent consumption and diseases of the lungs. The federal chemists reported that the product was essentially sugar and water with a small amount of cubebs, potassium iodid and creosote, having a wintergreen flavor and being colored pink. The claims made for this mixture were declared to be false and fraudulent and applied recklessly and wantonly. Barker entered a plea of *nolo contendere* and was fined $100.—[*Notice of Judgment No. 4401.*]

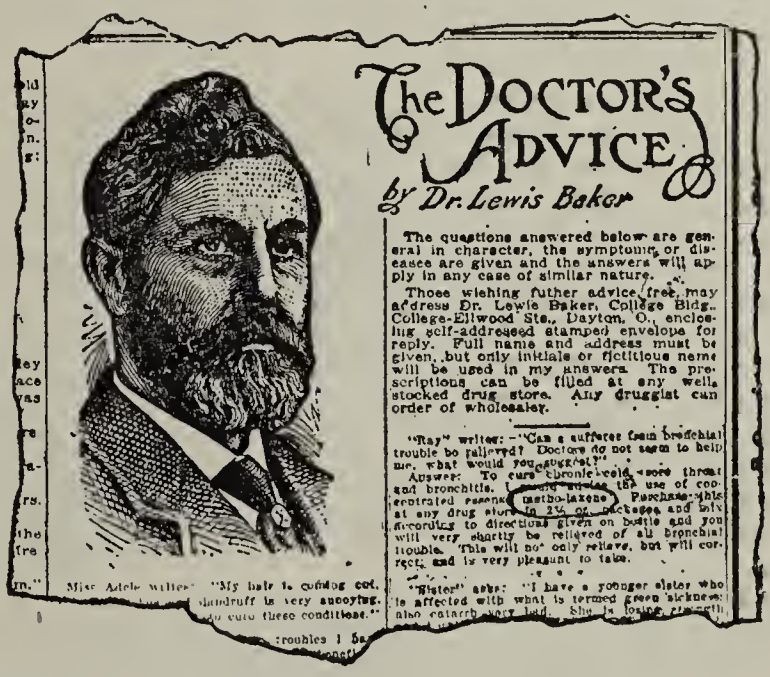
Mathieu's Cough Syrup.—Charles Favreau and Frank Colletter, trading as Favreau & Collette, Marlboro, Mass., sold "Mathieu's Cough Syrup," which has formerly been called "Syrup of Tar and Cod-Liver Oil." The stuff admittedly contained 5¼ per cent. of alcohol and 2½ minims of chloroform to the fluid ounce. The label declared that the product contained "the active principles of tar and cod-liver oil." The federal chemists reported that very little, if any, tar was present and cod-liver oil was absent. There was a minute quantity of creosote and some menthol in the stuff. Of the 53.77 per cent. solids present, more than 50 per cent. was sugar. It was sold under the claim that it was an effective remedy for scarlet fever, croup and diphtheria and a cure for croup. These claims were declared to be false and fraudulent and made knowingly, recklessly and wantonly. Collette entered a plea of *nolo contendere* and was fined $25. The case against Favreau was *nolle prossed.*—[*Notice of Judgment No. 4405.*]

Forrest's Juniper Tar.—This preparation was made and sold by the J. Harrison Whitehurst Co. ("J. H. Whitehurst, M. D. Pharm. D.") which was a trade name under which Anna Lavinia Whitehurst did business in Baltimore. The preparation admittedly contained 22 per cent. alcohol and the government chemists found over 55 per cent. of petroleum and oil of tar. The product was declared misbranded because it was claimed to be a safe, reliable and speedy remedy for all kinds of throat and lung diseases, for arresting and curing catarrh, influenza and consumption in its early stages as well as whooping cough, inflammatory rheumatism and piles. It was also claimed to be a cure for consumption and obstinate coughs. These claims were characterized by government officials as false and fraudulent and applied knowingly, recklessly and wantonly. Anna Lavinia Whitehurst entered a plea of *nolo contendere* and was fined $15.—[*Notice of Judgment No. 4417.*]

Terraline.—The Hillside Chemical Co. of Newburgh, N. Y., was charged with misbranding under the Food and Drugs Act for shipping in interstate commerce quantities of "Terraline Plain" and "Terraline with Heroin." "Terraline Plain" was found to be simply liquid petrolatum while "Terraline with Heroin" was a similar drug carrying heroin in solution. "Terraline Plain" was declared misbranded because of the claims that it was easily digested and of value as nutriment and, indeed, was preferable to cod liver oil when, in fact, it was not digestible, was not preferable to cod liver oil and contained no nutritive value whatever. Furthermore, the claims made for "Terraline Plain" and "Terraline with Heroin" that they were effective remedies for consumption, asthma, la grippe, croup and all diseases of the throat and lungs were declared wantonly false and fraudulent. The Hillside Chemical Company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4503.*]

Classe's Cough Syrup.—This preparation was sold by William P. Diggs of St. Louis, who did business under the trade name W. P. Diggs & Co. The stuff, which had an odor of tar, contained about 60 per cent. of sugar, 7 per cent. alcohol, 3 per cent. glycerin with tolu and wild cherry present. The claims that it was an effective and beneficial remedy in consumption, asthma, whooping cough, croup and all inflammation of the lungs were declared wantonly and recklessly false and fraudulent. Diggs pleaded guilty and was fined $10 and costs.—[*Notice of Judgment No. 4489.*]

Essence Mentho-Laxene.—This is one of the numerous nostrums put out by the Blackburn Products Co., Dayton, Ohio, which advertises by means of the "fake prescription" method. "*The Doctor's Advice* by Dr. Lewis Baker," a scheme for advertising which gives the impression that the advertisement is really a newspaper "health department," is one of the means by which "Mentho-Laxene" has been exploited. The



preparation, which according to the federal chemists contained 34 per cent. alcohol together with menthol, amonium salt, chlorid, sugar, drug extract and an unidentified alkaloid, was sold under the claim that it would prevent consumption and *la grippe* and was an effective remedy for croup and asthma. These claims were declared false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The company pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 4437.*]

Brown's Acacian Balsam.—The Kells Co., Newburgh, N. Y., sold a preparation called "Dr. O. Phelps Brown's Acacian Balsam." Government chemists reported that this product contained 11 per cent. of alcohol and over 16 grams of acacia to each 100 c.c. In addition, nitrate, licorice, meconic acid, tartrates, reducing sugar and sodium and potassium compounds were found present. It was sold under the claim that it was a remedy for consumption, asthma, all diseases of the lungs, diphtheria and heart complaints. These claims were declared recklessly and wantonly false and fraudulent. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4444.*]

Sykes' Sure Cure for Catarrh.—Dr. Sykes' Sure Cure Co., Chicago, Ill., sold the "Dr. Sykes Sure Cure for Catarrh." According to the label, the stuff was originated by Dr. C. R. Sykes, who "took a course of medical studies and graduated as an M.D. in Bennett Medical College, Chicago, and the rest of his life was spent in successfully treating catarrh." The

* This material, with much additional, appears in the new edition of the pamphlet "Convictions," price fifteen cents.

government chemists reported the results of analyses of two samples, one shipped from Illinois to California and the other from Illinois to New York. The samples varied but contained essentially about 2 per cent. alcohol with potassium chlorate, ammonium chlorid, and small amounts of hydrastin and methyl salicylate. The claim that the stuff was a cure for consumption, catarrh and diabetes mellitus was declared false and fraudulent. The company pleaded guilty and was fined $100 and costs.—[*Notice of Judgment No. 4459.*]

Warner's White Wine of Tar Syrup.—The C. D. Warner Co. of Coldwater, Mich., manufactured and sold "Dr. Warner's White Wine of Tar Syrup," which contained opium and alcohol. The government officials declared that the preparation was misbranded, first, because the name was false and misleading in that it indicated that the stuff contained tar and a substantial amount of wine when, as a matter of fact, it contained no tar whatever and but an insignificant amount of wine. The government further declared that the claims that the preparation was an effective remedy for consumption and all diseases and affections of the throat and lungs were false and fraudulent and made knowingly, recklessly and wantonly. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4422.*]

Rawleigh's Golden Cough Syrup and Rawleigh's Ru-Mex-Ol.—A Freeport, Ill., corporation, the W. T. Rawleigh Medical Co., manufactured both these products. The "Golden Cough Syrup" admittedly contained alcohol and chloroform. The government chemists reported that in addition to these substances there was menthol and guaiacol in small amounts and indications of horehound. It was sold under the claim that it would cure whooping cough and asthma, claims which the authorities declared were recklessly and wantonly false and fraudulent. The other product "Ru-Mex-Ol" admittedly contained 26½ per cent. alcohol; in other words, it was just one-half the strength of raw whiskey. The federal chemists found, in addition to the alcohol, some vegetable matter in which rhubarb was indicated. The preparation was sold as a "valuable remedy" for "scrofula" and "eczema" for always keeping the blood pure, for fortifying the system by purifying the blood and thus preventing tuberculosis. The government maintained that these claims were recklessly and wantonly false and fraudulent. The company pleaded guilty and was fined $100 and costs.—[*Notice of Judgment No. 4419.*]





Gooch's Mexican Syrup of Wild Cherry, Tar, Etc.—This preparation, which contained morphin and alcohol, was manufactured by the Cincinnati Drug and Chemical Company, Cincinnati, Ohio. The government chemists reported that, in addition to the morphin and alcohol, there were 61.1 per cent. solids, of which more than 58 per cent. was sugar. Glycerin also was found as well as methyl salicylate and benzaldehyd used as flavoring. Tar and cherry extract were reported to be present in very small amounts. This mixture was sold as a "cure" for consumption and a remedy for croup, whooping cough and spitting of blood. The claims were declared false and fraudulent and applied knowingly, recklessly and wantonly. The company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 4425.*]

Correspondence

JUSTICE TO THE PHARMACIST

To the Editor:—The one outstanding feature of the present world-wide war, which diffcrentiates it from all previous wars, is the recognition of the importance of the industrial resources of nations. Not only is the war of today a contest between military forces, but it is a contest between industrial forces. Every nation involved is mobilizing its industries—using the term in its broadest sense—and stimulating their growth and development to the highest planc of efficiency, realizing that, in the final analysis, victory will go to that nation or those nations which will hold out the longest—industrially, financially and militarily. It is a war of attrition. Such being the case, it is vital that the United States, having entered into the war, should mobilize its industries—which it is doing with the aid of the Council of National Defense—and do everything possiblc to strengthen the weak links of its industrial chain.

One of the most important industries of the war is the relief of human suffering and the saving of human life, and this is the special province of the medical profession, which has never failed to discharge its duty in the past and will not fail now. No one can question the loyalty of the American medical profession to the highest ideals of professional conduct or its patriotism.

The weakest link of the army is its system of pharmaceutic service. This is exceedingly unsatisfactory, because it is hopelessly antiquated. We have no pharmaceutic corps, pharmacists being compelled to enlist as privates without any provision for commissioned rank, as in the dental and veterinary corps. France, Germany, Japan and other nations have such corps, in charge of a pharmaceutic expert of high military standing. The head of the Pharmaceutic Corps in Germany is of the rank of colonel; in Japan of the rank of lieutenant-colonel, and in Italy and France of the rank of major-general.

The present system is detrimental to the efficiency of the army because it fails to recognize the importance of proper and sufficient pharmaceutic service and denies to the sick and wounded the best pharmaceutic service the nation can give. The present system is unfair to pharmacy and pharmacists. Pharmacy is a profession and the graduated pharmacists of today havc had years of collegiate training and practical experience. To enlist professional men as privates is not only unjust to the men, but it is also unjust to the army, because it denies to the army the possibilities of service which such men could render. We hear a great deal these days about commercialism in modern pharmacy, but there has never been a time when American pharmacists, as a class, were being better trained for professional work than today. There are upwards of 100 colleges of pharmacy in the country and these are growing less in number—and stronger. The entrance requirements are being raised, the curriculums extended and everything possible is being done to uplift American pharmacy, professionally. One thousand five hundred pharmacists graduate this year and they are loyal to high professional ideals.

The present system is unfair to the medical corps because it dcnies to that body the assistance and support that a properly trained pharmaceutic corps could give. Pharmacists have been trained not only in pharmacy, but they have also had elementary training in some of the medical sciences, and could be made most useful "medical assistants" in the field, while in the hospitals they could be made purveyors and given charge of the medical supplies, as well as render pharmaceutical and chemical service in the dispensing of drugs and in the chemical and bacteriologic examination of food, water, milk, excrements, etc. In addition they could be developed into useful workers in Roentgen ray, anesthesia, bandaging and sanitation. The present war is more destructive in injuries and fatalities, both to privates and to physicians, than ever before. Before the war, our army requirсd seven medical officers for each thousand combatants. Today

our army is requiring ten medical men for each thousand, while the British forces have increased their number to nineteen, and it is more than probable that when we get into action we shall have to adopt the British ratio. This means 19,000 physicians for each million of troops or 38,000 for 2 millions. Today, there are probably less than 5,000 medical men in commission or in the reserve corps. Hence, it is exceedingly important that the medical forces of the country be mobilized, and a properly trained pharmaceutic corps could be made of great usefulness to the medical corps as "assistants," both in the field and in hospitals.

Approximately there are 150,000 pharmacists in the United States from which an ample supply of skilled pharmacists could be drawn; but the conditions of pharmaceutic service in the army will have to be radically changed before they can do their best work. American pharmacy is a profession, no matter how much it may be tinctured in some directions with commercialism, and American pharmacists in general and the American Pharmaceutical Association in particular have been making serious and earnest endeavors to improve existing conditions.

Like the cry of Macedonia, we ask the great American medical profession to "come over and help us" in the upbuilding of American pharmacy, so that both the profession of medicine and the profession of pharmacy may be bettered. We ask, also, that the medical profession put its seal of approval on the movement to establish a pharmaceutic corps in the army and urge the War Department and the Congress to establish such a corps with proper military standing and responsibilities. American pharmacy is not seeking any special privilege, but it is asking for proper professional recognition in the army service to the end that it may have the opportunity to do its fullest and best work for the sick and the wounded. JOSEPH W. ENGLAND, Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PRESERVATION OF EGGS IN WATER GLASS

To the Editor:—Kindly help me in finding directions for preserving eggs which appeared in THE JOURNAL about two months back. It consisted in putting them in a solution of water glass, but I have forgotten the strength given. If you can refer me to the number in which it appeared, I shall be very much indebted.

F. E. BROWN, M.D., Baltimore,.

ANSWER.—The following articles on this subject have appeared in THE JOURNAL:

Water Glass, Queries and Minor Notes, Aug. 29, 1914, p. 796.
Water Glass in the Preservation of Eggs, Queries and Minor Notes, Sept. 5, 1914, p. 883.
Blunt, K., and Wang, C. C.: Chinese Preserved Eggs—Pidan, *Jour. Biol. Chem.*, 1916, **28**, 125; abst. THE JOURNAL, Jan. 6, 1917, p. 66.
Pidan—An Oriental Food, editorial, Feb. 10, 1917, p. 468.

The following is an abstract of a method recently published by the New York State College of Agriculture at Cornell University:

Eggs should be preserved during March, April, May and June, when the production is greatest and the price is lowest. The commercial water glass solution may be obtained from any drug store, or the powder can be dissolved in a definite quantity of water, as stated in the directions on the package.

If the commercial water glass solution is used, mix 1½ quarts with 18 quarts of pure water; water that has been boiled is preferable. Stir the mixture until the ingredients are thoroughly mixed. A stone jar is the most suitable vessel for the mixture. Two 8-gallon jars are sufficient for 30 dozen eggs, with the amount of solution just prescribed. After the water glass is thoroughly mixed, pour it into the vessels to be used, being sure that the vessels are absolutely clean. Place the eggs in the water glass, see that those at the top are submerged under at least 2 inches of the liquid, and cover the jars in order to prevent evaporation. Put the jars in a cool place where they will be undisturbed during the year.

If there is any doubt as to the freshness of the eggs, candle them, or see whether they sink when placed in a dish of fresh water. If an egg sinks, it is reasonably fresh.

Do not preserve dirty eggs or eggs that have been washed. Washed eggs will not keep because the protective gelatinous coating has been removed by the washing; and dirty eggs will become tainted in flavor. If it is desired to boil eggs preserved in water glass, prick a small hole through the large end of the shell before placing them in the water. The pores of shell have been sealed by the water glass solution, and without the pinhole the expanding air within the shell would burst it.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, Montgomery.
ALASKA: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.
ARIZONA: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.
CALIFORNIA: San Francisco, July 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.
COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: Regular: New Haven, July 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.
CONNECTICUT: Eclectic: New Haven, July 10. Chairman, Dr. John W. Fyfe, Saugatuck.
CONNECTICUT: Homeopathic: New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DELAWARE: Dover and Wilmington, June 19-21. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
DISTRICT OF COLUMBIA: Washington, July 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
FLORIDA, Regular: Palatka, June 19-20. Sec., Dr. E. W. Warren, Palatka.
INDIANA: Indianapolis, July 10-12. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.
KANSAS: Topeka, June 19-21. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 19-21. Sec., Dr. A. T. McCormack, Bowling Green.
MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 19. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
MASSACHUSETTS: Boston, July 10-12. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
MISSISSIPPI: Jackson, June 19-20. Sec., Dr. W. S. Leathers, Oxford.
MISSOURI: St. Louis, June 18. Sec., Dr. George M. Jones, 206 Washington St., Jefferson City.
NEW HAMPSHIRE: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.
NEW JERSEY: Trenton, June 19-20. Sec., Dr. Alexander MacAlister, 438 East State St., Trenton.
NEW MEXICO: Santa Fe, July 9. Sec., Dr. R. K. McClanahan, U. S. Naval Hospital, Las Animas, Colorado.
NEW YORK: Albany, Buffalo, New York and Syracuse, June 26-29. Sec., Dr. Willard J. Denno, Education Bldg., Albany.
NORTH CAROLINA: Raleigh, June 19. Sec., Dr. H. A. Royster, 423 Fayetteville St., Raleigh.
NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.
OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. R. V. Smith, Tulsa.
PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-12. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.
RHODE ISLAND: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.
SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. Park B. Jenkins, Waubay.
TEXAS: Austin, June 19-21. Sec., Dr. M. F. Bettencourt, Mart.
VERMONT: Burlington, July 10-12. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 19-22. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.
WASHINGTON: Seattle, July 3-5. Sec., Dr. C. N. Suttner, Walla Walla.
WEST VIRGINIA: Charleston, July 10. Sec., Dr. S. L. Jepson, Capitol Bldg., Charleston.
WISCONSIN: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.
WYOMING: Laramie, June 27-29. Sec., Dr. H. E. McCollum, Laramie.

PREPARATION OF MEDICAL MISSIONARIES*

At a conference held under the auspices of the Board of Missionary Preparation in New York, some time ago, on "The Preparation of Medical Missionaries for Service," the following was adopted:

MEDICAL PREPARATION

The following outline of the professional training of a medical missionary takes for granted a four-year course in a Class A medical school (American Medical Association classification). It demands seven years of training after graduation from the high school and points out the advantages of three years more.

* Fifth Annual Report of the Board of Missionary Preparation, p. 339.

1. Premedical Education: (*a*) A four-year high school course of at least fourteen units, including seven units of required work as follows:

English, two units.
Latin, Greek, or a modern foreign language, two units.
American history and civil government, one unit.
Algebra to quadratics, one unit.
Plane geometry, one unit.

The other seven units may be made up from any other secondary school subjects. A unit of manual training or of domestic science may be advisable.

(*b*) In addition to the high school course, a college course of at least two years, or its full equivalent, which shall include as a minimum courses of eight semester hours each in chemistry, physics, biology and French or German. The science courses should include laboratory work. In a two-year college course the time not occupied by the foregoing subjects should be spent on a selection from the following:

English language and literature.
Mathematics.
History.
Biblical history and literature.

(*c*) A third year in college is strongly recommended, based largely on the foregoing list. As optional subjects for the third year the following are suggested:

Sociology.
Psychology.
History and methods of education.

(*d*) If the age of the candidate does not prevent, the advantage of the full course of four years in college is distinctly recognized, because of the larger opportunity offered for general culture and for religious training. Some of the subjects for which this additional year would afford an opportunity are:

Economics.
History of religion.
Social and religious survey of the world.
Comparative religion.
Essentials of Christianity.

2. Medical Education: A course of four years in a medical school of Class A. The regular curriculum should be followed, and no attempt made to specialize except through optional or elective courses. Whatever spare time or energy the student may have can be given to the inspection of thoroughly organized, finely equipped and well managed hospitals to gain ideals of efficiency, and to the study of health service organizations and of various forms of organized philanthropic service to become acquainted with standardized methods of sanitation and relief.

3. Graduate Medical Training: *Required.*—At least one year as intern in a good hospital.

Strongly Recommended.—(*a*) One year of postgraduate study in subjects which are important for medical missionary work. The more important subjects are:

Surgery.
Obstetrics.
Diseases of women and children.
Diseases of the eye, ear, nose and throat.
Tropical diseases.
Preventive medicine, hygiene, and sanitation.

(*b*) Keeping, as far as possible, in touch with hospital work, while learning the language, during the first year or so on the missionary field. Professional eagerness, however, should be strictly subordinated to language mastery, unless the doctor is to be related to an institution in which the study is wholly in English. The preliminary courses in phonetics and language acquisition, mentioned below, will tend to greatly reduce the time needed for such mastery.

4. Special Preparation for Women Medical Missionaries: In view of the scope of the medical work of a large proportion of women physicians in the Orient, women medical missionaries should be especially trained in obstetrics and the diseases of women and children. Such training may be secured in some instances during the regular medical course, and in others by supplementary study and hospital experience.

5. License to Practice Medicine: Every appointment to medical missionary service should be conditioned on the passing of an examination by an examining board of some state or other authority. This is important both in the interests of the missionary's standing and as a protection to him in case he should be compelled to relinquish his work abroad and take up permanent practice in the home land.

6. Language Acquisition: Since by the last year of training the medical missionary candidate is almost sure to know his destination, it will be worth while to attend if possible, during the year, a course of lectures on the science of language acquisition and on fundamental phonetics, each with relation to the language to be used in the field.

7. Furlough Study: The medical missionary should plan to take postgraduate instruction in his specialty or in general medicine during his furlough periods, even though he has been given some opportunity for medical study and research while on the field. It is to be hoped that every board will realize the importance of this and provide both the opportunity and the necessary funds.

Book Notices

Medical Diseases of the War. By Arthur F. Hurst, M.A., M.D., F.R.C.P., Physician and Neurologist to Guy's Hospital. Cloth. Price, $1.75 net. Pp. 151. New York: Longmans, Green & Co., 1917.

Many books have been written about the surgical aspect of the war, but comparatively little has been published in regard to strictly medical subjects, though all military medical officers appreciate their extreme importance. Death and disablement on account of wounds are discounted beforehand, but many a campaign has been lost because of a lack of appreciation of the medical side. This book covers the principal diseases encountered, though it appears that almost too much space is taken up with a discussion of nervous disorders. This section, however, is extremely interesting, and includes a number of illuminating case reports. The author finds that most nervous disorders encountered are functional, and that treatment, in the main, has been successful. Hypnotic suggestion seems to have been most efficacious in this type of case. In discussing the dysenteries, he devotes space to symptomatology and diagnosis which could have been used to better advantage in giving more details in regard to prophylaxis. Excellent chapters on trench fever, paratyphoid fever and gas poisoning should interest our officers, who will shortly see these diseases in their European service. The author thoroughly considers epidemic jaundice and beriberi, but it is to be regretted that other camp diseases, such as typhoid fever and diarrhea, are not mentioned. As a whole, the book is well written and is most timely. Many errors will be avoided by our officers if such a volume is generally studied.

Ourselves: A Personal and Family History Register for Preserving Records of a Private and Personal Nature for One Married Couple and Their Children. Also an Appendix Offering Remarks and Hints on the Subject of Development of Children—of Mind, Body, Character and Personality. By John Madison Taylor, A.B., M.D., Professor of Applied Therapeutics in the Medical Department of Temple University. Cloth. Price, $5 net. Philadelphia: F. A. Davis Company, 1917.

The author has arranged in convenient form a series of pages for keeping family records. The book includes an index to names, diagrams for listing ancestors, personal histories of health, blanks for baby records, charts for recording weight and height, blanks for clinical laboratory findings, anatomic diagrams, and pages for special happenings, photographs, handwriting, etc. The object of the book is to preserve material on heredity and health concerning the individual, the family and the race. When the book is completed, it is suggested that it be sent to the Eugenics Record Office, Department of Experimental Evolution, of the Carnegie Institution of Washington, to be there deposited for use in compilation at some future date. The ideal which prompted the author of this book seems worth while, and much valuable information will some day be available if a sufficient number of persons cooperate in the work.

Sanitation in War. By Major P. S. Lelean, C.B., F.R.C.S., F.C.S., Assistant Professor of Hygiene, Royal Army Medical College. With an Introduction by Surgeon-General Sir Alfred Keogh, K.C.B., M.D., F.R.C.P. Second Edition. Cloth. Price, $2 net. Pp. 336, with 54 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This excellent little manual is by a man who is thoroughly familiar with his subject. It is to be regretted that it is in the form of lectures. This tends to detract from the value of a book, as the impression is given that the matter has not received careful editing. Furthermore, the chapters do not

follow in regular sequence. For instance, the chapter on the administration of the medical service is sandwiched in between a chapter on insects and one on field conservancy, and in the chapter on medical administration the author takes up such matters as the selection of camp sites and other sanitary details. In a chapter on sanitary innovations there is a complete description of those which are most important, with working drawings. The whole work is eminently practical, and though many of the details are different from the methods pursued in our army, no one on this side of the water who reads the book can fail to absorb a great deal of information about practical sanitary service.

POETRY AND THE DOCTORS. A Catalogue of Poetical Works Written by Physicians, with Biographical Notes and an Essay on the Poetry of Certain Ancient Practitioners of Medicine, Illustrated with Translations from the Latin and by Reproductions of the Title Pages of the Rarer Works. By Charles L. Dana, A.M., M.D., LL.D. Cloth. Price, $5. Pp. 83, with 21 illustrations. Woodstock, Vermont: The Elm Tree Press, 1916.

In this booklet the author presents a catalogue of poetical works written by physicians, short biographical notes of each physician, and an essay on the poetry of some ancient medical practitioners. The book is artistically prepared, and includes numerous reproductions of title pages of many rare books, as well as examples of the poetry of Italian, German and French physicians. The final statement in the essay on early physicians is a note of caution to the physician who feels poetically inclined:

> So it is to be hoped that if doctors ever have the divine fire in them they will not prevent its expression, always remembering that only the very best poetry is poetry, and that mediocrity is more a sin in poetry than in any other art.

As Horace says:

> "In some professions mediocrity and tolerable endowments may properly be allowed . . . but neither gods nor men give any indulgence to middling poets; for poetry designed by nature for improving our minds, if it comes short ever so little of the top, must sink to the bottom."

TEXT-BOOK OF OPHTHALMOLOGY. By Hofrat Ernest Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized Translation from the Twelfth German Edition by Alexander Duane, M.D., Surgeon Emeritus, Knapp Memorial Hospital, New York. Fifth Edition. Cloth. Price, $7. Pp. 1067, with 462 illustrations. Philadelphia: J. B. Lippincott Company, 1917.

As the translator, who has done his duty well, explains, the present edition is in several senses a new work. He has made a number of radical alterations in arrangement of the text of the fourth edition which have certainly made the new volume more serviceable as a book of reference. In this important sense the present work is the result of the joint labors of both Fuchs and Duane. As a reflex of the recent progress of ophthalmology, a number of pages have been added to the chapters on oculomuscular disturbances, glaucoma, retinal diseases, refraction and operations on the eye. Of the many actual additions to our knowledge of opthalmology, scattered throughout the book, may be mentioned discussions on ophthalmic therapy by means of tuberculin and other vaccines; the mapping of scotomas and the blind spot; squirrel plague and eel's blood conjunctivitis; color testing and the visual field; extragenital gonococcus infection; inclusion blennorrhea; retinitis stellata, and the etiology of iritis. We are sure that this very complete textbook will continue to be favorably received by the profession.

ORGANISM AND ENVIRONMENT AS ILLUSTRATED BY THE PHYSIOLOGY OF BREATHING. By John Scott Haldane, M.D., LL.D., F.R.S. Cloth. Price, $1.25. Pp. 138. New Haven: Yale University Press, 1917.

This is a concise and lucid statement of the facts concerned in the regulation of breathing, the reaction of the blood and the phenomena of acidosis, as now understood. Haldane has made important contributions to our knowledge of the regulation of respiration, as well as to the special and practical respiratory measures insuring safety under high and low atmospheric pressures. He is at the same time a biologic philosopher, and in the last chapter of the book he marshals the physiologic facts of respiration in defense of the so-called vitalistic school, to the tenets of which a number of prominent English scientists appear to subscribe.

Medicolegal

Procuring an Unlawful Abortion Involves an Assault

(State vs. Farnam (Ore.), 161 Pac. R. 417)

The Supreme Court of Oregon, in affirming a judgment of conviction of manslaughter, says that procuring an unlawful abortion on any woman always involves an assault in law, even when it is done with her consent and connivance, because no one can consent to an unlawful act. While as between the parties an unlawful act may sometimes be condoned, it is not within the power of any person to waive the violation of the laws of the country. And if procuring an unlawful abortion is an assault, the offense comes within those involuntary killings by misdirected violence which constitute manslaughter. At common law the producing of an unlawful abortion resulting in the death of the mother was murder by violence. The Oregon statute by making the offense manslaughter has not created a new crime, but has merely reduced the grade of an old offense by changing the punishment from death to imprisonment in the penitentiary. Again, the court says that it concludes from certain precedents that at common law the act of producing an abortion was always an assault, for the double reason that a woman was not deemed able to assent to an unlawful act against herself, and for the further reason that she was incapable of consenting to the murder of an unborn infant. And the court deduces the principle that procuring an unlawful abortion by any means is always in the eye of the law an assault, both on the woman operated on and on the unborn child, and that the one who, in producing such abortion, kills the mother stands in no different relation to the law from a person who, in an attempt to shoot A, shoots wild and kills B, except so far as the statute has modified the punishment. The deceased in this case, a poor, motherless child of 15, was incapable of consenting to an assault on herself, or on her unborn child. It is sickening to speak of her consenting to the act. It was as much a forcible act as though some scoundrel had met her on the road, and, knowing her condition, had seized her, and in the attempt forcibly to bring about a miscarriage had killed her.

Duty and Liability of Carrier of Sick Person—Physician Advising Trip

(C., B. & Q. R. R. Co. vs. Schrimpf (U. S.), 236 Fed. R. 200)

The United States Circuit Court of Appeals, Eighth Circuit, in affirming a judgment in favor of the plaintiff, as administratrix, for damages for wrongfully causing the death of her husband, says that, on the eleventh day after a physician called and found Mr. Schrimpf in bed complaining of a severe cold and congestion of the lungs, he was deemed well enough to take home, a distance of about 55 miles by rail. It was in March. The day was cold, disagreeable, inclement, damp and wintry. The man had on heavy winter underwear, an ordinary suit of clothes, heavy overcoat and a heavy cap. He was placed on a cot with a heavy blanket or rug over him, and a fur-lined overcoat over that. He was then carried across the street about 50 feet to a baggage car of the defendant. At one station for fifteen minutes or more he was lying in the front part of the car with his head toward the rear and about one foot in advance of the doorways. The doors were both wide open, and a cold and heavy wind was blowing across the car, although no reason was shown for having the doors on opposite sides of the car both open. During this time he complained of discomfort, of being cold. He commenced to show more congestion in the lungs and had more difficulty in breathing. On the following morning he displayed symptoms of pneumonia, and he continued to grow worse until he died of lobar pneumonia. While the evidence showed the degree of protection already indicated, it did not show whether the man's face and neck were covered with the blankets or the fur overcoat, and, under the circumstances, the court cannot say that a physician's answer (favorable to the plaintiff) to a long hypothetic question was not based on the facts stated in the question or was not consistent with the facts brought out in the plaintiff's case.

Nor can the court concur in the contention that there was no evidence to warrant a verdict in the plaintiff's favor. It was true that the man had been sick; but, of course, that did not authorize any one to give him a fatal blow. There seemed to have been no necessity for having the doors open on opposite sides of the car when he was lying at the station referred to before, and if one of the doors had been closed the draft would have been nominal. In his condition the company was bound, not only to high care, but to such care commensurate with his condition, and the worse he was the more care was due him from the railroad company. Both of the physicians who attended him testified that in their opinion it was this exposure that caused his death. It was true that another physician testified for the defendant to the contrary; but there was not only sufficient evidence to go to the jury, but apparently a proponderance of the evidence that the defendant's negligence caused the man's death. It was next contended that he was guilty of contributory negligence in taking the trip in his disabled state. But he was not negligent in the selection of his physician, and his physician testified that he was well enough to make the trip, and that he so advised him. The defendant asked the court first to set aside this testimony, and then to hold that the physician was negligent in consenting that the man make the trip, and that his negligence would be imputed to the man. The court, however, cannot find from the evidence that the man was not in condition to make the trip, and this disposed of the whole question of contributory negligence. It was not necessary for the court to express an opinion as to whether, when one employs a physician who negligently advises him to take a trip, and then employs a carrier to take him on the trip, the negligence of the physician can be imputed to the patient, so as to defeat a recovery by him against the carrier for its negligence. Still, under standard authority, even if the physician was negligent, and his negligence was imputed to the patient, it would not defeat a recovery.

Leaving Rubber Tube in Patient's Body—Competency of Evidence

(Saucier vs. Ross (Miss.), 73 So. R. 49)

The Supreme Court of Mississippi, Division B, reverses a judgment that was rendered in favor of the defendant, who was charged with having been negligent in an operation on the plaintiff for an abscess and the subsequent treatment. The court says that the plaintiff swore that the defendant was her physician at the time the operation was performed; that he performed the operation, attended her from time to time while she was in the hospital, and finally discharged and sent her home; that the defendant had put a rubber tube in her wound; that he was the only physician who had done this; that he had charge of the case, and that he had left the rubber tube in her wound, and that the flesh had grown over the same; that after the rubber tube had been in her side for nearly two years she again went to the defendant, who cut same out, and, on being charged by the plaintiff with having left the rubber tube in her, he made no denial. The testimony rather tended to show that gauze which came out of her wound was not the same gauze put there by the defendant, but gauze which had been used after the patient reached her home. The testimony showed that so long as the rubber tube was in her body, the wound in her abdomen caused by the operation would not yield to treatment, and that she suffered severely therefrom. The testimony further showed that when the rubber tube was removed from her body, the wound healed up promptly. In addition to this, the testimony for the plaintiff showed that she spent large sums of money for doctors' bills, and otherwise, in the treatment of this wound. On motion, the trial judge excluded the plaintiff's testimony. This was error. Unexplained, the leaving of a 4-inch rubber tube in a patient's body by a physician is negligence, and it occurs to the court that it would be very difficult for a physician to explain how he could leave a rubber tube in a patient's body, until the wound healed over same, and not be guilty of negligence in the treatment of his patient. It was no answer to the plaintiff's suit that the rubber tube may have been left in her wound by an attendant nurse or other physician in the hospital. She testified that the defendant was her physician and operated on her and attended her while in the hospital, and that the other physicians were acting under his directions in the treatment of her, and that he discharged her from the hospital at the time she left. Lastly, on cross-examination of the plaintiff, the defendant was permitted, over objection, to introduce in evidence a telegram of good wishes and a Christmas card from the plaintiff and her husband to the defendant, sent after the discovery of the rubber tube in her body. This testimony was incompetent and should have been excluded. It did not tend to show that the plaintiff's version of her troubles was not true, nor would any such courtesies show a condonation of her grievances.

Right of Action Surviving to Husband Against Proprietor of Hospital

(Bailey vs. Long (N. C.), 90 S. E. R. 809)

The Supreme Court of North Carolina, in overruling a demurrer to the complaint in this case, after it had been sustained in the court below, says that it was alleged in the complaint that the plaintiff took his wife, who was suffering with a broken hip, to the defendant's hospital for treatment. That by reason of the defective condition and construction of the hospital, and especially on account of the defective condition and construction of the windows of the room in which the plaintiff's wife was placed, the rains beat into the room to such an extent that the floor was covered with water to a depth of more than 1 inch on several occasions, and was allowed to remain so for several hours, thus rendering the room cold and damp, on account of which the plaintiff's wife contracted a severe cold, which developed into pneumonia, from which she died. That the unhealthy and improper condition of said room was due to the gross carelessness and negligent acts of the defendant, by reason of which, and the failure in duty of the defendant, the plaintiff was greatly and seriously damaged and suffered great pain and mental anguish (*a*) to his feelings and sympathies in witnessing the agony and suffering of his wife while lingering with such cold and pneumonia, and in the act and article of death resulting therefrom; (*b*) in the loss of the society of his wife, and (*c*) in the loss of her services. The ground of the demurrer was that no cause of action was stated in the complaint that survived the death of the wife. At common law the right of action for an injury to the person abated on the death of the person injured, under the maxim "a personal action dies with the person." But causes of action accrued to those who stood to the deceased in the relation of master, parent or husband for recovery of damages for loss of service or society. In addition, the court thinks the plaintiff could recover damages for the mental suffering and injury to his feelings in witnessing the agony and suffering of his wife while lingering with the cold and pneumonia, and in the act and article of death resulting therefrom.

Temporary Ailments Disregarded

(National Council Knights and Ladies of Security vs. Owen (Okla.), 161 Pac. R. 178)

The Supreme Court of Oklahoma, in affirming a judgment in favor of the beneficiary on a benefit certificate issued by the society, holds that the fact that an applicant for life insurance is temporarily indisposed at the time of making the application will not avoid the policy, if the illness is not of a character to affect his health permanently, or render him more susceptible to the attack of disease, although he represents in the application that he is in good health at the time. And where, by the terms of a policy of life insurance, the answers to the questions are made warranties, and the applicant answers "no" to certain questions relative to "disease" of specific bodily organs, it is held that the term "disease," within the intention of the parties to the contract, does not include slight or temporary ailments of such organs, and that, the testimony being in conflict as to the breach of such warranties, a question is presented for the determination of the jury.

Society Proceedings

COMING MEETINGS

Idaho State Medical Association, Sandpoint, June 25-26.
Montana Medical Association, Kalispell, July 11-12.
Oregon State Medical Association, Portland, June 28-30.
Washington State Medical Association, Spokane, June 17-19.

ASSOCIATION OF AMERICAN PHYSICIANS

Meeting held in Atlantic City, May 2-3, 1917

(*Continued from page 1777*)

Lung Ventilation

DR. C. F. HOOVER, Cleveland: The respiratory excursion of the upper thorax is characteristically modified, as shown by clinical and experimental studies, in: (1) when the scaleni are paralyzed; (2) when the intercostal muscles are paralyzed, and (3) when extensibility of the upper lober is impaired. Respiratory excursions give valuable information on: (1) the total lung volume; (2) the relative enlargement of the left and right ventricles of the heart; (3) the total enlargement of the heart; (4) enlargement of the pericardial sac; (5) paralysis of the intercostal muscles and paralysis of the diaphragm; (6) differentiation between paralysis of the diaphragm and activation of the diaphragm without excursion of the leaf of the diaphragm, and (7) the size of the respiratory unit; and they give an explanation of the error of Duchenne's interpretation of the diaphragm.

Significance of the Percentage of Carbon Dioxid in the Alveolar Air in Pneumonia Patients Who Are Cyanotic

DRS. R. D. PEARCE and C. F. HOOVER, Cleveland: The carbon dioxid pressure in the alveolar air is found to be lower than normal in some cases of fibrinous pneumonia. In these cases cyanosis is present, but there is no evidence of cardiac impairment, air hunger or acidosis. Patients with massive pneumonia who have no cyanosis have a normal or high percentage of carbon dioxid in the alveolar air. The capacity in both conditions is less than was expected. An explanation of this phenomenon may be found in the assumption that the pulmonary circulation continues through the consolidated lung after its respiratory function has failed. This condition would supply venous blood to the left heart which, acting as a diluting agent to the arterial blood, would increase the tension of the oxygen in the arterial blood. The increased tension of the carbon dioxid in the blood stimulates the respiratory center with the result that the minute volume of the respiration is increased and the percentage of carbon dioxid in the alveolar air is reduced. The blood passing through the healthy lung has a lower than normal content of carbon dioxid to compensate for the high percentage of carbon dioxid in the venous blood with which it is mixed in the left heart. However, since the blood which passes through the healthy lung is fully saturated with oxygen, no compensatory mechanism can be established by which the oxygen content in the mixed blood in the left heart can be brought to normal oxygen tension. The blood therefore appears cyanotic. The condition is somewhat analogous to that found in congenital heart disease.

Clinical and Pathologic Features of Bronchiectasis

DR. ALFRED STENGEL, Philadelphia: Among 63 cases, 36 cylindric, 18 saccular and 9 cylindric and saccular, there were 9 cases of bronchiolitis, 7 cylindric and 2 cylindric and saccular. Of the pneumonias there were 17 cases, 12 cylindric and 5 sacculated. There were 27 tuberculous cases, 12 cylindric and 10 sacculated, and 5 cylindric and sacculated. There was 1 case of atelectasis—cylindric. The cylindric and generalized bronchiectases are amenable to medical treatment. The most important sign associated with respiration is the "trap-door" breathing, a condition not described in the literature. Some call it the "veiled puff." The upper lobes may be involved, but the lower lobes are more frequently the seat of the disease.

Gastric Polyposis

DRS. JULIUS FRIEDENWALD and JOHN M. T. FINNEY, Baltimore: In two cases of this condition, operation was performed and the condition demonstrated. In both instances carcinomatous degeneration was observed. The histories, Roentgen examination and gastric findings pointed toward cancer. A third case presented a most marked instance of polyadenoma gastrica. The underlying cause of adenoma papillomata is a chronic gastritis. In some cases the symptoms are very severe.

DISCUSSION

DR. WILLIAM S. THAYER, Baltimore: Twenty-five years ago I was interested in a case. The patient was a woman, aged 60 or 70, who presented symptoms of pyloric obstruction. No examination of the gastric juice was made. No metastasis could be made out. At necropsy a long pedicle was found which engaged the pylorus and caused almost complete obstruction. The microscopic examination did not show any evidences of carcinoma.

DR. THEODORE C. JANEWAY, Baltimore: I have seen a case showing the great motility of the tumor which lay between the ensiform and the right iliac region, but never was in the same part of the abdomen on two consecutive days. The symptoms and signs were those of carcinoma of the stomach. At necropsy there was found a pédunculated adenocarcinoma of the stomach which hung by a long pedicle.

Maintenance Diet in Diabetes Mellitus

DR. HERMAN O. MOSENTHAL, Baltimore: An attempt has been made to determine what constitutes a maintenance diet in diabetes mellitus. Carbohydrates were eliminated from the diets, except such as were contained in green vegetables. It was found that in order to furnish food that was palatable over a long period it was not possible to reduce the number of grams of fat below those of protein. The nitrogen balance was determined in a series of patients under these dietary conditions. It was found that in an average person a nitrogen balance could be obtained on a carbohydrate-free diet of from 1,500 to 1,700 calories. The practical conclusion to be drawn from these observations is that every diabetic patient who is treated by means of a carbohydrate-free diet in which the number of grams of fat and protein are approximately equal to one another should ingest at least between 1,500 and 2,000 calories of this food in order to insure a nitrogen equilibrium, that is, a maintenance diet. When the glucose tolerance of the patient has warranted it, the diet when increased beyond 1,690 calories in small persons or 2,000 in large persons, has usually been augmented by the addition of starch-containing food and not by further protein and fat.

Diabetes in Children

DRS. E. P. JOSLIN and HORACE GRAY, Boston: A series of 123 cases of diabetes in children under 15 years of age was analyzed. Five patients have gone on eight or nine years and appear to be in good condition and sugar-free. The duration of the disease in the patients either living or dead up to this time averaged 1.1 years. Obesity plays an important part in the etiology of diabetes in adults, 40 per cent. of patients showing it.

Association Between Diabetes Mellitus and Tuberculosis

DR. S. SOLIS COHEN, Philadelphia: I have been unable to determine what the relation between the two conditions is and I have been unable to find any statistical evidence that is of value. There are, however, certain facts gathered from the family histories possibly indicating that there is some fundamental relation which is vaguely called constitutional, congenital or hereditary, and the conditions of metabolism of the patients. In the negro, tuberculosis is common and diabetes rare; white people, on the other hand are relatively immune to tuberculosis and prone to diabetes. Many of the patients coming under my observation have been obese or gouty. These associations are suggestive of some relation between the two conditions, and it seems that diabetes is liable to eventuate in tuberculosis.

DISCUSSION

Dr. Nellis B. Foster, Ann Arbor: The conditions which lead to the death of diabetic patients are peculiar. Not only are there severe nutritional disturbances which give rise to a peculiar blood picture, but also there are many other conditions which may cause certain organic changes. We have made a fundamental mistake in regarding diabetes as one disease. There is certainly the greatest possible difference between the clinical pathology and other manifestations. Glycosuria in a child does not mean diabetes in the sense in which we understand this term. The child will not get the characteristics of this disease unless the diet is bad and the child wasted.

Dr. D. D. Van Slyke, New York: A question that arises with me is, Is acidosis caused by the acetone bodies, only the retained acid, or is it due also to the acidosis form of excretion? The more acetone bodies in the blood the more severe the acidosis. The acid formed in the blood is neutralized by sodium bicarbonate. The acid doing the damage is retained, but it could be excreted and take alkali with it. This damages the body by causing a double acidosis, the kind that develops the typical diabetic coma. These patients die because of the concentration of the acetone bodies in the blood.

Dr. Frederick Madison Allen, New York: Diabetes anatomically is a destruction of the islands of Langerhans. It is impossible to think of any diet as being curative of diabetes. It is a fact, too, that persons are killed because of the gloomy prognosis given them. The treatment is improving, and the time will come when these patients can be saved.

Dr. E. P. Joslin, Boston: Three per cent. of my patients had tuberculosis with their diabetes. With regard to the Jewish race in Boston, a paper was published not long ago which covered a period of fifteen years, and this writer found that in proportion to the population there was a remarkable increase of this disease among Jews. It is best to keep patients on a low diet, but yet to maintain their weight. In my experience in the treatment of children with diabetes, I have never seen a case in which the physician or family gave up treatment in which the child was not in a worse condition than it would have been had the treatment been followed straight through to the end.

Dr. S. Solis Cohen, Philadelphia: Diabetes is common among the Jews, both rich and poor. Tuberculosis is rare among rich Jews but quite frequent among the poor, and especially the Russians, but the proportion of cases of tuberculosis among the Jews is less than among those of other races under the same social conditions.

Subacute and Chronic Nontuberculous Pulmonary Infections

Dr. J. L. Miller, Chicago: These cases may be grouped into three types: the subacute, the subacute with recurrences, and the chronic type. Of the first type there were nine cases, characterized by mild onset, and slight febrile disturbances lasting about five days. The expectoration was purulent, sometimes with hemoptysis. There was no pain, and the physical signs were characteristic, and limited, as a rule, to the lower lobe. There was usually a slight impairment of resonance and diminished vesicular breathing, and moist râles over the entire lobe. These cases usually present the physical signs of tuberculous infiltration. I have seen evidences of consolidation. Among these nine cases the fatal termination occurred in from four weeks to six months. The physical signs might persist for two or three months and then disappear. In all these cases the examination of the sputum for tubercle bacilli was consistently negative. One of the characteristic and striking signs in these cases is the lack of evidence of pulmonary markings.

There were six cases of the second type, much like the first type except that the condition recurred at intervals of several months or a year. In one instance four recurrences were noted. In each recurrence the signs and symptoms were the same and always in the same area. In four, the roentgenogram was absolutely normal. There were seven cases of the third type. In these the signs never cleared up, though there were exacerbations in the symptoms. In three cases, pain was present. Pneumococci of Type 4 were found in four cases, and the *Streptococcus viridans* in three. The number of bacteria were increased during exacerbations. In the last type the roentgenogram showed in all increased mottlings, very marked in two. Pleuritic adhesions were present in four cases. The ages of these patients ranged from 1 to 60 years. The subacute type predominated in the young people. The seasonal incidence was the cold months. In thirteen cases the left lobe was the seat of the lesion, in five the right lobe, in three both lobes, and in one right upper and left. Cultures were taken in twenty-one cases, of which ten showed the pneumococcus of Type 4, eight the influenza bacillus, and three the *Streptococcus viridans*. The Roentgen ray showed seven normal cases, ten with increased mottlings, and in the chronic type, four with adhesions. There was one with effusion.

DISCUSSION

Dr. James B. Herrick, Chicago: I have had six cases of the subacute type with recurrences. In one case there were five recurrences in as many years. Roentgenoscopy revealed the same signs as in the subacute type. In the chronic type there never seemed to be any clearing up. There were exacerbations of the symptoms that were similar to the acute type with the recurrences. I have had seven cases, three of which showed distinct pain. In all seven cases, roentgenoscopy revealed similar changes. In four there were evidences of pleuritic adhesions. Recovery occurred within a few months in the subacute cases.

Dr. Nathan E. Brill, New York: In the first pandemic of influenza in 1888 and 1889, I saw these cases for the first time. In most instances the lower left lobe was attacked, while in a few cases the left upper lobe, the right lobe, or both were affected.

Dr. H. A. Hare, Philadelphia: Two or three years ago, I pointed out that there were no physical signs in these cases characteristic of tuberculosis. It is important to recognize this.

Dr. Lawrason Brown, Saranac Lake, N. Y.: We should prove that these cases are not tuberculous before discharging the patients. I should like to know what the condition of the antrum and sinuses was in these cases.

Dr. J. L. Miller, Chicago: Aside from coryza, there seemed to be no infection of the air passages.

A Roentgenologic Study of Pneumoconiosis

Drs. H. R. M. Landis, H. K. Pancoast and T. G. Miller, Philadelphia: We have examined thirty-seven potters and a number of cement workers. Different kinds of dust produce different varieties of damage, and different individuals react differently to particular dusts. The changes produced by organic dusts are quite definite. Dusts have a tendency to collect at the junctions of the lymph channels, and the terminal stage is a fibrosis which is quite extensive. During the first five years, practically nothing is shown; during the next ten years, the linear markings are more distinct, and at about the fifteenth year, they become quite distinct, and a diffuse fibrosis occurs. There is also a marked dilatation of the bronchi.

DISCUSSION

Dr. George M. Kober, Washington, D. C.: It has been estimated that half of the deaths from tuberculosis occur among industrial workers. The majority of workers who are exposed to dust of any kind continuously have some chronic disease of the respiratory tract, and many of them develop pneumoconiosis.

Dr. W. M. L. Coplin, Philadelphia: I believe that chronic lymphangitis is back of this trouble. Accompanying these lesions are bronchitis, edema of the skin, and a bronchial asthma. In the latent, mild chronic or subacute, there is a retardation of the lymph flow through the tissues.

Dr. Charles G. Stockton, Buffalo: Some years ago a case similar to these was described which was caused by the great amount of dust in an elevator. I have since seen many of these cases due to the dust in elevators in which no precautions were taken to protect elevator men and no proper provision was made for ventilation. The late cases go on to

interstitial pneumonia, occasionally with cavity formation and sometimes asthma. These cases may be described as "elevator pneumonias" of slow progress.

DR. DAVID L. EDSALL, Boston: It has been shown that where there has been a constant exposure to dust there is a proneness to chronic as well as to acute pneumonia. The extraordinary thing about this exposure is the long period of time through which people may be exposed and apparently suffer no ill effects from it.

DR. H. R. M. LANDIS, Philadelphia: The fibrinous process tends to retard rather than to accelerate the progress of the disease.

Aortic Aneurysm Treated by Wiring

DR. HOBART A. HARE, Philadelphia: In twenty-seven wirings, the pain was allayed or relieved before the operation was complete. As the expansible pulsation was simultaneously decreased, the relief of the pain might be due to the relief of eroding pressure or to the sedative effect of the galvanic current. In cases in which the aneurysm is the result of trauma, the outlook is better than in those cases in which it is a manifestation of arterial disease. It is essential not to mistake a fusiform aneurysm or a growth for a sacculated or false aneurysm. The form of aneurysms suited to this procedure are the saccular ones. The point of greatest bulging or giving way must be chosen. The needle must be insulated properly and not pushed too far so as to cause an electrolytic burn. The wire must be gold and platinum, so as not to undergo electrolytic changes. Gold and copper alloy is eaten through rapidly. It is important that the wire have spring, but it must not be too strong. If silver wire is used it will not coil. The positive pole must be in the sac. If street current is used it must be reduced, the operating table insulated, and the surgeon's feet covered with rubber shoes. The current must not be too strong. One should start at 5 milliamperes and rarely go above 40, raising 5 every five minutes and gradually reducing it. The current should never be broken. The wire should be 28 B. and S. gage. This procedure is not dangerous if carried out promptly.

Occurrence of Bilirubin in the Plasma and in Other Body Fluids

DRS. M. A. BLANKENHORN and C. F. HOOVER, Cleveland: Four hundred specimens of blood plasma, obtained free from hemolysis, were examined for bilirubin, bile salts and urobilin, and a smaller number for cholesterin. The findings were correlated with an examination of the urine and the appearance of the skin. In 153 cases there was cholemia without choluria. Bile salts were found in the urine in 102 instances. In 133 cases examined for urobilin in the blood, twenty-two were positive, the urobilin being present in large amounts. Often we found urobilin in the urine and not in the blood. In Laënnec's disease of the liver, cholemia was found without choluria. Cholelithiasis was not demonstrable.

Causation and Curability of Certain Long-Standing Albuminurias

DR. DAVID RIESMAN, Philadelphia: Cases of long-standing albuminuria should not be considered as incurable. Albuminuria may be kept up by the presence of stone or of some offending foci. When patients are cured of such albuminurias, they usually continue to live for years.

DISCUSSION

DR. THEODORE C. JANEWAY, Baltimore: Posture is one of the most significant causes of albuminuria. "Orthostatic albuminuria" is an incorrect term. It is often difficult to say whether or not the postural albuminuria is the only condition present. It has been stated that in many of these cases, if the patients are put to bed for three quarters of an hour, the albuminuria cleared up. This is a mistake, for the kidneys do not recover with such rapidity. It has been found that when patients run about they do not have albuminuria, but when they stand still they have it. One patient presenting albuminuria and hyaline casts in the urine was shown to have a stone. With the removal of the stone, there was a disappearance of the albumin and casts. Another interesting case was that of a man who was refused by a life insurance company because of showers. In the afternoons he took up boxing, and albumin and casts later appeared in the urine. I saw the man thirty years after this discovery was made.

DR. WILLIAM S. THAYER, Baltimore: I recall one patient, 14 or 15 years of age, who was brought to me with the suggestion that a warm climate was best for him. He was suffering from an infection from adenoids and tonsils. Tonsillectomy and removal of the adenoids caused the symptoms to disappear. Albuminuria sometimes follows cold bathing in the morning.

DR. LEONARD G. ROWNTREE, Minneapolis: I recall the case of a man who was normal except for the presence of albumin and a few casts. This man had bad tonsils. There has been an immense improvement since the diseased tonsil was treated.

DR. MILTON H. FUSSELL, Philadelphia: One great difficulty when we find foci of infection in the teeth is to know just what kind of treatment to employ.

Elimination of Uric Acid in Gout and Other Forms of Arthritis

DRS. JOSEPH H. PRATT and C. W. MCCLURE, Boston: Retention and delayed excretion of uric acid occurs in other diseases as well as in gout. A retarded and diminished excretion of uric acid is probably not an essential factor in the product of gout. Injected uric acid remains in the blood of gouty patients longer than in the blood of the nongouty. Some impairment of renal function is found in all cases of gout studied by the newer methods.

DISCUSSION

DR. LEWELLYS F. BARKER, Baltimore: The majority of cases diagnosed as gout at the spas are not cases of gout at all but of an infectious arthritis or an ostearthritis. The unreliability of the methods of studying uric acid must be emphasized. I think the evidence favors the view that in gout, renal insufficiency is at fault as regards the excretion of uric acid.

DR. JOSEPH H. PRATT, Boston: As to the endogenous output, if the diet is purin-free the uric acid is low. It is important that observations should be made on young persons.

Influence of Pituitary Solution on the Urinary Excretion in Diabetes Insipidus

DRS. LEWELLYS F. BARKER and HERMAN O. MOSENTHAL, Baltimore: In a patient who was suffering from diabetes insipidus, the urinary output could be reduced from 8 to 10 liters in twenty-four hours to a normal output, and the specific gravity could be increased correspondingly. The effect of each injection was marked for about four hours. Single injections, though the dose was large, had little effect. The minimum dose was 1 c.c., and more than two injections seemed to give no additional advantage.

DISCUSSION

DR. J. L. MILLER, Chicago: Pituitary solution in either normal or diseased persons causes a reduction in the urinary output. Following an injection of 5 c.c. of pituitary solution a man had a terrific headache. For the first time in eight years, he was not compelled to rise at night to urinate. Intramuscular injections were given without effect. The posterior lobe was effective in these cases.

DR. THOMAS B. FUTCHER, Baltimore: A point to be emphasized is that injury to the pituitary gland may result in diabetes insipidus. Pituitary solution increases the output of the urine and the specific gravity, and also the ability of the urine to concentrate salt and nitrogen. Cushing's observations on the pituitary gland are of interest. In twelve out of 100 cases of pituitary tumor, there was an increased flow of urine. Many of these patients had a marked polyuria, and six came to necropsy with the diagnosis of diabetes insipidus.

DR. S. SOLIS COHEN, Philadelphia: I recall two cases of diabetes insipidus. One patient, a man, aged 30, in addition to passing large quantities of urine, complained of severe pain in the left hypochondrium. Pituitary solution caused the urine to clear up, but the pain continued. An adhesion was found between the colon and the stomach, the cause of which was not evident. These adhesions were liberated, and

the urinary output fell from 11 or 17 liters a day to 2 liters. The second patient, a girl, aged 18 or 19, had a urinary output of 8 liters a day. After the administration of pituitary solution it fell to 2 liters a day.

Dr. Henry Koplik, New York: I have been able to collect reports of three cases of diabetes insipidus so far. It is difficult to separate the two classes of cases. This new therapy is applicable to a certain set of cases.

Dr. Lewellys F. Barker, Baltimore: The observation of the Mayos is true, that where there is an inability to secrete urine without some form of therapy, pituitary solution had been found to be effective in overcoming this inability. In the hereditary cases there is something at fault; the pars intermedia seems to be the actual site of the disease in diabetes insipidus. In cases in which the posterior lobe has been destroyed, substitution therapy must be carried out as long as the patient lives.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

June, XIII, No. 6

1 *Occlusion of Aqueduct of Sylvius in Relation to Internal Hydrocephalus. M. G. Schlapp and B. Gere, New York.—p. 461.
2 *Diagnosis of Spinal Cord Tumors in Childhood. Report of Case of Tuberculoma of Cerebrum and Spinal Cord. R. L. Ash, San Francisco.—p. 487.
3 Physiology of New-Born Infant. F. B. Talbot, Boston.—p. 495.
4 Use of Longitudinal Sinus for Diagnostic and Therapeutic Measures in Infancy. A. Brown and G. E. Smith, Toronto, Canada.—p. 501.
5 Prodromal Symptoms of Infantile Paralysis. M. G. Wilson, New York.—p. 506.
6 Posterior Basic (Walled-Off) Meningitis; Report of Case with Recovery. A. Sophian, Kansas City, Mo.—p. 514.

1. **Internal Hydrocephalus.**—The results of the clinical, postmortem and histologic investigations in eight cases of internal hydrocephalus of the obstructive type are studied by Schlapp and Gere, bringing special emphasis to bear on the obliterating lesion of the aqueduct of Sylvius as a cause of ventricular distention. Of this group, examined without selection, all showed either complete occlusion of the aqueductus cerebri or obliteration of the fourth ventricle through severe pathologic changes occurring in the ependymal or subependymal tissues of these regions. Reviewing the facts in these cases the authors arrive at the conclusion that it is not unreasonable to attribute many, if not the majority, of cases of the congenital form of this disease to closure of the aqueduct of Sylvius through proliferation of the glia and ependymal tissues, or to invasion of the fourth ventricle by tumors having their origin in the floor, the choroid plexus or the membranous roof of the ventricle. Those cases, also, developing acutely in previously healthy adults and older children, and which have shown microscopically the same pathologic changes, may have been brought about in the same manner, namely, through the stimulation by some chemical poisoning of a tissue which is embryologically defective. In cells which have become highly specialized, as the nerve cell, gland cell and muscle cell, the potential energy of the cell body is converted into the predominating activity, and the formative process is held in abeyance, and, so long as the normal relation between synthesis and catalysis is maintained, functional activity of the cell remains in a state of constancy. On the other hand, in those cells not highly specialized, as the ependymal, glia and the connective tissue cells, formative activity is easily awakened, and so it happens that in many cases of hydrocephalus, stimulation of these cells by some irritating substance results in an active proliferative process involving the ependyma and the subependymal tissues of the aqueduct of Sylvius, as seen in the obliterative glioses which figure conspicuously in the authors' cases.

2. **Spinal Cord Tumors.**—Of special clinical interest in Ash's case was the fact that a tumor of the spinal meninges, which was diagnosed during life, was the first manifestation of a generalized tuberculosis in a child of 19 months. Xanthochromia with massive spontaneous coagulation and pleocytosis was an attending syndrome.

American Journal of Insanity, Baltimore

April, LXXIII, No. 4

7 Social Service in State Hospital. G. M. Kline, Hathorne, Mass.—p. 567.
8 Psychosis Presenting Schizophrenic and Freudian Mechanisms with Schematic Clearness. C. C. Wholey, Pittsburgh.—p. 583.
9 Psychanalytic Tendencies. W. A. White, Washington, D. C.—p. 599.
10 Psychiatric Aspects of Pellagra. W. C. Sandy, Columbia, S. C.—p. 609.
11 Manic Depressive Psychosis in Negro. E. M. Green, Milledgeville, Ga.—p. 619.
12 Manic Depressive and Dementia Praecox Psychoses; Their Differential Symptomatology. H. H. Drysdale, Cleveland.—p. 627.
13 Psychology of Hysteria. W. G. Somerville, Memphis, Tenn.—p. 639.
14 Dreams and Their Interpretation. R. Armstrong-Jones, London.—p. 655.
15 Reception, Examination and Care of New Admissions. C. G. Wagner, Binghamton, N. Y.—p. 673.
16 Biologic Aspects of Dementia Praecox. F. W. Langdon, Cincinnati.—p. 681.
17 War and Neurosis. C. B. Farrar, Canada.—p. 693.
18 Psychoneuroses, Psychoses and Mental Deficiency in Two Thousand Cases Considered Especially from Standpoint of Etiologic Incidents and Sex. A. Gordon, Philadelphia.—p. 721.

American Journal of Public Health, Boston

May, VII, No. 5

19 Statistical Study of Diphtheria. F. S. Crum, Newark, N. J.—p. 445.
20 U. S. Army Methods of Disposal of Camp Refuse. J. M. Phalen.—p. 481.
21 Examination of Recruits for Army and Militia. H. D. Orr, Chicago.—p. 485.
22 Principal Defects Found in Persons Examined for Service in United States Navy. C. A. Costello.—p. 489.
23 Dispensary Problems of Gonorrhea and Syphilis. A. N. Thomson, New York.—p. 493.
24 Maine's New Health Law. C. E. Turner.—p. 502.

Archives of Internal Medicine, Chicago

May, XIX, Part II, No. 5

25 *Clinical Calorimetry. Basal Metabolism of Old Men. J. C. Aub and E. F. Du Bois, New York.—p. 823.
26 *Id. Effect of Caffein on Heat Production. J. H. Means, Boston; J. C. Aub, E. F. Du Bois and G. F. Soderstrom, New York.—p. 832.
27 *Id. Basal Metabolism of Dwarfs and Legless Men; Specific Dynamic Action of Protein. J. C. Aub and E. F. Du Bois, New York.—p. 840.
28 *Id. Respiratory Metabolism in Nephritis. J. C. Aub, E. F. Du Bois and G. F. Soderstrom, New York.—p. 865.
29 *Id. Effect of Roentgen-Ray and Radium Therapy on Metabolism of Patient with Lymphatic Leukemia. J. B. Murphy, J. C. Aub, New York, and J. H. Means, Boston.—p. 890.
30 *Id. Metabolism in Three Unusual Cases of Diabetes. F. C. Gephart, J. C. Aub, E. F. Du Bois, G. Lusk and G. F. Soderstrom, New York.—p. 908.
31* Id. Water Elimination Through Skin and Respiratory Passages in Health and Disease. G. F. Soderstrom and E. F. Du Bois, New York.—p. 931.

25. **Metabolism of Old Men.**—A group of six men between the ages of 77 and 83 were studied in the calorimeter by Aub and Du Bois. Their average basal heat production was 35.1 calories per square meter per hour, which is 12 per cent. below the average for men between the ages of 20 and 50. The methods of direct and indirect calorimetry agreed closely and the respiratory quotients were all within normal limits.

26. **Caffein and Heat Production.**—An increase of from 7 to 23 per cent. in the basal metabolism was found in four normal subjects after receiving 8 to 10 grains of caffein alkaloid (8.6 mg. per kg. of body weight). After taking the drug there was no significant change in the pulse rate, in the respiratory quotient, in the proportions of the various foodstuffs metabolized, or in the percentage of heat lost in the vaporization of water. The independent methods of direct and indirect calorimetry gave results which agreed within 1 per cent.

27. **Metabolism of Dwarfs and Legless Men.**—The basal metabolism of five dwarfs, two legless men and six normal

controls is reported by Aub and Du Bois. The legless men and the dwarfs, with apparently normal endocrine systems, showed, in relation to their surface area, the same level of metabolism as normal men. The law of surface area holds good for men of unusual body shape. The dwarfs with involvement of the ductless glands and symptoms of cretinism showed a marked reduction in metabolism below the average found in normal cases.

28. **Respiratory Metabolism in Nephritis.**—Five patients suffering from nephritis of the chronic interstitial type, without edema, were studied by Aub and Du Bois. One with marked uremia was at the normal level of metabolism. Another, who was very restless, showed an increase. A third, in whom hyperthyroidism was suspected, also showed an increase. The other two were near the upper normal level of metabolism. In most of the patients with greatly increased blood pressure the metabolism was higher than in the other nephritics with lower blood pressures. Most of the patients with marked dyspnea showed some increase in metabolism. No relationship could be established between the level of metabolism and the degree of acidosis or the eliminative power of the kidney.

29. **Metabolism in Leukemia.**—A man, aged 59, with chronic lymphatic leukemia was studied five times in the respiration calorimeter. When first observed his metabolism was 44 per cent. above the average normal, falling a little with rest in bed. Intensive treatment with Roentgen rays caused a drop in the leukocyte count but did not appreciably affect the level of his metabolism. The water elimination through skin and respiratory passages was unusually high. Direct and indirect calorimetry gave total results which were almost identical, and no abnormal respiratory quotients were found. After treatment with radium, a further and very marked fall occurred in the leukocyte count and, at the same time, a slight fall occurred in the basal metabolism.

30. **Metabolism in Diabetes.**—Three cases of diabetes studied in the respiration calorimeter are reported. Case 1, a diabetic woman, through prolonged fasting had been brought to a level of metabolism 37 per cent. below the standard level for her height and weight, a metabolism which was only 40 per cent. of the original normal value before the initiation of fasting. This is the lowest level of metabolism ever recorded. Case 2, a patient with a mild case of diabetes, whose urine was free from sugar, became suddenly and completely diabetic on the administration of a high protein-fat diet, and, on fasting, rapidly regained his former tolerance for sugar. Case 3, an acute case of complete diabetes which, in high protein metabolism and in high D. N ratios, resembled experimental diabetes in animals. When given meat and fat, the patient not only excreted all the sugar derivable from protein, but he also excreted all the beta-oxybutyric acid derivable from the fat metabolism of the time. Two months later when the metabolism was 35 per cent. below the normal for his height and weight, two-thirds of the total calories were derived from carbohydrate.

31. **Water Elimination in Health and Disease.**—According to Soderstrom and Du Bois, the output of water is very little affected in disease. When the heat production is increased the body responds and dissipates the usual percentage of calories in the vaporization of water. When it is necessary to get rid of unusual amounts of heat the percentage lost in vaporization is increased.

Arkansas Medical Society Journal, Little Rock

May, XIII, No. 12

32 Social Problems of Feebleminded. A. W. Stearns, Boston.—p. 249.
33 Epididymotomy. S. P. Bond, Little Rock.—p. 250.
34 Syphilis of Nervous System. C. L. Gregory, Greenville, Texas.—p. 251.

Boston Medical and Surgical Journal

May 24, CLXXVI, No. 21

35 Arteriosclerosis, with Special Reference to Diet. L. F. Bishop, New York—p. 721.
36 *Study of Twenty-Nine Cases of Echinococcus Disease at Massachusetts General Hospital. L. Davis and G. M. Balboni, Boston.—p. 726.
37 Mental States Responsible for Malingering. E. B. Emerson, Bridgewater.—p. 736.
38 Traumatic Injuries of Kidneys. F. Warner, Columbus.—p. 740.
39 Measles. D. M. Lewis, New Haven, Conn.—p. 742.

36. **Echinococcus Disease.**—In the last three years the echinococcus complemental test has been used at the Massachusetts General Hospital. Ninety-seven tests in all have been made. Twelve were positive and eighty-five were negative. Of the twelve positive cases, seven proved to be echinococcus disease. One of the five other patients at operation showed an abscess in the abdominal wall, which on microscopic examination showed no evidence of tuberculosis. Its appearance was not inconsistent with echinococcus cyst. One had clinically a large spleen and liver, a positive Wassermann reaction, and was not operated on. Three were clinically syphilis and had weak to strongly positive Wassermann reactions. Among the eighty-five negative cases, twenty-four had a positive Wassermann reaction. The Wassermann reaction was negative in five of the proved echinococcus infections. It was not done in the remaining two. There was some variation in the strength of the echinococcus reaction in the same patient from time to time. The cyst fluid proved a better antigen than the alcoholic extract of the cyst wall. The cyst fluid was found active as an antigen after more than eighteen months outside of the body. The cysts were located in the liver alone in sixteen; in five cases other parts as well as the liver were involved, namely, peritoneal cavity twice, omentum lung and kidney once each. In the other eight cases the cysts were found in the brain, heart and pericardium once, kidney twice, peritoneum once, gastrohepatic omentum once, and retroperitoneal twice. In one case echinococcus cysts were passed in the feces, in another with the urine.

Bulletin of Lying-in Hospital City of New York

May, XI, No. 2

40 *Thrombosis of Cerebral Sinuses and Veins as Complication of Puerperium. J. R. Hunt, New York.—p. 73.
41 *Appendiceal Abscess with General Peritonitis by Streptococcus Viridans. J. W. Markoe, New York.—p. 80.
42 Case of Full Term Abdominal Pregnancy, with Macerated Fetus and Streptococcus Infection of Sac and of Uterus. A. B. Davis, New York.—p. 83.
43 Birth Control. G. W. Kosmak, New York.—p. 88.
44 Severe Case of Pyelonephritis with Colon Bacillus Infection of Blood, Complicating Pregnancy. R. McPherson and J. R. Losee, New York.—p. 100.
45 Five Cases of Ectopic Gestation. J. W. Markoe, New York.—p. 104.
46 Follow-Up System in Obstetrics. J. A. Harrar, New York.—p. 109.
47 *Routine Use of Cathartics During Puerperium. R. McPherson, New York.—p. 118.
48 Atrophy of Kidney Following Spontaneous Ureterosigmoidal Fistula. C. F. Jellinghaus, New York.—p. 120.
49 Puerperal Hysteria, Pregnancy Toxemia or Acute Poliomyelitis. J. A. Harrar, New York.—p. 123.
50 Case of Twin Pregnancy in Bicornuate Uterus. M. Rosensohn, New York.—p. 125.
51 Functions of State Medical Association Journal. G. W. Kosmak, New York.—p. 126.
52 Feeding of New-Born. R. H. Dennett, New York.—p. 130.
53 Phenolsulphonephthalein Test in Pregnancy. M. K. Smith, New York.—p. 134.
54 Case of Typhoid in Pregnancy. H. M. Ratliff, New York.—p. 142.

40. **Thrombosis of Cerebral Sinuses.**—Hunt reports the case of a primipara, 21 years old, who, on the twentieth day, after an apparently normal delivery and puerperium, was seized with severe headaches, vomiting and general convulsions. The convulsive seizures continued and were both general and jacksonian in type. Paralysis of the right side of the face, right arm and motor aphasia supervened. The patient gradually sank into a stupor and succumbed on the tenth day of the disease. Necropsy showed extensive thrombosis of the dural sinuses, the superior longitudinal, lateral and petrosal sinuses; also thrombosis of the cerebral veins with extensive hemorrhagic softening of the cerebral cortex, especially marked over the frontoparietal region. The histologic picture was one of hemorrhagic softening, without evidences of arterial disease or inflammation. The liver and kidneys were congested, otherwise normal. Diagnosis: Thrombosinusitis and thrombophlebitis with consecutive

hemorrhagic softening in the distribution of the occluded veins.

41. **Appendiceal Abscess Caused by Tooth Infection.**—A case of appendiceal abscess is cited by Markoe in which he believes the infection came from the roots of the teeth. The culture from the pus evacuated from the peritoneal cavity at the time of operation was pure culture of *Streptococcus viridans.*

47. **Cathartics During Puerperium.**—The value of catharsis during the puerperium was studied by McPherson in a large series of cases. Each patient was alternately placed in Ward A or Ward B as she came from the delivery room. The patients in Ward A had no catharsis administered at all, while to those in Ward B the usual routine with the various preparations in ordinary use was given. In the non-catharsis cases three days were allowed to elapse, and if no bowel movement occurred, a low saline enema was given; the patient's bowels then not disturbed until three more days had passed by, when another saline enema was given. This was continued until she was discharged from the hospital. The results were most interesting. Three hundred and twenty-two patients of each class were carefully observed; of the 322 cases to whom cathartics were administered, twenty-eight had fever at some time during the puerperium, fever being considered present when the patient had two consecutive temperatures of over 100.4 during the puerperal period. Of the 322 who received no catharsis only three had fever and one of these had a mammary abscess. The cases were in no way selected, the delivery technic was in all cases the same and by the same operators. The number of women who of themselves had a bowel movement normally without assistance every second or third day was fairly large; in none of the cases not receiving cathartics were there foul breaths, headaches, coated tongues, breast complications or the other time honored sequelae which are supposed to occur after a day or two of constipation. McPherson emphasizes the danger and uselessness of routine drugging, and the assigning of certain effects to conditions which have not been shown to be the cause of the symptoms exhibited.

Canadian Medical Association Journal, Toronto

May, VII, No. 5

55 Remote Symptoms from Lesions of Prostate and Deep Urethra. T. McCrae, Philadelphia.—p. 385.
56 Diagnosis of Tumors in Upper Zone of Abdomen. A. McPhedran, Toronto.—p. 393.
57 Acute Abdomen. F. N. G. Starr, Toronto.—p. 399.
58 Nitrous Oxid Oxygen Analgesia and Anesthesia in Obstetrics. G. G. Copeland, Toronto.—p. 405.
59 Analysis of Three Thousand Cases of Obstetrics. S. P. Ford, Norwood.—p. 412.
60 Heliotherapy in Abdominal Tuberculosis. J. H. Elliott, Toronto.—p. 420.
61 Gastric and Duodenal Ulcers; Report of Cases. A. Moir.—p. 426.
62 Transfusion in Ruptured Ectopic Pregnancy. N. H. Beal, London, Ontario.—p. 440.

Colorado Medicine, Denver

May, XIV, No. 5

63 Postoperative Paralytic Ileus; Report of Cases. O. S. Fowler, Denver.—p. 128.
64 Tuberculosis of Retinal Vessels with Recurring Hemorrhages and Proliferating Retinitis. F. R. Spencer, Boulder.—p. 134.

Indiana State Medical Association Journal, Fort Wayne

May, X, No. 5

65 Why Belong to Medical Society? G. F. Keiper, Lafayette.—p. 181.
66 *Conservatism in Cesarean Section. J. W. Shafer, Lafayette.—p. 186.
67 Relation of Cow's Milk to Human Tuberculosis. W. Shimer, Indianapolis.—p. 193.

66. Abstracted in The Journal, Oct. 21, 1916, p. 1250.

Journal-Lancet, Minneapolis

May 15, XXXVII, No. 10

68 Omentum; Its Physiologic Value and Need of Its Preservation. C. H. Mayo, Rochester.—p. 321.
69 Clinical Signs in Diagnosis of Obscure Forms of Syphilis of Nervous System. A. S. Hamilton, Minneapolis.—p. 324.
70 Artificial Vagina. J. E. Engstad, Minneapolis.—p. 329.
71 New Methods of Operating for Difficult Herniae. A. T. Mann, Minneapolis.—p. 331.
72 Duty of Physicians and Enforcement of Law in Minnesota in Relation to Reporting Births. G. C. Pierson, St. Paul.—p. 337.

June 1, No. 11

73 *Abdominal Surgery Under Local Anesthesia. R. E. Farr, Minneapolis.—p. 353.
74 Duodenal Diverticula; Report of Case Associated with Duodenal Ulcer. H. P. Ritchie, St. Paul, and G. L. McWhorter, Minneapolis.—p. 361.
75 Recent Advances in Knowledge of Active Constituent of Thyroid; Its Chemical Nature and Function. E. C. Kendall, Rochester.—p. 366.
76 *Histopathology of Autonomic System in Goiter. L. B. Wilson, Rochester.—p. 368.
77 *Tuberculosis of Spine; End Results of Operative Treatment. M. S. Henderson, Rochester.—p. 371.

73 and 77. Abstracted in The Journal, Dec. 2, 1916, p. 1694.
76. Abstracted in The Journal, Nov. 25, 1916, p. 1625.

Kansas Medical Society Journal, Topeka

May, XVII, No. 5

78 Perversions of Metabolism; Consideration of Causes, Effects and Treatment. H. J. Stacey, Leavenworth.—p. 122.
79 Infantile Diarrhea. M. Hahn, Arkansas City.—p. 127.
80 Case of Hypertrophied Prostate. T. G. Orr, Rosedale.—p. 130.

Laryngoscope, St. Louis

April, XXVII, No. 4

81 Index-Medicus and Digest of Otolaryngology for 1916.

Maine Medical Association Journal, Portland

May, VII, No. 10

82 Fractures of Spine. E. G. Abbott, Portland.—p. 307.
83 Necrology. W. P. McIntosh.—p. 319.

Medical Record, New York

May 26, XCI, No. 21

84 Maternity Insurance as Means to Lessen Disease and Death Rate of Mothers and Children. S. A. Knopf, New York.—p. 881.
85 Histopathologic Findings in Two Cases of Subacute (Combined) Cord Degeneration. G. B. Hassin, Chicago.—p. 885.
86 Epidemic Nasal Sinusitis; "Influenza" and "Grippe" Its Misnomers. J. J. Hurley, Boston.—p. 890.
87 Retinal Manifestations of Chronic Bright's Disease. G. W. Vandegrift, New York.—p. 893.
88 Some Quondam Conceptions Pertinent to Otorhinology. J. A. Hagemann, Pittsburgh.—p. 895.
89 Damaged Goods. M. H. Cazier, New York.—p. 897.

New York State Journal of Medicine

May, XVII, No. 5

90 Diagnosis and Choice of Operation in Certain Affections of Stomach and Duodenum. J. M. T. Finney, Baltimore.—p. 203.
91 Modern Hospital; Its Form, Function and Work. H. A. Christian, Boston.—p. 210.
92 Irreducible Minimum of Care and Asepsis in Every-Day Obstetrics in Tenements. J. W. Markoe, New York.—p. 214.
93 Cooperation in Medicine. M. B. Tinker, Ithaca.—p. 218.

Nebraska State Medical Journal, Norfolk

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94 Blood Transfusion. J. S. Welch, Lincoln.—p. 277.
95 Choice of Donor in Blood Transfusion. G. W. Covey, Lincoln.—p. 280.
96 Public School in Relation to Epidemics. J. M. Patton, Omaha.—p. 281.
97 Two Cases of Surgical Infantile Paralysis. H. W. Orr, Lincoln.—p. 285.
98 Case of Jaw Fracture, Treated by Means of Interdental Splint. C. H. Breuer, Lincoln.—p. 289.
99 Health Work and Rural Sanitation. C. F. Chapman, Lincoln.—p. 295.
100 Epidemiology of Anterior Poliomyelitis. M. W. Richardson.—p. 297.

New York Medical Journal

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101 Ductless Glands in Cardiovascular Diseases and Dementia Praecox. C. E. de M. Sajous, Philadelphia.—p. 961.
102 Vegetative Nervous System and Dementia Praecox. S. E. Jelliffe, New York.—p. 968.
103 Truth About Electrotherapeutics. W. L. Clark, Philadelphia.—p. 971.
104 Six Cases of Dysphagia and Dysphonia of Dental Origin. T. J. Harris, New York.—p. 975.
105 Surgical Aspects of Male Sterility. A. L. Wolbarst, New York.—p. 976.
106 Treatment of Diseased Nasal Sinuses and Ears by General Practitioner. W. Ferguson, New York.—p. 979.

107 Constructive Health Program for Urban Schools. I. H. Goldberger, New York.—p. 982.
108 Mercuric Chlorid Test for Diagnosis of Syphilitic Infection. E. G. Birge, Jacksonville, Fla., and J. R. Bean, Birmingham, Ala.—p. 986.
109 Statistical and Clinical Survey of Five Hundred and Ninety-One Genito-Urinary Cases. A. Strachstein, New York.—p. 986.
110 Pyloric Obstruction and Thymus Disease in Infant. R. L. Pitfield, Philadelphia.—p. 988.

Pennsylvania Medical Journal, Athens

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111 *Habitual Dislocation of Ulna; Report of Case. M. Behrend, Philadelphia.—p. 533.
112 Limitations and Advantages of Localized Anesthesia. H. F. Smith, Harrisburg.—p. 535.
113 *Closure of Fecal Fistula by Extraperitoneal Method. C. F. Nassau, Philadelphia.—p. 539.
114 Relation of Rectum to Functional Abdominal Disturbances. E. Laplace, Philadelphia.—p. 540.
115 Chronic Ulcer of Stomach and Duodenum; Study of Twenty-Five Operative Cases. H. B. Gibby, Wilkes-Barre.—p. 542.
116 *Cooperation of Physician and Surgeon in After-Treatment of Patients Operated on for Diseases of Gastro-Intestinal Tract. E. H. Goodman and J. Speese, Philadelphia.—p. 546.
117 Hydrophthalmos; Report of Case. H. M. Becker, Danville.—p. 549.
118 Diagnosis and Treatment of Chronic Intestinal Indigestion in Children. R. K. Rewalt, Williamsport.—p. 551.

111. **Habitual Dislocation of Ulna.**—Behrend cites a case in which in certain movements the ulna would be dislocated about three-fourths inch posterior. The author remedied this condition as follows: A one-fourth inch incision was made over the styloid process of the ulna, a drill used to bore a hole transversely through the ulna and radius, and a ten-penny wire nail hammered into the opening made by the drill. Great care was exercised to avoid entering the joint. While this operation fixes the ulna to the radius, as a matter of fact normally the extreme lower portions of the ulna and radius move more slightly in pronation and supination. In Behrend's case motion has been very little interfered with. Pronation is perfect but supination cannot be completely performed. The patient has good use of his arm and has returned to his original occupation, that of chauffeur. A point of considerable interest is the fact that the anatomic relations have been preserved.

113. **Closure of Fecal Fistula by Extraperitoneal Method.**—Nassau dissects the abdominal wall away from and close to the fistula layer by layer. A circular incision is made close around the fistulous tract, very much in the same way as one circumscribes the tract of a fistula in ano. Under ideal conditions, after going through the edges of the retracted muscular layer, one comes down on a layer consisting of the following fused structures: transversalis fascia, parietal peritoneum and the peritoneal covering of the bowel. When the operation has gone nicely, sometimes a little cone-shaped process of cecum can be pulled up into the wound, without having opened into the general peritoneal cavity. The fistula is now amputated in exactly the same way that one deals with an appendiceal stump. The tract is crushed and tied off close to the bowel wall. This small area of the wound is wiped out with a little pure alcohol on a sponge. The essential part of the operation is the folding in of the wall of the bowel by row after row (usually three rows being employed) of a No. 0 chromicized catgut suture.

116. Abstracted in THE JOURNAL, Oct. 14, 1916, p. 1181.

Public Health Journal, Toronto

May, VIII, No. 5

119 Birth Control in Its Medical, Social, Economic and Moral Aspects. S. A. Knopf, New York.—p. 117.
120 Life in Lumber Camps of Northern Saskatchewan. J. H. Symons.—p. 136.

South Carolina Medical Association Journal, Greenville

May, XIII, No. 5

121 Necessity of Routine Genito-Urinary Examinations in Practice of Medicine and Surgery. M. Weinberg, Sumter.—p. 536.
122 Health Education in Rural Districts. L. A. Riser, Columbia.—p. 538.
123 Psychiatry and General Practitioner. W. C. Sandy, Columbia.—p. 540.
124 Report of Series of Three Hundred Cataract Operations. C. W. Kollock, Charleston.—p. 544.
125 Presenting Symptoms in Three Hundred Consecutive Cases of Syphilis. R. H. Lafferty and S. R. Thompson, Charlotte, N. C.—p. 548.
126 Exophthalmic Goiter. S. O. Black, Philadelphia.—p. 551.
127 Diverticulitis of Appendix. J. H. Taylor, Columbia.—p. 555.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

May, XXV, No. 5

128 Involvement of Central Nervous System in Primary and Secondary Stages of Syphilis. D. D. Paulus, Oklahoma City.—p. 113.
129 When Is Curettage of Uterus Justifiable in Obstetric Practice and How to Do It. J. W. Wilhoit, St. George.—p. 122.
130 Operation on Uterus. H. A. Lowe, Springfield, Mo.—p. 129.
131 Influence of Build on Longevity. W. M. Brumby, Waco, Texas.—p. 132.

Surgery, Gynecology and Obstetrics, Chicago

June, XXIV, No. 6

132 *Transplantation of Ureter Following Traumatism and Resection of Bladder for Cancer. E. S. Judd, Rochester, Minn.—p. 635.
133 Some Aspects of Renal Surgery. J. B. Squier, New York.—p. 641.
134 *Surgical Treatment of Benign Neoplasms of Bladder. E. Beer, New York.—p. 646.
135 Id. E. Martin, Philadelphia.—p. 648.
136 Diagnosis of Ureteral Diseases with Their Surgery. B. Lewis, St. Louis.—p. 649.
137 Infections of Bladder with Special Reference to Localized Resistant Areas of Cystitis. J. T. Geraghty, Baltimore.—p. 655.
138 *Bladder Changes Due to Lesions of Central Nervous System. J. E. Burns, Baltimore.—p. 659.
139 Early Diagnosis of Renal Tumor; Report of Five Cases. F. Hinman, San Francisco.—p. 669.
140 *Tuberculosis of Thyroid. R. E. Mosiman, Cleveland.—p. 680.
141 Partial Gastrectomy in Treatment of Chronic Indurated Ulcers of Stomach. L. Sierra, Santiago, Chile.—p. 694.
142 Congenital Radio-Ulnar Synostosis. W. W. Feidt, Minneapolis.—p. 696.
143 *Growth of Free Bone Transplants. T. Todyo, Seattle.—p. 701.
144 Congenital Genu Recurvatum. L. D. Prince, San Francisco.—p. 714.
145 Acute Inflammation of Neck of Femur; Report of Three Cases. J. E. Moore, Minneapolis.—p. 725.
146 *Results of Surgical Treatment of Gastric Ulcer. D. C. Balfour, Rochester, Minn.—p. 731.
147 General Rules Used in Simple Plastic Work on Austrian War Wounded Soldiers. J. F. S. Esser, Arnhem, Holland.—p. 737.
148 Free Muscle Tendon Bone Transplantation for Old Fracture of Patella. W. M. Brickner, New York.—p. 749.
149 Vertebral Fracture with Luxation, Transplantation of Bone. H. P. Cole, Mobile, Ala.—p. 751.

132. Abstracted in THE JOURNAL, Jan. 27, 1917, p. 308.

134. **Surgical Treatment of Benign Vesical Neoplasms.**—Beer again places emphasis on the fact that all benign papillomata that are suitable cases for cystoscopic high frequency cauterization—and these constitute the great majority—can be definitely cured by this method. Those few cases that cannot be so treated must be operated on and usually will be cured definitely, if the Paquelin cautery technic outlined by him is followed. The important features of this new technic are mainly directed against the danger of breaking off pieces of viable growth which may lead to recurrences. For this purpose the intravesical operation is done entirely with the Paquelin (hooked point) cautery, the bladder is not filled with fluid before opening it, the incision in the bladder is gradually enlarged without any sponging or any rough handling and each tumor as it presents is burned to a crisp, every suspicious spot in the bladder is burned, and the edges of the opening in the bladder are similarly treated. Finally the whole operative field is thoroughly soaked in alcohol to destroy any particles of viable growth that might have accidentally broken off during the manipulations. The Paquelin may be so used within the bladder for the greater part of an hour without causing any more postoperative discomfort than is usually seen after a suprapubic cystostomy.

138. **Bladder Changes Due to Lesions of Central Nervous System.**—The chief changes in the bladder due to lesions of the central nervous system, according to Burns, consist in diminution in the tone of its musculature and that of the internal vesical sphincter. As a result of such loss of tonicity, there is often a gradual accumulation of residual urine and in some instances a dilatation of the bladder. Incontinence occurs in a large majority of the cases. In cases in which this exists there is a dilatation of the internal vesical sphincter and a funnel-shaped posterior urethra which is readily

demonstrated cystoscopically and roentgenographically. The incontinence may be a true paradoxical incontinence due to the gradual accumulation of residual urine and overdistention of the bladder, or it may be due directly to a relaxation of the internal vesical sphincter and the neighboring urethral muscles. In the latter type there is usually no residual urine present. The trabeculation of the bladder wall, although generally present, seems to be rather inconstant in its distribution. The trigon is usually found to be atrophic. The cystoscope as a rule can be drawn into the posterior urethra and the verumontanum and intra-urethral portions of the lateral lobes of the prostate easily seen. The most effectual form of treatment in these cases consists of intravenous and intraspinal therapy combined with dilations of the urethra. This has been carried out in twenty-one cases (the histories of nine of these cases are detailed), when the lesion of the central nervous system was due to syphilis. Of the twenty-one cases, sixteen gave a history of previous syphilitic infection, seven had a positive blood Wassermann on admission and in fourteen the blood Wassermann was negative. The spinal fluid Wassermann was positive in twenty of the cases on admission, and in nine is negative at the present time. Nineteen of the cases had intraspinal treatment, in seven of these it was combined with intravenous therapy and in eight with dilations of the urethra. In one case intravenous treatment alone was given.

140. **Tuberculosis of Thyroid.**—Nine cases are reported by Mosiman. The age incidence of the nine cases was 33 years, the youngest being 18 years and the oldest (patient with malignancy and tuberculosis) 60 years. The average duration of goiter was fifteen months; the longest duration of goiter was sixteen years. One patient had not noticed goiter at all. Nervousness was complained of by seven patients, the shortest duration being two months and the longest seven and one-half years. Seven patients complained of palpitation; three had dyspnea, one having had it for eight years. Two patients had exophthalmos; two gave a history of tuberculosis; and three had pleurisy. Fainting spells had been present in three cases. On physical examination, six patients had enlarged hearts; one had a friction rub at the left lower back; two had exophthalmos; seven had a marked tremor; and six showed a loss of weight during the past year. The average bood pressure of the nine cases, on admission, was 145 millimeters mercury; on discharge was 129 millimeters of mercury. Four patients had had treatment (?); two had had rest; one had had digitalis; and three had had iodin, in one case applied locally.

The operation on all patients was a partial resection of the right, median, and part of the left lobes of the thyroid gland. Two patients had a ligation of one of the superior thyroid arteries, this giving an index of the clinical severity of the disease. All but two of the cases were diagnosed clinically as "exophthalmic goiter." One case was diagnosed "sarcoma," clinically. One case "hypertonus." In no case was tuberculosis of the thyroid gland mentioned in the clinical diagnosis, nor was tuberculosis suspected in the gross specimen after operative removal.

143. **Growth of Free Bone Transplants.**—Todyo's investigation has convinced him that the aperiosteal transplant grows and regenerates by the proliferation of cells in the subperiosteal layer. But in such a case the new growth of bone is not so active as in the transplants with periosteum. The aperiosteal transplant acquires a new periosteum.

Todyo says that the aim of the bone transplantation can be reached without the periosteum and marrow of the recipient. As to the continued life of the transplanted bone, however, he cannot give a definite opinion at this time. Transplanted bone grows; the increase in thickness is marked, although the length increases but little even when transplanted with the epiphyseal line.

146. **Results of Surgical Treatment of Gastric Ulcer.**—The conclusions drawn by Balfour are based on 677 gastric ulcers operatively demonstrated in the Mayo Clinic during the past ten years. He says that for ulcers at the pylorus, posterior gastro-enterostomy is the operation of choice in the poor surgical risk, for although pylorectomy is followed by better results, the operative mortality is distinctly higher. The cautery is a useful adjunct in selected cases. For ulcers on the lesser curvature, cautery by the method described in a previous paper and gastro-enterostomy is the operation of choice. Local excision alone of such ulcers is inadequate, 32 per cent. of patients so operated on ultimately requiring further operative treatment, viz., gastro-enterostomy. Sleeve or segmental resection, especially in large high ulcers and hour-glass contraction in suitable cases is not only a relatively safe operation but has been followed by good results. The lowest operative mortality in the more common operations was associated with cautery and posterior gastro-enterostomy. Ulcers on the posterior wall are associated with the highest operative risk, while those at the pylorus are of least risk.

Vermont Medicine, Rutland

May, II, No. 5

150 Opportunity and Medical Research. J. S. Horner, West Pawlet. —p. 113.
151 Peroral Endoscopy; Report of Two Cases. W. G. Ricker, St. Johnsbury.—p. 119.

West Virginia Medical Journal, Huntington

May, XII, No. 11

152 Causes and Treatment of Arteriosclerosis. C. O. Grady, Charleston.—p. 398.

Wisconsin Medical Journal, Milwaukee

May, XV, No. 12

153 Results of Treatment in Hodgkin's Disease. J. L. Yates, Milwaukee, and C. H. Bunting, Madison.—p. 453.
154 Pott's Disease; Diagnosis and Treatment by Bone Transplant Method. F. J. Gaenslen, Milwaukee.—p. 463.
155 Echinococcus Infections; Report of Cases. S. Cahana, Milwaukee. —p. 468.
156 Acute Perforating Ulcer of Stomach and Duodenum. J. P. Connell and P. J. Colvy, Fond du Lac.—p. 470.
157 Treatment of Wounds and Infections. G. E. Seaman, Milwaukee. —p. 472.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 12, I, No. 2941

1 Restricted Supply of Food; Its Relation to Health and Efficiency. M. S. Pembrey.—p. 605.
2 Three Common Intestinal Entamebae of Man, and Their Differential Diagnosis. C. Dobell and M. W. Jepps.—p. 607.
3 Postoperative Tympanites; Its Nature and Some Points in Treatment. J. D. Malcolm.—p. 612.
4 Two Cases of Pregnancy Complicated by Myoma Uteri. J. B. Hellier.—p. 614.
5 Technic of Cesarean Section. E. F. Neve.—p. 615.
6 Gonorrhea Treated by Electrolysis; New Electrolyte. C. Russ.—p. 616.
7 Therapeutic Effects of Colloidal Preparations. M. Morris.—p. 617.

Journal of Tropical Medicine and Hygiene, London

May 1, XX, No. 9

8 Case of Urinary Amebiasis in Anglo-Egyptian Sudan. A. J. Chalmers and W. R. O'Farrell.—p. 97.

Lancet, London

May 12, I, No. 4889

9 Gunshot Wounds of Joints, Their Pathology and Treatment. F. Cook.—p. 711.
10 Direct Transfusion of Blood. A. Fullerton, G. Dreyer and H. C. Bazett.—p. 715.
11 Fragment of Shell Embedded in Internal Popliteal Nerve. J. M. Davidson and P. Lockhart-Mummery.—p. 719.
12 Oculopalpebral Prothesis. A. M. Ramsay.—p. 721.
13 Surgical Correction, without Cicatrix, of Unlovely Noses. J. Bourguet.—p. 722.
14 Easily Improvised and Effective Method of Obtaining Plate Cultures of Anaerobes. W. J. Wilson.—p. 724.
15 New Bone Clip for Treatment of Fractures of Long Bones. J. E. Adams.—p. 725.
16 Question of Economy in Food. M. S. Pembrey.—p. 732.

Medical Journal of Australia, Sydney

April 14, I, No. 15

17 Work of Casualty Clearing Station. A. L. McLean.—p. 309.
18 Importance of Early Diagnosis in Pulmonary Tuberculosis from Public Health Point of View. A. Stewart.—p. 312.

April 21, No. 16

19 Limitations of Antiseptic Method, Especially in Relation to Burns and Scalds. A. C. F. Halford.—p. 329.
20 Cerebrospinal Fever, 1916. C. A. Stewart.—p. 333.

April 28, No. 17

21 War Surgery at Front. C. MacLaurin.—p. 351.
22 Cesarean Section in Infective Cases and Value of Adequate Drainage. W. A. Verco.—p. 353.
23 Case of Poisoning by Hydrocyanic Acid Gas. A. M. McIntosh. —p. 355.

Lyon Chirurgical

January-February, XIV, No. 1, pp. 1-212

24 *Early Secondary Suture of War Wounds. L. Tavernier.—p. 1; B. Desplas and A. Policard.—p. 12.
25 *Primary Suture of War Wounds. A. Chalier.—p. 35.
26 *Latent Microbian Infection of Wounds After Healing. (Tolerance du tissu de bourgeonnement des plaies de guerre en voie de cicatrisation pour des corps étrangers de dimensions microscopiques.) A. Policard and B. Desplas.—p. 49.
27 *Treatment of Shock in the Severely Wounded. P. Santy.—p. 54.
28 Restoration of Penis After War Wounds; Four Cases. Rochet and Richer.—p. 63.
29 Arthrotomy with Immediate Suture for Certain War Wounds of the Knee. H. Gaudier and R. Montaz.—p. 77.
30 *Wounds of the Knee: Thirty-Three New Cases. J. Bosquette and P. Moulonguet.—p. 100; Fifty-Two Cases. W. H. Ogilvie. p. 134. With Fracture of the Patella; Eleven Cases. V. Combier and J. Murard.—p. 156; Keeping Wounded Knee at Right Angle Facilitates Drainage. J. Ducuing.—p. 179.
31 Prophylaxis and Treatment of Chronic Osteitis and Fistulas. L. Desgouttes.—p. 202.

24. **Early Secondary Suture of Wounds.**—Tavernier remarks that Carrel's publications on the treatment of war wounds have focused attention on Dakin's neutral solution of chlorinated soda more than on the early suturing, while the latter is in reality the essential element of his method. It used to be restricted to exceptional cases, and Carrel's innovation is its general use. Tavernier soon became convinced that when the wound was once thoroughly cleared out, it made little if any difference whether it was irrigated or not, and hence he suppresses the continuous irrigation entirely as a rule. It keeps the bed wet, and requires constant surveillance and frequent dressings. All this is avoided by surgical cleansing of the wound, cutting away all bruised tissues and making an opening for drainage at the lowest point. All splints of bone are removed unless solidly adherent; pseudarthrosis is rare after subperiosteal removal of sequesters. If important nerves have been severed, they are sutured at once. In this case he refrains from iodin, but otherwise swabs out the wound lightly with it. After a day without fever the dressing is removed and, if the aspect of the wound is satisfactory, it is sutured. The stitches may even be taken at the first intervention; they are ready then to be drawn up and tied. He regards the outcome in his seventy-nine cases as very satisfactory. There was only one case in which a severe infectious focus developed after the suture.

25. **Primary Suture of War Wounds.**—Chalier has discarded antiseptics, etc., and now relies on operating so early that infection has not had time to develop, clearing out the focus so thoroughly that there are no appreciable sources of infection left. Under this mechanical-surgical asepsis, he sutures at once, in several tiers. The wound not only heals promptly but the healing is ideal. Constant supervision is necessary, however, ready to open up the wound again if symptoms develop.

26. **Repair of War Wounds.**—Policard and Desplas reiterate that the primary surgical clearing out of the wound is the main thing, then watching for the earliest moment when it is safe to suture. This waiting period is shorter the more thoroughly the wound has been cleaned out. They call attention to microscopic foreign bodies that may be left in wounds healing apparently aseptically. These explain the sudden relapses of infection later sometimes observed, and they teach the necessity for more thorough primary clearing out of the depths of the wound.

27. **Treatment of Shock from War Wounds.**—Santy has found initial shock rare; the shock after hemorrhage is induced by the cold, the carrying and the pain. He treats it by placing the man, stripped, on an operating table, the head low to combat the anemia of the medulla oblongata, and then applies a tent with heated air entering at the foot to warm him thoroughly. The blood pressure is raised by intravenous injection of 500 c.c. of saline at 104 F., containing 0.25 mg. epinephrin. This intravenous injection is repeated every six hours during the first twenty-four in case of severe shock, but the other doses should be only 250 c.c. The recuperation is remarkably prompt and complete when these simple measures can be applied early, before the actual posthemorrhage shock. The shock thus conquered, at once permits prompt operation on the wounds. The advanced posts should be equipped for combating shock and operating for all the more serious wounds.

30. **Wounds of the Knee.**—Ducuing gives illustrations showing the better facilities for draining after resection of the knee when it is kept flexed at a right angle. This keeps the space back of the femur effectually drained.

Presse Médicale, Paris

April 19, XXV, No. 23, pp. 233-240

32 *Writing That Can Be Read by Blind and Seeing. (Typhlographie en caractères usuels.) A. Cantonnet.—Title page.
33 Wounds of Pleura and Lung. V. Pauchet.—p. 233.
34 Vaccine Treatment in Certain Cases of Chronic Enteritis. A. Berthelot.—p. 235.

32. **Writing for the Blind and the Seeing.**—Cantonnet's ruler with slits is illustrated. The method of using it was described in THE JOURNAL, May 19, p. 1511.

Progrès Médical, Paris

April 28, XXXII, No. 17, pp. 139-146

35 *Treatment of War Deafness. J. Baratoux.—p. 139.
36 Latent Aneurysms in the Wounded Revealed by Radioscopy. H. Lebon.—p. 143.
37 *Agricultural Colleges for Girls. A. Satre.—p. 144.

35. **War Deafness.**—A number of devices are illustrated that have proved their usefulness in reeducating the hearing apparatus after deafness from concussions, etc. The chief of the service relates that when the hearing has been entirely lost, the men learn lip reading so readily that in three months they are as expert at it as the congenitally deaf after eight years of training.

37. **Agricultural College for Girls and Women.**—Satre describes the successful schools for girls in Russia where they are said to be trained in everything that the wife and daughter of a farmer should know to aid in carrying on the farm. The courses are one or two years long in some, but the Tchernigov school is a training school for well-to-do farmers' daughters. They are admitted at the age of 13 and get their diploma at 17. In France there are schools for dairy work and bee culture, but none as yet that prepare for all the duties of a farmer's wife.

Revue de Chirurgie, Paris

Sept.-Oct., 1916 (Published March, 1917), XXXV, No. 9-10, pp. 245-493

38 *War Wounds of Foot and Ankle. E. Quénu.—p. 245. To be continued.
39 Treatment of Wounds and Fractures of Joints; One Hundred Cases. J. Gatellier.—p. 323. To be continued.
40 *Primary Suture of Fractured Long Bones. (De l'ostéosynthèse primitive dans les fractures diaphysaires par projectiles de guerre.) P. Bonnet.—p. 346.
41 *Present Status of Treatment of War Wounds. E. Marquis.—p. 384.
42 *Malaria and Traumatism in the Wounded in the Near East. L. Moreau.—p. 404.
43 *Postoperative Jaundice Terminating Fatally. (L'hépato-néphrite chloroformique sans azotémie.) N. Fiessinger and R. Montaz. p. 424.
44 War Wounds of Blood Vessels Without Hemorrhage. (Les plaies vasculaires sèches.) J. Fiolle.—p. 444.
45 Extraction of Projectiles Under Intermittent Screen Control. R. Toupet.—p. 462.

38. **Wounds of the Foot and Ankle.**—Quénu's study is based on 300 cases personally observed. This instalment of his report fills nearly a hundred pages and is accompanied by 141 illustrations.

40. **Consolidation by Primary Intention with War Fractures of Long Bones.**—Bonnet relates that when it was possible to

operate in the first hours after the injury, he was able to insure healing by primary intention in the seven cases reported. He systematically cleared out all the sequesters and sutured the fracture, and the coaptation thus realized resulted in prompt repair. The humerus, forearm and femur were the bones involved.

41. **Present Status of Treatment of War Wounds.**—Marquis as consulting surgeon has had opportunity to compare the results of the different methods of managing wounds now in vogue. They all teach, he emphasizes, the necessity for extremely early surgical intervention and the usefulness of primary resections within certain limits. Also that primary suture should not be attempted unless the surgeon is certain of his asepsis and when the patient can be kept till cured. Otherwise not. Thirdly, he emphasizes the fine results of what he calls the primo-secondary suture, done from the sixth to the fifteenth day. To realize this, we can use the Carrel method but, when this is impracticable, a 12.1 per cent. solution of magnesium chlorid can be used for rinsing and dressing the wound. His final conclusion is that during a battle, when the wounded are arriving in large numbers, none of the above measures can be applied. The choice of treatment then is between a 14 per cent. solution of sea salt and Mencière's balsam method. These have proved their usefulness for recent wounds. (The latter was described in these columns, April 28, 1917, p. 1294.)

42. **Malaria in the Troops in the Near East.**—Moreau states that nearly all the wounded that have returned to France from the campaigns in Macedonia, Serbia and the Dardanelles have had attacks of malaria since their return. Their wound reduced their resisting powers so that the malaria flared up again in those who had had it once, and it broke out for the first time in those who had been inoculated with the virus but their resisting powers had kept it latent.

43. **Injury of the Liver from Chloroform.**—Fiessinger and Montaz call attention to the toxic action of chloroform on the liver, which, they declare, is becoming more and more apparent. In a case described, with the necropsy findings, a previously healthy young man developed intense jaundice and albuminuria, and collapsed in three days after a third operation under chloroform. A total of 40 gm. of chloroform had been used in all. There was no uremia or hemorrhage, but necropsy revealed a pseudo-nutmeg liver, injury of the suprarenals and massive degenerative nephritis of the convoluted tubules. The findings indicated that the liver was first affected, and that toxic action from this injured the kidneys. This case and analogous experiences that have been reported by others teach that chloroform should never be used when the liver is known to be below par.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 28, XLVII, No. 17, pp. 513-544

46 *Therapeutic Iontophoresis. H. Koller.—p. 513. Commenced in No. 16, p. 485.
47 Inhalation of Dust in Metal Grinding. (Zur Pneumonokoniose der Metallschleifer.) H. Wegmann.—p. 526.

46. **Iontophoresis of Heavy Metals.**—Koller explains that the technic and application of medical ionization have been worked out almost exclusively by ophthalmologists since the publications of Leduc and Frankenhäuser, 1900-1907. He describes extensive experiments he has been making with the ions of the heavy metals, passing them through dead animal membranes and in experiments on rabbits' ears, and refers to a recent work in this line by E. Sturridge in a dental journal. The results of Koller's research warn against the use of zinc and copper salts on a large surface as, for example, in the vagina, but silver, he asserts, is peculiarly adapted for IPH. The chlorids which silver forms in the body are insoluble and hence not toxic. The evidence presented seems to show that heavy metals in ion form can penetrate into and pass along in the body, but they are kept from doing harm by an antibody, an actual anti-ion colloid. At the moment of the discharge (*Entladung*), however, the ion becomes active and by forming salts induces precipitation of the colloid, that is, it exerts a caustic action. The process is not restricted to the electrode but occurs throughout the body wherever the metal ions happen to be at the time. The ideal therapeutic condition would be if this precipitation could occur only with the especially susceptible bacterial albumins, thus leaving the therapeutic action without injurious by-effects on the organism. When there is a general precipitation of colloid, in the course of mercury or silver treatment, then we have the dread symptoms of general intoxication. If we can master the conditions regulating the migration and discharges of the heavy metals in the body, promising vistas open for therapeutics.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 18, XXXVIII, No. 22, pp. 337-352

48 Abscess in Frontal Lobe from Overlooked Scrap of Shell. Recovery. G. Aperlo.—p. 337.

March 25, No. 24, pp. 369-383

49 *Suture of Diaphragm After War Wound. O. Ortali.—p. 369.

49. **Suture of the Diaphragm.**—Ortali expatiates on the difficulty of diagnosing a wound of the diaphragm on account of the disturbances from injury of organs near by and from viscera forming hernia through the gap as in a case reported. The slit in the diaphragm in his case was 4 inches long, but the bullet had not injured any organ in its passage through the seventh left interspace. He resected a rib, thus obtaining access to the diaphragm, and easily reduced the omentum and colon, and sutured the diaphragm, with prompt recovery.

Policlinico, Rome

April 29, XXIV, No. 18, pp. 569-608

50 *Present Status and Importance of Roentgen Examinations in Military Surgery. P. Masserini.—p. 569; (Profondimetro Luisada-Toccafondi.) E. Luisada.—p. 588; (Brevi considerazioni sulla ricerca radioscopica dei proiettili.) F. Leocata.—p. 590; (Dopo un anno di lavoro.) E. Grego.—p. 592.
51 Modification of the Excursions of the Diaphragm After Perforation by Bullet. G. Ceresole.—p. 580.
52 Roentgen Localization of Needle Entering at Buttocks. F. Ghilarducci.—p. 584.
53 Technic for Roentgen Stereoscopy. G. C. Trabacchi.—p. 586.

50. **Medical Radiology.**—This entire number of the *Policlinico* is devoted to experiences with Roentgen examination for various purposes, mostly on the firing line. A number of special technical points are described and the difficulties under certain conditions are emphasized. Grego presents what he calls the technical balance sheet, the scientific, the economic and the moral balance sheets from his year's work with a Roentgen ambulance. He insists that radiography, not radioscopy, should be the reliance, and expatiates on the advantages of its more general use close to the firing line.

Riforma Medica, Naples

April 14, XXXIII, No. 15, pp. 393-420

54 Antituberculosis Dispensaries. A. Pirera.—p. 393.
55 *Influence of Various Chemicals on Transplanted Tumors in Hens. F. Pentimalli.—p. 396.
56 Intravenous Injection of Colloidal Gold in Typhoid. R. Massalongo and S. Vivaldi.—p. 397. To be continued.
57 Hard Edema in the Joints from Long Continued Industrial Injury. (Della cellulo-dermite auto-contusiva degli arti.) A. Mori. p. 402. Commenced in No. 14, p. 371.
58 Present Status of Mitral Infantilism. L. Ferrannini.—p. 410.

55. **Action of Chemicals on Sarcoma in Fowls.**—Pentimalli added various chemicals to the suspension of the sarcoma tissue before inoculating the fowls. The tumors failed to grow when chloroform-toluol, hydrochloric acid, potassa, acetone, mercuric chlorid, formaldehyd or iodin had been added to the suspension in a minute amount. But the tumors developed as usual when toluol alone, a lipoid extract of the pyocyaneus, neosalvarsan, crystal violet or various salts of sodium with tartaric acid were used. Antimony and potassium tartrate seems to be the only one of the chemicals used which prevented the development of the tumor in a dose such as the fowl could bear. This drug is being used extensively in treatment of leishmaniosis, and the experiments related here suggest that further research in this line might give interesting results. With a proportion of 1:300 and 1:500, no tumors developed, but at 1:700 and 1:900 the inoculation with the tumor suspension gave positive results.

Cronica Medica, Lima, Peru

April, XXXIV, No. 646, pp. 117-148

59 *Vaccine Therapy of Typhoid Fever. L. H. Mejia.—p. 120.
60 *Hemiplegia Following Typhus. E. Odriozola.—p. 131.
61 *Double Lateral Colporrhaphy for Cystocele. C. T. Carvallo. p. 135.
62 Birth of Healthy Child at Term After Entire Cervix Had Sloughed Off in Previous Pregnancy. H. Larrabure.—p. 136.

59. **Vaccine Therapy of Typhoid.**—Mejia summarizes the experiences in this line of numerous clinicians as published in various countries, and reports excellent results in twenty-four cases personally observed, with recovery of all the patients. He used a vaccine sterilized by heat, and states that when there was a local or systemic reaction it was transient. The second or third day there was no further trace of by-effects while the general condition showed marked improvement.

60. **Hemiplegia Consecutive to Typhus.**—Odriozola's patient was a man of 27 who had had typhus between two and three years before. It had left him with left hemiplegia, complete, even including the face, but it has improved somewhat in the course of the years. Odriozola remarks that typhus is endemic in parts of Peru, and refers to the extra malignancy of a recent epidemic of it at Cerro de Pasco in which numerous employees of the Compañia Americana succumbed. Typhus does not exist at Lima, and cases brought there from the mountains usually lose their virulence and contagiousness. But this was not the case with the typhus patients from Cerro de Pasco; the disease ran an exceptionally severe course in them. The men were nearly all addicted to alcohol which possibly cooperated in the gravity of the disease.

61. **Double Lateral Colporrhaphy for Cystocele.**—Carvallo does not approve of the usual single median incision as this sacrifices the anatomic rhaphé of the vagina, while the bladder and the mucosa of the vagina at this point are so close together that it is difficult to avoid injuring the bladder during the incision. Repair afterward is liable to mishaps, for reasons which he enumerates. These disadvantages are all avoided by making two incisions, one on each side, respecting the median portion. After the operation there is support from the normal rhaphé and also from the strips of cicatricial tissue on each side. Fehling proposed this some years ago, Carvallo says, but he has found no reference to it since.

Prensa Medica Argentina, Buenos Aires

April 10, III, No. 31, pp. 329-339

63 Appendicitis from Maggots in the Intestine. (Miasis intestinal producida por larvas de la "Compsomyia macellaria.") S. E. Parodi and A. Saccone.—p. 329.
64 *Mental Disturbance with Heart Disease. M. R. Castex and J. C. Vivaldo.—p. 331. Commenced in No. 30, p. 317.
65 *Treatment of American Leishmaniosis of the Skin. A. Neiva and B. Barbara.—p. 334.
66 Painful Protracted Priapism. J. A. Esteves and R. Chiappori. p. 336. To be continued.
67 *The Oculocardiac Reflex. S. B. Amadeo.—p. 337. Commenced in No. 29.

64. **Mental Disturbances with Heart Disease.**—Castex and Vivaldo remark that the connection between heart disease and mental derangement is often overlooked. The specialists in heart disease pay little heed to the psychic sphere in the cases in which the psychic symptoms are mild and fleeting, and, on the other hand, when the mental disturbances predominate the psychiatrists ascribe slight importance to clinical study of the causal heart trouble. They report thirteen cases, grouping them as the endocarditis was of the acute recurring type or there was chronic valvular disease or asystole. The mental disturbances were most common with acute recurring endocarditis. They were undoubtedly the work of toxins on the brain. There was concomitant kidney trouble in nearly all, and the mental confusion, hallucinations, etc., were of the same type as in other general infections in which the heart is spared, but they are never so severe as in the endocarditis cases. The defective functioning of the pathologic heart is the principal predisposing cause for the toxic psychoses. In the three endocarditis cases necropsy showed no appreciable lesions in the brain. The mental confusion and delirium were of the infectious toxic character, hypochondriac depression alternating in one with periods of euphoria.

In three patients with aortic and one with mitral valvular disease, melancholia predominated in those of syphilitic origin and motor excitement in the others. The importance of conditions in the circulation as the main factor in the mental disturbances here is confirmed by the aggravation as the terminal phase approached. The brain already suffering from syphilis develops mental confusion, depression and hallucinations, with motor excitement, under the influence of the inadequate circulation. In two of the cases the mental as well as the physical condition improved under treatment, the attacks of depression or excitement subsiding. In five cases of asystole, two men improved under treatment so that they left the hospital in good condition. One had presented, on entering, melancholia, constant delirium and paroxysms of motor excitement, but no hallucinations. The other, a syphilitic, had vague hallucinations, vague delirious ideas, slight mental confusion and extreme depression. Both were men of 39. The international literature on the subject is reviewed and the data compared in detail with the types here presented.

65. **Tartar Emetic in Treatment of Superficial Leishmaniosis.**—Neiva and Barbara give an illustrated description of three cases in which systematic treatment with tartrate of potassium and antimony arrested the leishmaniosis of from nearly two to eight years' standing. They relate that when Vianna introduced this treatment in 1912 he used a 1 per thousand solution in 0.85 per cent. saline. Later he modified the dosage, obtaining the best results with a 1 per cent. solution in the same saline. The solution once prepared cannot be sterilized by heat, as otherwise it loses its therapeutic properties. It is sterilized merely by passing it through a Chamberland F or Berkefeld V filter. The patients bear it perfectly; caution seems to be required only with chronic kidney disease. The first dose is 5 c.c. of the 1 per cent. solution, the following ones 10 c.c., if the first is borne well, all intravenous. When well borne they can be given daily. Some patients have taken over 100 injections.

67. **The Oculocardiac Reflex.**—Amadeo gives the tracings from experimental research on the oculocardiac reflex, especially on anesthetized dogs. He also tabulates the results in 80 sick and well persons, including 50 whose pulse tracings were taken. The findings show that the oculocardiac reflex may vary not only from day to day but even from moment to moment in the same subject. It is impossible to be sure that the pressure applied is identical each time, which may influence the results. Of 12 tabetics tested, the reflex was normal in only 2, inverted in one and abolished in the others. In 3 patients with sclerosis in patches, the reflex was normal, as also in 6 of 16 pregnant women; it was abolished in 8 and inverted in 2. The reflex thus does not seem to have any decisive differential value.

Russkiy Vrach, Petrograd

XVI, No. 5, pp. 97-120

68 Pirogoff's Letters from Berlin, 1833-1835. S. Y. Shtraikh.—p. 97.
69 Present Status of Legislation on Public Health Matters in Russia. V. I. Razumovsky.—p. 102.
70 *Pathogenesis of Addison's Disease. A. I. Yushtchenko.—p. 105.
71 Etiology of Gas Phlegmon. A. E. and V. E. Burovikh.—p. 108. Commenced in No. 4, p. 84.
72 Action of Digitalis Ambigua on Isolated Heart and Blood Pressure. V. M. Sokoloff.—p. 114.

70. **Pathogenesis of Addison's Disease.**—Yushtchenko relates that he has encountered a number of cases in soldiers which would have been classed with the traumatic neuroses if it were not for the fact that the men presented certain symptoms which we are accustomed to encounter with Addison's disease, especially the pronounced bronzing. Analysis of the cases shows further a deficiency in the functioning of both parts of the suprarenals, but there are no manifestations of tuberculosis, no status lymphaticus, etc. The course of the affection also is comparatively light and several of the men have materially improved, while the trend in all

is upward. He kept the men on a vegetable or vegetable-milk diet, and gave subcutaneous injections of arsenic, with tepid baths and repose.

He thinks that these cases throw light on the pathogenesis of ordinary Addison's disease. Infection and phenomena connected with immunity may be predisposing causes, but physical and psychic trauma are the direct factors.

There is nothing surprising in assuming a psychic origin for hyposuprarenalism as we know the enormous influence of the mind on the functioning of the glands with either an internal or an external secretion. "It is especially liable with the suprarenals," he says, "on account of the developmental relations between them and the nervous system—the suprarenals being provided with nerves as no other organ in the body." His experimental and clinical experiences have convinced him that the task of the glands with an internal secretion is not the neutralizing of toxins, nor merely the whipping up or the holding back of the functioning of other organs. The task of the glands with an internal secretion is the regulation of the interchanges of the different elements of the organism, such as the albumin, the nucleoproteids, lipoids, etc. In short, their task is much like that of the glands with an external secretion, only that it is more diversified and more complex. He cites a number of metabolic experiments to sustain this assumption, among them the increased cholin and phosphoric acid content of the urine in some of the patients here described.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 7, I, No. 14, pp. 1077-1172

73 Treatment of Sinus Thrombosis Complicating Suppurating Otitis Media. I. C. Henkes.—p. 1092.
74 Morbidity of the Personnel of Holland Railroad. J. E. C. Schook. p. 1103.
75 *The Question of Traumatic Neuroses as Illuminated by Experiences in the War. T. Kuiper.—p. 1106.

75. **Traumatic Neuroses.**—Kuiper describes the conflicting views and mode of treatment in respect to traumatic neuroses, especially in the soldiers of the different warring forces. Three conceptions prevail, that of the "organic" nature of the disturbances (Oppenheim); the "functional" nature (Charcot) and the "intellectual" nature (von Strümpell). Oppenheim describes the manifestations of *Erschütterung* or concussion of the nervous system as liable to include seven different types; pain in the region affected and efforts to keep the part still to prevent its hurting worse; 2, irritability, and other manifestations of changes in the psychic sphere; 3, headache and dizziness; 4, reflex epilepsy; 5, local muscular spasms; 6, manifestations suggesting neurasthenia, and 7, manifestations suggesting hysteria. Kuiper reviews and compares all the arguments for and against each of these conceptions, and the results of treatment based on each. He has been convinced by the experiences related that Oppenheim is right in assuming the continuity of the nervous system as a whole, so that the entire system, brain and all, suffers when part of it is violently jarred. The next step from accepting this assumption of molecular alterations, transmitted from periphery to brain, is to accept von Monakow's diaschisis theory, and then to assume that the diaschisis may make its influence felt on the glands with an internal secretion through the mediation of the nerves innervating them, as also on the muscles, through tonic, vasomotor, trophic and other influences from the sympathetic and autonomous nervous systems.

Svenska Läkaresällskapets Handlingar, Stockholm

March 31, XLIII, No. 1, pp. 1-344

76 Balance, Position and Automatic Movements at Rest and During Exercise. Physiologic and Unphysiologic Gymnastic Exercises. T. Resmark.—p. 1.
77 Intravenous Injection of Drug or Serum Below Tourniquet in Treatment of Localized Infectious Process. G. Nyström.—p. 185.

Ugeskrift for Læger, Copenhagen

April 12, LXXIX, No. 15, pp. 559-604

78 *Successful Removal of Pituitary Tumor. P. N. Hansen.—p. 559.
79 Antithyroidin in Therapeutics. A. Rahlff.—p. 566.
80 *The Adequate Protein Minimum in Dietaries. (Ernæringsspørgsmaalet.) M. Hindhede.—p. 571. Commenced in No. 13, p. 491.

78. **Pituitary Tumor.**—The first symptoms were those of atrophy of the optic nerve, beginning eight years ago. The right eye became totally blind by the end of the fifth year and the left visual field became contracted although the eye seemed otherwise sound except that the papilla was blanched. A pituitary tumor was surmised, and the patient kept under close observation, but there was no change for nearly three years. The man of 48 complained occasionally of headache. It lasted for an hour or two and was very severe. There was nothing to suggest venereal disease or abuse of alcohol, but roentgenoscopy showed the sella turcica twice the normal size. The tumor was removed by turning back the nose; it was a small-celled sarcoma. Recovery was soon complete and the man now feels quite well. The findings as to vision and hearing have not changed but there is no further headache or dizziness. As is always the case, the whole of the tumor could not be removed and yet all disturbances ceased. There was transient polyuria for a time after the operation.

80. **Low Basal Protein Requirement in Health.**—Hindhede was requested by the editors of the *Ugeskrift* to give an oversight of the work that has been done in recent years toward the solution of the problems of nutrition and minimum dietary needs. After an extensive review of the subject, he describes his own research, saying that scientists until recently have mistaken the vitamin requirement for the albumin requirement. The standard for the minimum basal protein need was thus founded on mistaken premises. By a fortunate chance, his own research from the first was based on foods particularly rich in vitamins. His life for twenty-one years has been practically one continuous laboratory experiment in this respect, he and his family living on an average of 50 gm. of digestible protein per capita as the extreme. The nitrogen output in his urine has kept close to 7 gm. The diet was not vegetarian, but merely was restricted to from 30 to 50 gm. digestible albumin. His children after ten years of this diet measured and weighed up to others two years older; their endurance was almost proverbial. He began by living for three months on potatoes, butter, strawberries and milk, a total of 30 gm. of digestible albumin. In order to determine the minimum need he undertook long series of experiments on himself and two men, his laboratory assistant and a student. These tests were continued for six months at a time. The details are tabulated and compared with similar experiments by Rubner and others.

Among the conclusions from the data tabulated are that the minimum of albumin for 3,000 calories is about 20 gm. of digestible albumin. Also that the albumin in potatoes, bread, milk and meat has essentially the same biologic value. Also that the actual need of the body for albumin yields to the urine only 3 or 4 gm. nitrogen a day. The high figures for the output of nitrogen obtained in the Chittenden, Rubner and other tests, based on the old supposed albumin requirement, reached such high figures because the excess of albumin not needed by the body was thrown off. "This shows," he claims, "how expensive this false theory has been to the world." He declares in conclusion that there is no need to pay attention to the albumin in the diet; this will take care of itself. But there is every need to pay attention to the articles of diet which we know cure beriberi and scurvy: bran, potatoes, carrots, pot herbs, soup, raw fruit and raw milk. A moderate amount of meat may do no harm, but he insists that his years of home and laboratory experiments and tests have amply confirmed the fact that meat is unnecessary. His last word is that he cannot falsify the figures resulting from his years of research even though he knows that he may be called a fanatic. "If any one had told me twenty years ago, or even six years ago, that one could live year after year in the best of well-being on potatoes, margarin and water, I would scarcely have believed him. I would have regarded 40 to 50 gm. of albumin as the minimum instead of the 20 gm. which tests on three adults proved to be the minimum. One of the men had considerable exercise, one a moderate amount, and one did almost exclusively brain work." [Middle instalment of Hindhede article lost in the mails.]

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THE CARE OF CRIPPLES AS A PROBLEM FOR EACH INDIVIDUAL STATE *

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In every state of the Union there is a large number of crippled persons who are not receiving proper attention. Many of them have no medical or surgical treatment whatever, and most of them have little opportunity to acquire a good education. Entirely aside from their own mental and physical sufferings, they constitute an enormous economic disadvantage and loss to their families and communities and to the state. It has been clearly demonstrated that most of these persons, by proper treatment, may be restored to a condition of usefulness, and that many of them, by proper education, may become able to earn a fair income.

Why is it, then, that only four of our states have established institutions in which cripples may be treated and educated? Is it because the legislators are unwilling to adopt so good a business proposition and so broad a charity? Or is it because the subject has not been presented with sufficient force and energy? The latter is probably the true reason.

It requires a great deal of hard work to persuade a state legislature to devote any of the state revenue to a new project, and the moving spirits in the enterprise must be prepared for a hard struggle. Minnesota, New York, Massachusetts and Nebraska have already established institutions for the care of cripples, and the other states must be induced to follow suit.

Allison, in his chairman's address before this section in 1915, states that in the United States there existed at that time ten hospitals, fourteen convalescent hospitals and thirteen asylum homes exclusively for cripples. This number has not been materially increased in the past two years. Approximately 2,000 patients can be accommodated in these institutions. These 2,000 represent a very small proportion of the cripples in the United States. No accurate figures exist to show the total number in this country, but on the basis of the English and German reports by Beyers and Lange, we must have at least half a million and probably more, the accepted proportion being from 3,000 to 3,500 cripples to the million inhabitants. Allison estimates that about 133,000 of these are under 14 years of age. In considering such figures, it must be remembered that not all of these cripples are in need of state or municipal care. Some of them are well treated and well educated at the expense of their own families; but it is safe to say that they form a considerable minority. Two thousand of the remainder are treated at the four state institutions mentioned above and the thirty-three institutions maintained by private charity; a few hundred more are cared for in the wards of general hospitals, and the rest of them are practically neglected, so far as education and skilled treatment are concerned.

We must, therefore, put our shoulders to the wheel and endeavor to construct a plan which will be comprehensive and practical, and which will appeal to the legislators of the various states. This plan should be worked out on a nonpolitical basis. The medical and the educational staffs should not be subject to removal for purely political reasons.

We should, it seems to me, advocate, in all states where it is possible, an orthopedic institution established and maintained by the state, and under the direction and management of the state university, the university furnishing the medical and surgical staff from its own medical school, and the educational staff from its other departments. This orthopedic institution should be one of the units of a state general hospital, which should be operated on the plan of the Michigan State Hospital at Ann Arbor, to which any resident of the state who is unable to pay for a private physician may go or be sent at the expense of the state.

Such an orthopedic institution should consist of a number of different departments: First, a hospital building of sufficient size, in which operative and mechanical treatment can be carried out for those who need it. Second, a convalescent department, for those less acutely affected, with separate provision for the case of tuberculous bone and joint disease. Third, a permanent home for those cripples who have no home.

It must be remembered that many of the patients in such an institution will have to remain there for years, that the larger proportion of them will be children, and that they must be educated as well as healed. It is in this respect that many institutions are deficient. The vast majority of cripples in this country can be made into useful citizens if they can be properly taught such forms of work as they are capable of performing. Their lives will be infinitely happier and more valuable if they can be trained in the useful arts and industries, and in place of being useless drags on the community, they will become actual producers and providers.

* Chairman's address, read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

An institution of the kind here outlined should be open to people of all ages. Many of our existing hospitals and homes for cripples accept only children, and when the little patients reach the age of 12 or 14 they are turned out into the world to shift for themselves, whether they are cured or not. We must make it very plain to our legislators that it takes many years to cure some of the cases of tuberculous joint disease, for example, and that there are many adults who need just as skilful and prolonged treatment as do the children. If we are to attempt some radical and constructive work in our various states, let us make it as comprehensive and as broad as possible.

The educational lines of the institution can hardly be discussed by a mere surgeon, but it would appear practical to teach the cripples useful trades, such as light manufacturing, shoemaking and cobbling, brush and basket making, sewing, millinery, dressmaking and embroidery, and to find a market for the results of the labor. Some of the patients will undoubtedly be found mentally equipped for higher education, and this could readily be provided.

It is probable that the great international conflict into which we are now plunged will rightly and properly overshadow any great progress in the directions that I have indicated, but we must, after all, build for the future, and we who spend our lives among these unfortunates should be the ones to turn the spotlight of publicity on their helplessness and their crying needs.

122 South Michigan Avenue.

THREE YEARS' EXPERIENCE IN THE SEARCH FOR TYPHOID CARRIERS IN MINNESOTA*

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It is the policy of the Division of Preventable Diseases of the Minnesota State Board of Health to determine if possible the source of infection in all sporadic cases of typhoid fever as well as in outbreaks of considerable magnitude. The search for carriers as prosecuted by this division during the past three years has been so satisfactory that a review of the methods used, together with brief histories of the cases, is here presented.

On receipt of a report of a case or suspected case of typhoid fever, or on the finding of a positive Widal reaction in a specimen of blood sent to the laboratory, a blank, requesting certain epidemiologic data, is sent to the attending physician. This blank, when properly filled in, gives the following environmental data: residence and occupation; milk and water supply of patient during the three weeks prior to onset of disease; exposure to known cases of typhoid fever, and the synchronous development of typhoid fever in the patient's associates. Data which seem of no importance by themselves may be of significance and use when reviewed along with other data possessed by the division. Often widely separated cases are traced to a common source through the study of epidemiologic case reports and other data on file in the office of the division but not available elsewhere. If, after study of the data thus furnished and all other available data, the case appears to have been caused through some other route of infection than that of contact with another recognized case, it is further investigated. The epidemiologist visits the patient, together with the attending physician and health officer, if possible.

When the epidemiologic evidence points to the infection being of carrier origin, the following procedure is followed: Blood specimens for the Widal test are taken from those persons suspected of being responsible for the infection or from a group suspected of containing a carrier. Special attention is given to those who give a positive or possible history of typhoid fever. If the Widal reaction is found to be present or atypical in any of the suspected persons, specimens of the feces and urine are examined bacteriologically. If the epidemiologic information obtained points specifically to one or more persons in whom the Widal reaction is absent, the discharges from such suspects are likewise examined. Organisms isolated from the discharges are diagnosed *B. typhosus* or *B. paratyphosus* only after being found to conform to the recognized action of these organisms on the regularly used differential culture mediums, and to be agglutinated by typhoid or paratyphoid serum.

Under the regulations of the state board of health, a typhoid carrier is not permitted "to handle in any capacity milk, cream, butter, other food or food products liable to be eaten without being cooked, if such foods are to be offered for sale." This regulation is enforced, and if the carrier lives in an unsewered district, the use of a fly-proof sanitary privy is compulsory. The contents of the privy vault must be disinfected with lime or other disinfectant at stated intervals under the direction of the local health officer. Frequent thorough scrubbing of the interior of the privy is also insisted on. The carrier is instructed to cleanse the hands thoroughly after defecation and micturition and before handling table dishes, food, etc., to be used by others, and also to disinfect his personal bed and body linen. Any change in occupation or residence of a carrier must be reported to the local health officer and by him to the state board of health. Other members of a carrier's family are protected by typhoid vaccine, and they, too, are instructed as to the value of cleanly habits on their part. All information concerning a carrier is treated as confidential unless it becomes necessary to use publicity to enforce instructions. Whenever an epidemiologist is in the vicinity of a carrier, if possible, he visits him to see if instructions are being followed.

During the three years ending Dec. 31, 1916, sixty-nine carriers of *B. typhosus* or *B. paratyphosus* have been identified by the laboratory, and these cases fall readily into two groups. Group 1 contains thirty persons, twenty-five inmates of three state institutions, two for the insane and one for the feebleminded, and five patients in tuberculosis sanatoriums. Group 2

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* From the Division of Preventable Diseases, State Board of Health.

* Because of lack of space, this article is abbreviated by the omission of reports of a number of cases. The article will appear in full in the reprints, a copy of which may be obtained from the authors on request.

contains thirty-nine persons found in the routine investigations to determine the sources of typhoid outbreaks.

Group 1. In a study[1] of the effects of typhoid immunization in relation to the Widal reaction, twenty-four persons in this group were found to have the Widal reaction present prior to administration of the vaccine. Previous history of typhoid fever in these carriers could not be learned because of the mental condition of the patients, all being either insane or feebleminded. All had been residents of their respective institutions for a long time. In these two institutions typhoid fever had been endemic. The epidemiologic evidence showed the endemic typhoid to be beyond doubt of carrier origin, but because of the nature of the patients and the community life, the exact number of cases traceable to each individual carrier could not be determined. Among these persons there was found to be a large number of carriers of *B. paratyphosus,* twelve out of twenty-four, besides one from whose discharges both *B. typhosus* and *B. paratyphosus* were isolated. The one remaining state institutional patient was recognized as a paratyphoid carrier after having given rise through direct contact to at least three cases among her associates.

The five carriers in this group who were inmates of sanatoriums were found in a study[2] of the Widal reaction in the tuberculous. One showed the presence of *B. typhosus* in the feces and gave a history of typhoid fever thirty-three years previously. From the discharges of the other four, *B. paratyphosus* was isolated. One of these gave a doubtful history of typhoid fever, but the remaining three gave no typhoid history.

Group 2. This consists of thirty-nine carriers, thirty-two of *B. typhosus* and seven of *B. paratyphosus,* found in the routine epidemiologic investigations of sporadic cases during the three-year period.

REPORT OF CASES

CASE 7 (Dec. 26, 1914).—Mrs. K. K., aged 65, gave a history of fever for seven weeks in 1894, no diagnosis being made. Mrs. K. K. and her husband had a small farm and kept seven cows, supplying milk, butter and cheese to neighbors. Three neighbors who boarded at the K. K. house developed typhoid, one in 1900, one in 1901, and one in 1902. In 1904 a woman from Norway visited the K. K. farm and developed the disease after three weeks' stay there and became a paratyphoid carrier (Case 10 of this series). In 1908 an employee developed typhoid and died, and in 1912 and 1913 two other employees contracted typhoid. In 1914, three persons in a neighbor's family who used milk from the K. K. farm and one visitor at the farm were infected. One of these became a chronic carrier (Case 9). Four cases, including one fatal one, occurred the same year in a veterinarian's family supplied with cheese from this farm. In 1915, after K. K. had been identified as a carrier and given instructions for proper care of her discharges, she infected a boy who boarded there for a short time.

CASE 11 (Feb. 17, 1915).—Mrs. G. H. S., aged 37, had typhoid in 1906 and was operated on for gallstones four months later. Two sons in 1907, a farm hand in 1912 and a daughter in 1914 contracted typhoid.

CASE 31 (May 19, 1916).—Mrs. G. S., aged 53, gave no history of typhoid, but because of cases occurring on the farm, the examinations were made. The following five cases occurred on the farm, in an employee in 1898, another employee in 1900, a sister in 1902, a grandson in 1911 and a son-in-law in 1913.

CASE 34 (June 6, 1916).—Mrs. H. B., aged 56, gave no history of typhoid or of any sickness resembling it. She milked four cows and supplied five families with the milk. Typhoid occurred in eight users of the milk: one in 1912, three in 1913, two in 1914 and two in 1916. After her identification as a carrier, at which time she was ordered to give up the milk business, another case occurred in the neighborhood. On investigation it was found that she had resumed the selling of milk and was supplying it to this person.

REVIEW OF CASES

The larger number of the specimens from this series of cases were collected without the assistance of a nurse, the epidemiologist directing the wife or mother in the household as to the use of a laxative and the cleansing and disinfecting of the receptacles. Sterile bottles were furnished for the transmission of specimens to the laboratory.

The possibility of contamination of the specimens from one person by another in the same household was brought out in Case 23. Following this, more specific directions were given; but two months later, when a similar instance occurred in Case 30, a complete new outfit was devised and used. This outfit consists of a corrugated pasteboard shipping box containing:

Two sterile paraffined pasteboard boxes (oyster pails); two sterile tongue depressors; two sterile 4 ounce pomade bottles; one data card, and a leaflet giving the following directions:

1. Give persons from whom specimens are to be collected a laxative.
2. Remove paper containers from packing case, and remove contents from them.
3. Have patient pass stool directly into one of the sterilized paper containers.
4. By means of the enclosed sticks, transfer to one of the sterile bottles part of the last portion of the stool passed, preferably soft or semifluid material.
5. Have patient pass urine into the other paper container.
6. Pour some of the urine into second sterile bottle.
7. Label both bottles with patient's name, and date and hour of collection of specimen.
8. Cork tightly, and wrap both bottles in cotton, and pack in the outer container in which bottles were received. Destroy in a safe manner the paper containers and sticks.
9. Ship these specimens at once by *express,* not mail. Specimens must reach the laboratory in the shortest time possible. Therefore telephone or telegraph the laboratory of the State Board of Health, Minneapolis, at our expense, notifying us of the train on which the specimens are being sent so that the train may be met at the Minneapolis depot, and the specimens received in the shortest time possible.
10. Please do *not* send specimens that will arrive on Saturday afternoons, Sundays or holidays.

Train leaves ..... at .....

Cases 23 and 30 gave a history of typhoid, but in each case the Widal reaction was absent at the time of the investigation. Both cases are omitted from the table, there being but one colony of *B. typhosus* found on the plates in each instance, and in two later examinations in Case 30 no typhoid bacilli were found.

The tables show that 220 cases, including twelve fatalities, have been traced to these thirty-seven carriers, an average of six cases per carrier. Six of the 220 patients are known to have become chronic carriers. Omitting the paratyphoid carriers, we have 213 cases due to thirty carriers, or an average of seven cases each. Of the thirty typhoid carriers, twenty-five gave a history of previous typhoid and five gave no such history. Three of these five patients were members of groups suspected on epidemiologic evidences of containing one or more carriers. In the fourth, Case 34, the epidemiologic investigation pointed directly to this person as a carrier. The discharges from these four persons were searched for

1. McDaniel, Orianna, and Wade, E. M.: The Significance of Typhoid Carriers in Community Life, with a Practical Method of Detecting Them, Am. Jour. Pub. Health, 1915, **5**, 764.
2. Chesley, A. J., and Wade, E. M.: Proc. Nat. Assn. Study and Prev. Tuberc., 1915, p. 250.

typhoid bacilli on the finding of agglutinins in the blood. The fifth, Case 20, was found in the course of a thorough dairy inspection following the appearance of typhoid fever in an employee. Since the Widal reaction in this case was absent at the time of the investigation and present ten days later, it appears that this person was either a transient or a precocious carrier (Sacquépée).

Of the typhoid carriers, twenty-five of the thirty were females. Of the five male carriers in this group, only one is known to have infected a large number of persons, ten; one infected three persons, and another is known to have infected one. Of the twenty-five female carriers from whom it has been possible to trace secondary infections, an average of eight cases has been traced to each. From the nature of their occupations, a larger proportion of female carriers would be likely to infect others, and hence one might expect to find more carriers among women than among men in routine investigations into the source of infection in sporadic or endemic typhoid. No summary has been made of the carriers reported in the literature as to sex incidence, but it seems apparent that in the large number of carriers that have been detected in ordinary every-day life, women are considerably in excess of men. In Group 2, routine investigations, the proportion of female to male carriers is 5:1. In our institutional series (Group 1), the proportion of male carriers to female was as 1.4:1, the population consisting of 1.2 males to 1 female. In those persons merely suspected of being carriers, that is, in whom the Widal test was positive but in whose discharges typhoid bacilli were not found, possibly owing to the few examinations made, the proportion of males to females was but slightly less than that of the proved carriers.

The ages of the identified typhoid carriers in our routine series varied from 32 to 83 years, with the exception of two men, aged 21 and 28, to whom no cases were traced. All women carriers were aged 30 or over, and all but five were 40 years or more of age, the average age being 52 years. The lapse of time between infection and identification of the carrier condition of the women, when time of typhoid fever was known, varied from one to 40 years, averaging 11.2 years, leaving the average age at the time of infection 40.8 years.

The average age of the male typhoid carriers was 48 years and the average duration since typhoid infection was five years, leaving the average age at time of infection as 43 years.

Of the seven paratyphoid carriers, six gave a history of clinical typhoid fever. In Case 32, in which a history of typhoid fever was absent, the patient was the husband of a carrier of typhoid bacilli (Case 31) who also gave no history of typhoid fever.

In this group there were six men and one woman. Six cases were traced to two of the male carriers and

TABLE 1.—TYPHOID CARRIERS

Case, Age and Sex	Widal Test	B. Typhosus	Years Since Typhoid Fever	No. Cases Infected	Members of Family	Employees and Boarders	Relatives	Neighbors	Deaths
1—40—F ...	+	Feces	16	4	1	2	1	0	1
2—68—F ...	+	Feces	5	15	2	4	6	3	0
3—68—F ...	+	Feces	28	23	0	0	6	17	0
4—83—M ...	+	Feces	8	3	2	0	0	1	0
5—79—F ...	+	Feces	3	8	1	5	2	0	0
6—54—M ...	+	Feces	1	10	0	1	9	0	1
7—66—F ...	Atypical	Feces	20	16	0	9	0	7	2
8—65—F ...	+	Feces	6	3	0	0	3	0	0
9—54—F ...	+	Feces	1	0	0	0	0	0	0
11—37—F ...	+	Feces	9	4	3	1	0	0	0
12—34—F ...	+	Feces & Urine	15	3	2	1	0	0	0
13—40—F ...	+	Feces & Urine	4	11	3	0	0	8	0
14—72—F ..	Atypical	Feces	40	19	6	3	6	4	1
15—55—M ...	+	Feces	14	1	0	0	0	1	0
16—32—F ...	+	Feces	1½	0	0	0	0	0	0
17—65—F ...	+	Feces & Urine	1½	1	0	0	0	1	0
18—45—F ...	+	Feces	6	3	2	1	0	0	0
20—28—M ...	+	Feces	..	0	0	0	0	0	0
21—48—F ..	+	Feces	4	1	1	0	0	0	0
22—57—F ...	Atypical	Feces & Urine	30	8	0	0	0	8	2
24—21—M ...	+	Feces	2	0	0	0	0	0	0
25—34—F ...	+	Urine	⅓	1	1	0	0	0	0
26—58—F ...	+	Feces	..	0	0	0	0	0	0
27—34—F .	+	Feces	..	30	2	1	9	18	3
29—46—F ...	+	Feces	5	0	0	0	0	0	0
31—53—F ...	Atypical	Feces	..	5	0	2	3	0	0
34—56—F ...	+	Feces & Urine	..	9	0	0	0	9	0
36—78—F ...	+	Feces	3	3	1	0	2	0	0
37—56—F ...	+	Feces	32	25	0	0	0	25	0
39—59—F ...	+	Feces	5	7	1	0	0	6	2
52.8(aver.)			10.4(aver.)	213	28	30	47	108	12

TABLE 2.—PARATYPHOID CARRIERS

Case, Age and Sex	Widal Test		B. Paratyphosus	Years Since Typhoid Fever	No. Cases Infected	Members of Family	Neighbors	Deaths
	Typhoid	Paratyphoid						
10—44—F	—	+	Urine	10	1	0	1	0
19— 3—M	+	+	Feces	1½	0	0	0	0
28— 6—M	—	0	Feces	2	0	0	0	0
32—57—M	—	0	Urine	—	0	0	0	0
33—23—M	Slight	+	Feces	3	0	0	0	0
35—34—M	+	+	Feces	1	2	2	0	0
38—20—M	0	0	Feces	½	4	0	4	0
26.7 (average)				3 (aver.)	7	2	5	0

one to the female carrier. The remaining four carriers, so far as is known, have not given rise to any cases.

The paratyphoid carriers averaged only 26.7 years of age at the time of detection, and the time intervening between infection and identification averaged only three years.

The high percentage of positive Widal reactions in the blood of the carriers here reported is notable. In the carriers of *B. typhosus,* all but two gave either a complete or a partial reaction (twenty-six complete, four atypical). In Cases 23 and 30, in which the Widal reaction was absent, the possibility of contaminated specimens having been sent for examination must be considered. It might be held that if in the suspected groups the discharges from a greater number of persons in whom the Widal reaction was absent had been examined, more carriers would have been found. In response to such a suggestion, it can be said that in some of the suspected groups the discharges were examined with negative results in from three to twenty-nine persons in whom the Widal reaction was absent, and further, that no later cases occurred in the various communities after these carriers were detected and placed under proper supervision. It is true that in each of three communities one case of typhoid fever occurred following the detection of their respective carriers, but on investigation the infection was traceable in each instance to the negligence of the already identified carrier (Cases 5, 7 and 34).

Certain factors which tend to stasis in the gallbladder are thought to have their influence on the development of cholecystitis and cholelithiasis. These factors, many of which are present in those advanced in years, or in women, have often been enumerated in explanation of the fact that gallbladder troubles are more prevalent after middle life than before, and in women than in men. If this explanation of the age and sex incidence of gallbladder infections is correct, then we should expect to find a higher proportion of carriers in those who undergo a siege of typhoid fever late in life and in women rather than in the young and in men.

In our routine series, the average age at time of infection, over 40 years, appears strikingly suggestive when it is remembered that typhoid fever is most prevalent among the young. The proportion of female to male carriers in this series, 5 : 1, appears to tally fairly closely with the sex incidence of cholecystitis and cholelithiasis in general.

It is regretted that a more complete study of the cases in the institutional series could not have been made. Possibly a knowledge of the age incidence of the infection of the identified carriers in this series would explain the lesser proportion of female to male carriers.

The Profession in the Netherlands.—Some recently published statistics show that there are 3,167 physicians in the Netherlands (population over 6 millions). The number of those who obtained elsewhere their license to practice is 2,497. There are 1,695 medical students in the various universities, including 224 women. This is an increase over a year ago when the figures were respectively 1,521 and 175. In 1915 there were 1,565 and in 1914, 1,790. The mobilization of the troops explains the drop since. There are thirty-three asylums for the insane, and they are caring for 7,549 men and 7,464 women, a total of 15,013, an increase of 500 over last year.

RAPID REDUCTION OF INTRA-OCULAR TENSION IN GLAUCOMA

BY TIMED INTRAVENOUS GLUCOSE INJECTIONS *

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In the course of studies with timed intravenous injections of sugars, salts, etc., several phases of which have been previously reported by Woodyatt, Sansum and Wilder,[1] observations have been made on possible clinical uses of the rapid dehydration of the organism which may be produced when sugar or salts are injected uniformly into the vein at rates which lead to the excretion of water through the kidneys faster than water is administered with the sugar or salt.

When glucose is injected by vein uniformly at or below the tolerance limit which, in normal resting individuals, lies as a rule between 0.8 and 0.9 gm. per kilogram of body weight per hour, there is no increase in the rate of diuresis greater than can be accounted for by the extra water given.[2] In fact, a definite antidiuretic tendency manifests itself.[3] But when glucose is injected so fast as to produce a sufficiently rapid excretion of glucose, increased diuresis results; and then if the water injected with the glucose is less than that excreted in the urine, the tendency is toward dehydration. By employing 36 to 54 per cent. glucose solutions and injecting them at rates corresponding to from 3.6 to 5.4 gm. of glucose per kilogram per hour, heavy glycosuria and rapid dehydration occur.

The question arises as to whether or not and to what degree fluid can be drawn to advantage from a localized area such, for example, as a blister, an effusion in a serous cavity, a glaucomatous eye, or the like. An opportunity for experimental study presented itself when Dr. E. V. L. Brown asked that we attempt to lower the intra-ocular tension in a certain case of glaucoma then under his observation. Three successful attempts with this case led to the application of the same principle in a second case on the service of Dr. William H. Wilder. The results obtained are reported in the belief that the principles and methods employed will be found of clinical interest. It is not improbable, however, that the details of the operation as here described might to advantage be modified, since it would appear that the dehydration was unnecessarily rapid and that equivalent beneficial results might be attained with less risk of harm by a more gradual procedure.

REVIEW OF THE LITERATURE

The abstraction of fluid from the body as a whole, including the eye, is by no means a new idea in the management of glaucoma, for among the accepted treatments are free elimination by sweating, diuresis and catharsis. Local abstractions of fluid by the application of leeches or the subconjunctival injection of salts are also well known procedures. According to Fischer's[4] theory of glaucoma, the condition constitutes essentially a local edema, a swelling of the ocular colloids, especially of the vitreous, due to an increased

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1. Woodyatt, R. T., Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2067. Woodyatt, R. T.: Studies in Intermediate Carbohydrate Metabolism, Harvey Society Lecture, 1916.

2. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med., February, 1917, p. 311.

3. Woodyatt, R. T., and Sansum, W. D.: Jour. Biol. Chem., 1917, **30**, 155.

4. Fischer, M. H.: Arch. f. d. ges. Physiol. (Pflüger's), 1908, **125**, 396; 1909, **127**, 1.

affinity of the colloids for water. As salts in suitable concentrations may cause the separation of water from swollen protein gels, so in an analogous manner they may lower the tension of an eye. On the basis of experiments showing the parallel effects of salts on enucleated eyes and on protein gels, Hayward and Fischer[5] suggested both local and general treatments, the former consisting in subconjunctival injections of from eighth molecular to sixth molecular (from 4.05 to 5.41 per cent.) sodium acetate solutions, the latter in rectal administration of from 1,000 to 1,500 c.c. of Fischer's hypertonic salt solution. Both in their hands gave beneficial results. Hertel[6] used hypertonic salt solutions to lower intra-ocular tension as a preliminary step to iridectomy. He reports one case in which, following the intravenous injection of 120 c.c. of a 10 per cent. solution, the intra-ocular tension fell from 72 to 30 mm. of mercury. The time or rate of injection was not stated. In another case following the oral administration of 200 c.c. of the same solution, the tension was lowered from 80 to 22 mm. of mercury. He also used hypotonic solutions to restore ocular tension in the hypotonia found in such conditions as diabetic coma. In this connection it is interesting to note in anticipation of what follows that the "soft eyeball" which may be encountered in diabetes would appear to be merely a part of that general dehydration of the body which goes hand in hand with sugar diuresis and other manifestations of the effects of excessive quantities of free glucose in the body.

TECHNIC

The glucose employed was a chemically pure product prepared in this laboratory. The details of its preparation are described elsewhere.[3] The water was freshly distilled with the same precautions as are observed in its preparation for salvarsan administrations. Approximately 2 to 3 molecular (36 to 54 per cent.) glucose solutions were made up by weight, carefully filtered and sterilized in the autoclave. The exact titer was then determined in each case by the polariscope. The volumetric pump has been described in detail in a recent communication.[7] The details of operation, with the arrangement of the apparatus, also have been described elsewhere.[2] The rate of injection will depend on the titer of the solution used, the nature of the case, and the quantity of water it is desired to abstract from the body in a specified time. The slower rates of injection extending over two hours or more tend to eliminate the chill and lessen the dangers attendant on the too rapid increase of intravascular pressure and decrease of intra-ocular tension. Other things being equal, the higher the rate of glucose injection and the less the water given with the glucose, the greater the dehydrating power. A 54 per cent. solution given at a rate corresponding to 3.6 gm. of glucose per kilogram per hour (that is, 6.66 c.c. of a 54 per cent. solution per kilogram per hour) has greater dehydrating power than the same quantity of glucose given in the same time in the form of a 36 per cent. solution (that is, 10 c.c. of a 36 per cent. solution per kilogram per hour). With a solution of fixed concentration (as 54 per cent.), the degree of dehydration will be proportional to the quantity given in a specified time. The intra-ocular tension was taken with a Gradle-Schiötz tonometer by the ophthalmologists in charge of the case.

5. Hayward, G. T., and Fischer, M. H.: Ann. Ophth., 1910, **19**, 40.
6. Hertel: Arch. f. Ophth. (Sattler), 1915, **90**, 309.
7. Woodyatt, R. T.: Jour. Biol. Chem., 1917, **29**, 355.

CASE HISTORIES AND EXPERIMENTS

Case 1.—This was one of syphilitic iritis plastica with secondary glaucoma on the service of Dr. E. V. L. Brown, who provided the following history:

History.—Mrs. S., colored, widow, aged 52, was admitted to the Cook County Hospital, Dec. 1, 1915, complaining of pain and swelling in the left eye, photophobia, headaches, joint pains and a fading maculopapular eruption on the body. The eye trouble had begun about two weeks before admission with redness and photophobia in the left eye followed by failing vision and joint pains which grew progressively worse. The rash, accompanied by sores in the mouth and headaches, had appeared about six weeks prior to admission. The past history was negative.

Physical Examination.—The patient is a fairly well developed but poorly nourished negress. She appears ill and as if she had recently lost in weight and strength.

Eyes: There is slight edema of the conjunctiva of the right eye. The left eye is nearly closed, owing to edema of the lids. There is profuse lacrimation and chemosis of the bulbar conjunctiva. The cornea is dulled and everywhere overstrewn with epithelial pits. The stroma is clear. There is no gross keratitis punctata. There is marked ciliary and conjunctival injection. Two thirds of the anterior chamber is obliterated totally in the sector corresponding to that between I and VII of the clock dial, and half obliterated in the sector between VII and I by the anteriorly displaced iris. The central one fourth of the chamber is normal in depth. The very irregular, 2 mm. pupil is completely encircled by posterior synechias, and is blocked by a greenish white, nonvascular exudate. There is a sail-like forward bulging of the body of the iris (*iris bombe*). There are no condylomas or tuberculous nodes, although the iris is furrowed radially from the pupillary border one-half way to II of the clock dial and less deeply to XI. The iris markings are blurred, but otherwise the tissue is not much changed. The crystalline lens and entire back of the cornea are covered by very fine discrete gray flecks of exudate. R. V., 3/10; L. V., shadows. Tension, right, 18¾; left, 54 mm. of mercury. The synechiae are uninfluenced by the use of atropin.

Mouth: One small area suggests a mucous patch. Neck: There is cervical and submaxillary adenopathy. Chest: Negative. The heart tones and borders are normal. Blood pressure, 135 systolic and 80 diastolic. Genitalia: There is inguinal and femoral adenopathy. Extremities: There is marked epitrochlear adenopathy. Skin: Across the forehead, about the eyes, and on the upper forearms are numerous split-pea sized, flat, slightly elevated papules which appear a little darker than the normal skin. Laboratory: Urine, normal. Wassermann reaction in the blood plasma +++. Complement fixation test for gonorrheal infection in the blood plasma +.

Therapeutic Dehydration.—An iridectomy for the immediate relief of pressure would have been the procedure of choice; but, owing to the fear of complications, such as prolapse of the iris and intra-ocular hemorrhage from the too sudden lowering of tension, the surgeon preferred, if possible, to operate under more favorable conditions. The proposal was therefore made to attempt the reduction of intra-ocular tension by general means. December 6, after a careful physical examination had demonstrated a sound cardiovascular-renal system with the blood pressure within normal limits, the patient received 41.2 per cent. glucose solution by vein at the rate of 11.2 c.c. per kilogram per hour for sixty-nine minutes. The 47.5 kg. patient thus received in sixty-nine minutes a total of 612 c.c. of 41.2 per cent. glucose solution containing 252 gm. of glucose and approximately 471 c.c. of water. As the result of the injection, the patient passed 2,247 c.c. of urine, as against the 471 c.c. of water injected with the glucose, thereby creating a water deficit in the body of 1,776 c.c., or 37.4 c.c. per kilogram. The blood pressure before the operation was 135 systolic and 80 diastolic. During the injection it rose to 155—100, and after the injection it fell to 95—65, systolic and diastolic, respectively. On the following morning at 10:30 it had risen to 120 systolic and 90 diastolic. The

temperature before the injection was 98.4 F. One hour after the injection it was 102. It then gradually declined to normal in the course of twenty-four hours. Toward the end of the injection for twenty minutes the patient shook as though in a chill, but did not complain of any discomfort. The intra-ocular tension before the injection was 60.5 mm. of mercury and fell to 26 mm. In the right or normal eye it fell from 15.25 to 12.25. The fall in tension was so striking that the question was raised as to whether if the operation were repeated and followed by a suitable after-treatment the advantage gained might not be maintained for a long enough time to preclude the necessity of operation entirely.

Seeond Dehydration.—December 14, the treatment was repeated. This time an effort was made to abstract the water more gradually. The patient received a 38.9 per cent. glucose solution by vein at the rate of 8.7 c.c. per kilogram per hour for 108 minutes. The 45 kg. patient thus received in 108 minutes 702 c.c. of 38.9 per cent. solution containing 273 gm. of glucose and approximately 548 c.c. of water. As a result of the injection the patient passed 2,359 c.c. of urine while receiving 548 c.c. of water with the glucose, thereby creating a water deficit in the body of 1,811 c.c., or 40 c.c. per kilogram. The tension in the left eye fell from 54 to 18 mm. of mercury. In the right or normal eye it fell from 15.25 to 7.25. In this instance the blood pressure reached a maximum of 185 mm. There was a "chill" lasting forty minutes. The temperature rose to 102.2. The after-treatment consisted in the limitation of the total water intake to 2,000 c.c. in twenty-four hours, with fifteen doses each consisting of 1 gm. of sodium bicarbonate and 0.66 gm. of sodium acetate with compound jalap powder and magnesium sulphate enough to produce three or four watery stools daily. The after-treatment failed. The patient complained of thirst, and the intra-ocular tension gradually rose, reaching 44 mm. of mercury by the end of twenty-four hours, when the treatment was stopped because of nausea. After this the tension gradually rose, reaching 47 in three days and 66.75 by the end of a week.

Third Dehydration.—This was performed, December 21, as a preliminary measure to an iridectomy. The procedure was carried out still more slowly than in the second injection. The patient received 36 per cent. glucose solution at the rate of 7.7 c.c. per kilogram per hour for 115 minutes. Thus the 45 kg. patient was given 662 c.c. of 36 per cent. solution, containing 238 gm. of glucose and approximately 530 c.c. of water. The urine totaled 2,275 c.c., while 530 c.c. of water were injected with the glucose. A water deficit of about 1,745 c.c., or 39 c.c. per kilogram, was therefore produced. Although nearly as much water as before was abstracted, the time consumed was longer, and there was in this instance no chill. The temperature rose to 101. The systolic blood pressure reached 148 and the diastolic 100 mm. of mercury. The intra-ocular tension was reduced from 66.75 to 37.75. This reading was taken just before the close of the injection; but at the time of operation, thirty minutes later, it was normal to palpation. Iridectomy was then performed by Dr. Brown. The patient was put on an antisyphilitic management and made an uneventful recovery. The cornea became clear. The hyperemia and the anterior synechiae disappeared. The tension remained so low that it was impossible to make satisfactory readings.

The foregoing results were taken to demonstrate the feasibility of lowering intra-ocular tension in a case of the type described; but the question remained as to whether or not parallel results could be obtained in a case of so-called primary glaucoma.

CASE 2.—This was one of very severe acute, primary glaucoma that developed after the patient had been in the hospital about a month and in spite of careful medicinal and surgical management. The patient was one of Dr. W. H. Wilder, who kindly furnished the history.

History.—Mrs. Jane G., aged 46, with glaucoma, was first examined by me, Jan. 1, 1916. She gave a history that one and a half years before the sight of the right eye began to fail, and examination by a specialist revealed that the fields were contracted. About June 1, 1916, she noticed that the central vision of the right eye was much reduced. At times she has had pain in the eyes and has noticed rainbows about a light. Recently the sight of the left eye has been clouded, especially so when she feels nervous.

R. V. with sph. 6.00, cyl. 2.00, axis 90° 20/70
L. V. with sph. 6.50, cyl. 1.75, axis 110° 20/30

Disks: The right is deeply cupped, about 2 mm. In the left there is a deep physiologic cup, but the edges are normal. The vessels are somewhat congested. The intra-ocular tension in the right eye is 55 and in the left 25 mm. of mercury. Fields: It is impossible to chart the fields of the right eye. In the left eye the white is somewhat contracted above and below. The red reads: above, 18°; below, 18°; nasal, 18°, and temporal, 55°. The green reads: above, 10°; below, 10°; nasal, 12°, and temporal, 40°.

I advised an operation on the right eye and later on the left eye if the tension should become increased. June 26, 1916, at the Presbyterian Hospital I did an Elliot trephining on the right eye with good results. About two weeks later the tension in the left eye became high and the patient had an acute attack of glaucoma in this eye. July 14, I did an iridotasis on the left eye and at the same time an iridectomy on the right eye, for the tension in that had risen again. The right eye quieted down following this iridectomy. The left eye recovered well from the iridotasis and remained low or normal for a few days, when the patient again had an acute attack of glaucoma with a tension up to 60 mm. of mercury, shallow anterior chamber, and violent pain requiring narcotics.

Therapeutic Dehydration.—An iridectomy for the immediate relief of pressure would have been the operation of choice; owing, however, to the fear of complications, such as prolapse of the iris and intra-ocular hemorrhage from the too sudden lowering of tension, the surgeon preferred to work under more favorable conditions. Knowing of the work on the previous case, Dr. Wilder asked that we attempt to lower the tension in this case by the intravenous injection of glucose in preparation for an iridectomy. A careful physical examination showed that the heart, blood vessels and urinary system were in sufficiently good condition. The systolic blood pressure was 146 and the diastolic 100 mm. of mercury. There was a marked edema of the lids and surrounding tissues. The intra-ocular tension was 60 mm. The anterior chamber was obliterated. July 20, the patient received 55.2 per cent. glucose solution by vein at the uniform rate of 10 c.c. per kilogram per hour for seventy-six minutes. The 60 kg. patient thus received 691 c.c. of 55.2 per cent. glucose solution containing 380 gm. of glucose and approximately 491 c.c. of water. As a result of the injection there was passed 1,250 c.c. of urine as against 491 c.c. of water injected with the glucose, thereby creating a water deficit in the body of 759 c.c., or 13 c.c. per kilogram. The intra-ocular tension as observed by Dr. W. H. Wilder fell from 60 to 20 mm. of mercury. There was no chill. The temperature rose to a maximum of 101. The iridectomy was then performed by Dr. Wilder under light ether anesthesia. Before and during the first part of the injection the patient suffered greatly from pain in the eye and was very restless. During the latter part the pain wholly disappeared, and the patient became quiet and went to sleep. *The edema of the lids and surrounding tissues disappeared entirely under the eyes of the observers during the injeetion.* The anterior chamber remained very shallow. The high rate of injection was chosen in this instance because the patient had been taking large doses of morphin which it was feared might retard the liberation of water, although it was not known by experiment that such would be the case. Dr. Wilder provides the following notes on the subsequent clinical history of the case:

Subsequent History.—Before the iridectomy, July 20, 1916, the tension was lowered by the intravenous injection of glucose solution by Dr. Sansum and Dr. R. M. Wilder. This lowered the tension to 20 mm. of mercury, and an iridectomy was satisfactorily done under ether narcosis administered by Dr. Herb. The eye quieted after this operation, and in one week the patient left the hospital. The tension remained

normal, but the patient continued using 1 per cent. physostigmin (eserin) and 5 per cent. ethylmorphin hydrochlorid (dionin). She was weak for some time, and the elixir of iron, quinin and strychnin was prescribed. The tension seemed increased at times. Feb. 10, 1917, it was 35 mm. Feb. 21, 1917, R. V. 0; L. V. with sph. 200, cyl. 5.50, axis 15° 20/50. These lenses were ordered in tinted glass and the physostigmin and ethylmorphin hydrochlorid continued. The right optical disk was deeply cupped and the left slightly cupped.

COMMENT

The theory of the nature and mechanism of glucose diuresis has been discussed elsewhere[3] and need not be repeated here. The increased temperature observed with each of the injections is a phenomenon which we have encountered in the course of intravenous glucose injections in animals when dehydration has been pushed beyond a certain degree. The same applies to the chill. A discussion of the theoretical significance of the fever and chill would be irrelevant in this place. The increased blood pressure is associated with the increased blood volume due to the flow of water into the blood owing to the presence in the blood of increased quantities of free glucose.[8]

Attention is directed to the temporary but marked elevation of blood volume and blood pressure during the intravenous injection of glucose because an injudicious application of the principle of intravenous sugar or salt injection to cases in which the cardiovascular system was impaired might lead to deleterious effects. In the cases here reported the treatment was not instituted without a careful preliminary consideration of the heart, vessels and renal function. A powerful procedure such as this, which is capable of radically lowering intra-ocular tension and simultaneously elevating the intravascular tension, should obviously not be undertaken blindly or without due care in cases in which the condition of the vessels, especially those within the eye, would render them liable to rupture by a too rapid change of pressure relations. As stated at the outset, the details of the operation as here described are not presented as necessarily the most appropriate for clinical work generally. They might be modified in other cases and in the light of further experience.

By a suitable selection of the rate of glucose injection and of the quantity of water abstracted in a given time, it should be possible to control to a nicety the rate and degree of ocular pressure reduction to meet the demands of the ophthalmologist. In this connection it may be noted that the possibility of positive control is greater than it is in the ordinary local operative procedures which are in general use by ophthalmologists.

The experiments demonstrate without any question the possibility of quickly lowering intra-ocular tension in the types of glaucoma described and in the normal eye.

It is not the purpose of the present report to decide when a procedure of the kind herein described should have the preference over other known resources in ophthalmologic practice. It appears to offer a means of lowering intra-ocular tension to a degree and at a rate chosen by the surgeon either in a normal or a glaucomatous eye. It would appear to be a method particularly sensitive to control and especially fitted to meet the demands for a rapid temporary reduction of intra-ocular tension to prevent the damaging effects of mechanical pressure and to pave the way for a surgical operation which cannot be safely or satisfactorily performed with the existing intra-ocular tension. The advantages or disadvantages of the method as compared with cyclodialysis, sclerotomy, etc., could be stated only after further investigation by specialists.

8. Compare Lusk: Jour. Biol. Chem., 1912, **13**, 27. Fisher and Wishart: Ibid., 1912, **13**, 49. Woodyatt and Sansum (Footnote 3).

HOOKWORM CONTROL IN SOUTH CHINA

BASED ON A PRELIMINARY STUDY OF THE INCIDENCE OF HOOKWORM INFECTION IN HUNAN PROVINCE, CHINA

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The problem of the control of hookworm infection in South China differs in so many essentials from the same problem in America and in other Western countries that its solution will require long planning by specialists and a persistently carried out program of practical endeavor. In many of the American states, the carelessly built latrine, or its total absence, has made soil pollution frequent. In India, in the rural districts, human excrement is deposited directly on the soil, but without any organized system of using it for fertilizer. In South China, however, it is the custom to collect it in earthen jars and to ladle it out from these into buckets to be hurried out to the fields and gardens for fertilizer. Each farmer or gardener has a little cesspool into which the bucket contents are poured for storage. Fertilization is not limited to manuring the ground, but, especially in vegetable gardens, suitable aqueous dilutions of the pool contents are sprinkled over the growing crop at appropriate intervals, the human excrement being literally smeared over the vegetable leaf. Later, when these vegetables reach the kitchen, they frequently receive cooking that falls far short of sterilization. With such methods of enrichment, followed by scant cooking, the wonder is, not that some of the people have intestinal disease and parasitic infection, but that any one escapes. We may thus note at the outset that the study of hookworm in China is complicated by many factors not present in other lands. Some of these are:

1. The universal use of human excrement for fertilizer.
2. The consequent and continuous discharge of effluent, containing parasitic ova and larval forms, into streams, contaminating both their waters and the soil of their banks.
3. The presence of disease due to other animal parasites, such as *Schistosoma japonica,* whose symptomatology resembles, in so many ways, that of hookworm infection.
4. The frequency of concurrent infection with hookworm and malarial or other fevers, rendering it difficult to gage the exact morbid significance of each.

It is my purpose, in this paper, to present a summary of recent surveys made to determine the extent of hookworm infection in Hunan province, and to discuss, in the light of these surveys, some of the factors bearing on its control in South China.

HISTORICAL DATA

Jefferys and Maxwell[1] have pointed out that hookworm is to be found over wide areas of the country,

1. Jefferys, W. H., and Maxwell, J. L.: Diseases of China, Including Formosa and Korea, Philadelphia, P. Blakiston's Son & Co., 1910.

being especially prevalent in the Yangtze River valley, in which Hunan province lies. No systematic survey had been attempted in Hunan before 1914, either of geographic districts involved or of occupational incidence; nor had any one described the special influences favoring transmission of the infection due to locality or mode of life. At the same time, reports show that very early in the history of medical missionary work in Hunan, the microscope had been faithfully used, especially in the larger cities, such as Changsha, Changteh, Hengchow, Siangtan and Yiyang. These reports are included in the statistical tables published by the research committees of the China Medical Missionary Association. Hookworm has been reported from every city in which fecal examinations have been made; both *Ancylostoma duodenale* and *Uncinaria americana* have been identified, the former more frequently.

The Rockefeller Sanitary Commission has published a report,[2] wherein it is said that "nothing is being done by the Chinese government or the Chinese to alleviate or eradicate the disease." This statement is unfortunately true. But it is true because the Chinese have not understood the nature of the danger or the method of its control, resembling in this regard the people of the southern United States, prior to the agitation of the past few years. As soon as the resultant benefits of action can be made clear to them, the Chinese can be counted on to act.

SURVEYS IN HUNAN (1914-1916)

Soon after my attention was called to the foregoing report on hookworm in foreign countries, I sought an interview with the director general of the International Health Commission, and it was largely due to his practical suggestions that plans were laid, early in 1913, for a comprehensive survey of hookworm infection in Hunan province. As a first step in carrying this out, Dr. A. C. Reed of the staff of Yale Hospital at Changsha, the provincial capital, was detailed to begin investigations at the Pinghsiang Colliery, one of the largest mines in China. This colliery is 90 miles from Changsha, just across the border from Hunan, in the province of Kiangsi. Its commercial relations with the rest of the country are carried on by way of Changsha, which lies in the same Central China valley. Reed[3] found a general incidence of 81.6 per cent. among all workers at the mining establishment; among those who worked underground the infection rate was 90.2 per cent., a figure that was probably minimal, as it is likely that the true incidence approached 100 per cent.

A preliminary survey[4] made in the city of Changsha during the same year, 1914, covering servants, students and others, showed a general infection rate for hookworm of 11.6 per cent., a figure which, again, must be regarded as minimal.

These reports made it clear that uncinariasis was as much of a menace in the mines and in the general urban population of Central China as in similar groups elsewhere in the world; it remained to be shown whether it was as prevalent in agricultural districts and in mines other than collieries.

I had some communication with the director general of the International Health Commission and, as a result, in the summer of 1915, this commission, after making an appropriation to aid in extending the survey, asked me to arrange for men to undertake the work.

During the autumn of 1915 and the winter following, the attempt of Yuan Shih-kai to become emperor was followed by political disturbances throughout all South China, making it impossible to extend the survey in Hunan over as wide an area as originally planned. However, during this time, and in the summer of 1916, observations were made in the agricultural district of Changteh, in the north of Hunan, far removed from the mining areas; and a careful survey was made in the summer of 1916 at Sinhwa, an active antimony mining district in the center of the province. Here, it was possible to study the spread of hookworm from an agricultural to a mining group of workers, and to determine its incidence under conditions differing both geologically and meteorologically from those found elsewhere in Hunan. The studies at Changteh were carried on by Dr. G. F. Tootell, and those at Sinhwa by Dr. W. S. Chow; the latter's full report (Hookworm Investigation in the Antimony Mines of Sinhwa, Hunan Province, China) will be published separately.

These four distinct surveys (Changsha, Changteh, Pinghsiang and Sinhwa) made in as many separate districts to the north, east and west of the provincial capital, may now be summarized and discussed with a view to the light they throw on methods for the eradication of hookworm and the even more fundamental problem of changing Chinese methods of sewage disposal.

TABLE 1.—GEOGRAPHIC DISTRIBUTION OF HOOKWORM IN HUNAN

(All classes of people and both sexes)

City	Number Examined	Hookworm Present	Hookworm Incidence, Per Cent.
Changsha	120	14	11.66
Changteh	739	113	15.29
Pinghsiang	272	222	81.62
Sinhwa	210	27	12.86
Totals	1,341	376	28.04

The results in Changsha, Changteh and Sinhwa, as seen in Table 1, approximate one another very closely, the total of 1,069 cases examined in these three districts showing hookworm present in 154, an incidence of 14.4 per cent., a figure only slightly higher than that obtained in Sinhwa and Changsha, and but slightly lower than that at Changteh. The great disparity of the Pinghsiang figures arises from the fact that 225 of the 272 cases were found among underground workers, among whom indiscriminate defecation furnished abundant opportunity for infection through the feet. Other coolies at Pinghsiang, working in the washing plant above ground, showed a 57 per cent. incidence; while still others, in the machine shops, showed but 27 per cent. Even if we exclude the Pinghsiang returns, we find an incidence of 14.4 per cent. in a general population, somewhat predominantly agricultural; in other words, one seventh of the population is suffering from an infection, the eradication of which, in many other parts of the world, has been quickly followed by striking improvement in the physical and moral well-being of the individuals concerned.

As indicated in the comment on Table 1, the Pinghsiang figures, for special reasons, should be considered apart from the others. We have there a typical deep mine whose main adit penetrates the mountain side to a depth of a mile and a half. The workers in these depths are on long shifts, have no sanitary conveniences, and the heat and humidity are considerable.

2. Hookworm Infection in Foreign Countries, 1911, p. 57.
3. Reed: Am. Jour. Pub. Health, 1914, **4**, 1136.
4. Reed: China Med. Jour., 1914, **28**, 263.

Such conditions are ideal for the spread of hookworm. At Sinhwa, on the other hand, the mines are exceedingly superficial, not penetrating at any point over 100 feet, with ready access to the surface at all times, with little humidity and with a very moderate temperature. The figures seem to indicate that, if the agricultural workers from among whom the mining forces were recruited were originally infected with hookworm, the meteorological and other conditions in the mines were such as to permit a rapid reduction in the incidence of infection.

We note in Table 2 that next to miners, farmers constitute the second group in which a high incidence of hookworm was observed. This was true throughout

TABLE 2.—OCCUPATIONAL INCIDENCE OF HOOKWORM INFECTION IN HUNAN

City	Number Examined	Hookworm Present	Incidence, Per Cent.
Miners:			
Changsha			
Changteh			
Pinghsiang	225	203	90.22
Sinhwa	63	4	6.35
Totals	288	207	71.86
Other Coolies:			
Changsha	31	5	16.13
Changteh	...	...	.....
Pinghsiang	30	14	46.67
Sinhwa	86	6	6.98
Totals	147	25	17.00
Tradesmen:			
Changsha	40	3	7.50
Changteh	5	1	20.00
Pinghsiang	..	..	.....
Sinhwa	12	3	25.00
Totals	57	7	12.28
Scholars:			
Changsha	27	2	7.47
Changteh	..	..	.....
Pinghsiang	..	..	.....
Sinhwa	..	..	.....
Totals	27	2	7.47
Farmers:			
Changsha	5	2	40.00
Changteh	17	8	47.06
Pinghsiang	..	..	.....
Sinhwa	17	12	70.59
Totals	39	22	56.41
Boatmen:			
Changsha	3	1	33.33
Changteh	..	..	.....
Pinghsiang	..	..	.....
Sinhwa	..	..	.....
Totals	3	1	33.33
Miscellaneous:			
Changsha	14	1	7.14
Changteh	17	4	23.53
Pinghsiang	17	5	29.41
Sinhwa	32	2	6.25
Totals	80	12	15.00
Totals, four cities:			
Analyzed occupations	641	276	43.06
Or, excluding all miners.	353	69	19.55
Or, excluding miners and farm hands	314	47	14.97

Hunan, but particularly so at the Sinhwa mines, where the mine workers themselves showed a low rate. The high percentage among the Sinhwa farmers may possibly be due to the greater poverty of the rural population there, with consequently less protection of the feet and legs.

TABLE 3.—HOOKWORM INCIDENCE BY SEXES IN HUNAN

City	Number Examined		Hookworm Present		Incidence, Per Cent.	
	Male	Female	Male	Female	Male	Female
Changsha	86	34	13	1	15.12	2.94
Changteh*	22	11	9	3	40.91	27.27
Totals	108	45	22	4	20.38	8.89

* Observations made in territory known to be infected.

In still another series of 700 cases reported from Changteh, 100, or 14.29 per cent., were found infected. Of those infected, 90 per cent. were males and 10 per cent females. Reed[4] calls attention to the fact that the difference in the manner of living is enough to explain the widely different percentage in the two sexes. A Chinese woman's feet are so cramped, while bound, as to limit locomotion, and yet the removal of the bandage removes from the foot its necessary support. Limited locomotion and constant protection by bandages unquestionably save many women from skin infection. Conversely, constant exposure of the bared feet and legs, such as occurs while farming or working on boats, accounts for the higher infection rate in males.

In one of the Changsha cases, included in Table 4, *Schistosoma japonica* was present. This fluke is very common in certain districts of Hunan, notably Siangyin and Yochow. The incidence rate given for *Ascaris* (75.08 per cent.) is certainly not exaggerated. In a recent invesigation of fifty consecutive stools from a boys' mission school in Changsha, where food and sanitary conditions are as nearly perfect as can be found in the simple school life of China, well over 80 per cent. were found infected with the eggs of *Ascaris*. I believe this figure represents a common incidence in Hunan. After all, the fundamental question in connection with infection by animal parasites concerns their morbid significance. As found in China, are they directly or indirectly productive of ill health, or is their presence incidental and seldom pathologic? The Chinese believe it is beneficial to have a few roundworms present in the system, and but few Western physicians practicing in China believe that *Ascaris* can cause serious trouble. What would be the hemoglobin index, the blood pressure, blood counts and opsonic index in persons freed from parasites, as compared with those infected, but in other respects similar? Light must be shed on these matters.

SOIL POLLUTION AND HOOKWORM

The reports from Pinghsiang and Sinhwa clearly show that indiscriminate defecation in the mines is not prevented. This single factor would suffice to account for infection contracted within the mines. Outside of the mines, however, other factors must be sought, for such indiscriminate defecation is not common. Males use the public privy and females use a commode the contents of which are later washed out and emptied into the public privy. To one of the factors prevailing outside of the mines, namely, the fertilizing of arable ground with appropriate dilutions of human excrement, reference has already been made. Containing, as this material does, all manner of parasitic ova and larval forms, the heavy incidence of hookworm among farm hands (Table 2) must be in large measure due to infection through the feet, as they come in contact with the contaminated soil. Tootell, from Changteh, reports that laborers wearing no shoes had a much higher incidence than laborers with shoes. Farmers in Hunan work either barefooted or with simple straw sandals the soles of which are certainly not impermeable to the moist soil, and afford no protection to the dorsum of the foot.

Another factor is carelessness in transportation of the nightsoil buckets from city to suburb and country. One has to walk in the train of a group of carriers to realize how the constant drip-drip from the buckets must be infecting the soil. Every time a passer-by accidentally jostles a carrier, a little more is spilled; and, not infrequently, one comes on a scene of wreckage marking the spot where overstrain has caused rup-

ture and total collapse of the bucket itself. Obviously, this type of soil pollution occurs along the paths from the city to the country and through the fields, endangering all who with unprotected feet traverse these routes.

Again, after the water standing in fields and gardens has had time to become heavily infected, it flows on into another pool, soon reaching some little stream, contaminating both its waters and the soil of its banks, thus bringing the hookworm menace close to the feet, the legs and even the arms of boat hands as they work about their little craft. Here we have a third mode of infection.

THE NATURE OF THE HOOKWORM PROBLEM

We now see that the problem of hookworm involves the whole problem of the use of nightsoil as a fertilizer in fields and gardens, with the consequent contamination of streams and their shores; the problem of sanitation within mines; and, in a more general way, the question of the net morbid influence of hookworm existing, as it does everywhere, concurrently with tuberculosis, syphilis and infection with other animal parasites. While these factors seem wholly different, there are many, after all, that relate the problem of hookworm in China quite closely to the same problem in America. For, however direct and frontal the attack on it may be in America, by dispensary treatment or intensive method, there must always be a deeper, if more indirect, attack by fighting the evil of the insanitary latrine. It is just as true of China as of America, that "curing persons of hookworm infection is of little value unless steps are taken to prevent reinfection." [5] The ultimate problem in China may be stated in terms that do not include the actual "hookworm." It is, "to find a satisfactory method for the disposal of sewage at the farm home, one which the people in rural communities may be brought to adopt and to carry out, and one which will prove to be safe in actual experience under the conditions which prevail in these communities." [5] The only difference between the interpretation of this statement in America and in China is that the word "disposal" would connote in America merely the thought of getting rid of the material; while in China it would mean the utilizing of the nightsoil, after its removal from the latrine buckets.

THE SOLUTION OF THE HOOKWORM PROBLEM

Stated briefly, the solution of the hookworm problem for Hunan and for all China may be summed up in three words, survey, suppression and substitution.

Survey.—The extent of the problem must be determined. Practically all the work hitherto done in Hunan comes under this head. We know now that the incidence varies all the way from 6 per cent. in one group of workers, at a certain place, to 90 per cent. in another group, elsewhere. We know that miners and farmers are the two classes most subject to infection, although later inquiry may possibly show that boatmen are also among the heavily infected groups. Further surveys, both extensive and intensive, are urgently needed both in Hunan and elsewhere in China; but they must be equipped to go farther than merely to record incidence. They must try to determine the physical and economic significance of hookworm disease in the presence of almost universal infection with either tuberculosis or syphilis. They must try to gage its effect on the human economy as compared with that of other animal parasites and bacterial infection.

Further, every survey must frankly recognize the difficulties to be overcome. In China, these come largely under the heads of ignorance, custom, lack of capacity for sustained effort, and financial stringency. The ignorance is natural. Even in Western lands, the word "hookworm" was not in current use a few years ago, and in China it is not strange that so few understand what infection is; moreover, among the Chinese coolies, the persons most seriously concerned in the present discussion, indifference is frequently an outgrowth of ignorance. If not absolutely indifferent to the hygienic instruction given, they are at least apt to look with suspicion on any new proposal, for fear it shall deprive them of something they regard as theirs by right, or for fear it shall prove to be a foreign idea likely to do them harm. It is both financially profitable to market nightsoil and agriculturally indispensable to use human excrement for fertilization purposes in a land where horses and cows are few. Necessity is laid on the scientist and economist to conserve whatever he can of an ancient custom, at the same time that he seeks to eliminate the dangers. More of a difficulty than custom, however, is the absence of persistent effort. China has many monuments which commemorate initial zeal, followed by a faltering by the wayside, and an eventual collapse or precipitate flight. There is need for a deep realization of the people's backwardness in handling sanitary matters, and a determination to continue in the effort to construct for them a system on which their national physical well-being may be firmly established. China's wealth is, as yet, largely potential and underground. The vast majority of the population lives from hand to mouth, and human life is held in such slight esteem that little effort is made to conserve it. It follows, therefore, that very little public money, or even private wealth, can be counted on for safeguarding the health of the community.

Suppression.—Here are to be included all available methods for eradicating or alleviating hookworm disease. The recommendations with which Reed and Chow end their respective reports can be summed up in two words, education and isolation.

TABLE 4.—COMPARISON OF INCIDENCE OF HOOKWORM AND OTHER WORMS

City	Number Examined	Ascaris Infections		Trichocephalus		Hookworm	
		Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Changsha	120	73	60.83	11	9.17	14	11.66
Changteh	739	No report	No report	No report	No report	113	15.29
Pinghsiang	272	172	63.24	20	7.35	222	81.62
Sinhwa	210	207	98.57	22	10.48	27	12.86
Totals 4 cities	1,341	...	.....	..	.....	376	28.04
Totals 3 cities	602	452	75.08	53	8.80	...	.....

5. Second Annual Report, International Health Commission, 1916.

(*a*) Education: The order in which the education proceeds matters little, so long as we see to it that the mine operator or farm owner learns of the danger from hookworm both to his employee and to himself, and of the economic gain sure to follow its eradication; that foremen are taught adequate methods of oversight and are compelled to assume definite responsibility for sanitary conditions within assigned areas, and that the laborer himself, whether farm hand or miner, is plainly, directly and repeatedly shown how to avoid infection.

But we may go further than Reed and Chow and insist that until practical sanitary instruction is introduced into all schools, little improvement can be expected. Ordinary hygiene is being taught more commonly than heretofore, but this must be supplemented, especially in the agricultural and mining districts, by simple illustrated lectures and the distribution of literature about hookworm and other parasites and about the use of the latrine and proper disposal of its contents. Medical colleges, too, must teach not merely physiology and therapeutics; they must reinforce their departments of preventive medicine, so that every student and graduate shall be an apostle of practical sanitation. All possible encouragement must be given to the widespread organization of local bureaus of health, to be under the supervision of the department of police, as in Japan. Nothing can educate either the public or the health officer as conclusively as complete vital statistics. At present, no one in China knows what people die of or what the death rate is. The bureaus of health must be educated to proceed without delay to supply these deficiencies. There is scarcely a doubt that they will welcome every friendly suggestion from institutions or organizations whose aim is known to be of service. In Changsha, for several years past, the staff physicians of the Yale Hospital have held appointment as counselors to the chief of the city bureau of health.

The scientific worker should be so educated as to be able with the least possible loss of time to devise such a substitute or such a modification of the manure the farm hand now has access to as will remove from him the great source of his infection.

(*b*) Isolation: If no coolie were permitted to enter a mine until examined and pronounced free of hookworm, uncinariasis in mines would soon be a dead issue. The same would be true of camps or any estate where communication could be controlled and infected persons isolated for treatment. But for those vast areas of farmland to which nightsoil is brought without control, the problem will remain unsolved so long as the worker has to use for fertilizer feces that contain living ova.

Substitution. — Hookworm will disappear from China only when the method of substitution succeeds — substitution not of something else for human excrement as fertilizer, but of a nightsoil freed in some way of its danger, to take the place of one full of hookworm ova carried directly from the privy to the growing crop long before any process of fermentation has destroyed the ova therein. The solution of this tremendous problem will be greatly accelerated as here and there throughout the land organized investigation can be made to determine, amid varying conditions of soil, temperature and meteorology, how to treat human excrement in order to eliminate the danger of infection for the worker who comes into dermal contact with it, at the same time preserving its value as fertilizer. The mere statement of such a problem for a vast country like China, abounding in superstitions and devoted to the keeping up of traditional custom, is almost alarming. And yet, at a time like this, when the traders of the West are extending their commercial interests throughout China for the sake of profit to the citizens of their respective lands, is there not a call for unselfish service as well? It is a call for funds and for workers to grapple with one of the world's big problems of sanitation. And the local authorities will help. Throughout the summer of 1916, while the survey was in progress in Sinhwa and another at Changteh, hookworm was a prominent topic of conversation at not a few official dinners, and government officials, from the highest down, when they learned of the danger of hookworm and of the economic gain likely to follow its suppression, gave assurance of their financial and moral support to any reasonable, practical measure. The governor of Hunan, himself deeply interested in the whole campaign, offered to set aside a suitable tract of land for experimental purposes; and his example was followed by several wealthy landowners. The government bureau of mines, and all others who have been approached, say frankly that they wish guidance in organizing and studying methods of hookworm control. They wish their mines and properties cleared of hookworm, and will cooperate in bringing this about. Such signs are full of hope. They mean that, given such cooperation as the International Health Board has been able to extend to other countires, the local Chinese authorities will not be behind those of other nations in working both for the eradication of the hookworm menace and for a gradual reform of the entire system of sewage disposal, that is even more fundamental than the problem of mere hookworm infection.

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THE RELATION OF LOW BLOOD PRESSURE TO A FATAL TERMINATION IN TRAUMATIC SHOCK*

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It is desirable, in view of the cooperation on the part of several of the physiologic laboratories of the United States in the work on the nature and treatment of traumatic shock arising from war conditions, that the results of such work be made public as early as possible in brief communications. Such is our reason for the form of the present note.

The experimental facts, in part unpublished and in part drawn from previous work, are as follows:

1. When the cells of the brain and medulla oblongata are deprived of blood for a period of from ten to twenty minutes, a change in the staining reactions of the cells is demonstrable if the brain and upper portion of the spinal cord are removed some minutes after the circulation to the head has been restored.[1]

2. There is a greater susceptibility of these previously damaged cells to strychnin. Paralysis and fail-

* From the Department of Physiology, Columbia University.
1. Gomez and Pike: Jour. Exper. Med., 1909, **11**, 257-265.

ure of function from administration of strychnin during the resuscitation period occur more readily in the anterior (cephalic) portion of the central nervous system, which has been deprived of blood for a time, than in the posterior portion through which the circulation has been maintained continuously.[2]

3. Such damaged nerve cells will recover when a proper supply of oxygenated blood is provided. Respiration, blood pressure and pulse rate soon become normal.[2]

4. Transection of the spinal cord in the upper thoracic region may be done without fatal results some hours after the circulation to the brain has been restored. Transection of the spinal cord at this level in animals with brain intact is not ordinarily fatal.

5. Transection of the spinal cord is fatal if done soon after the reestablishment of the cerebral circulation, or if done soon after the return of the respiration and the blood pressure to their normal conditions. Death follows in from five minutes to an hour.[3]

6. Section of the spinal cord in the upper thoracic level lowers blood pressure. Increasing blood pressure by clamping or ligating the descending aorta just above the diaphragm will restore the failing encephalic (including bulbar) functions, if the increase is brought about soon enough.

7. In cases of severe damage to the cells of the central nervous system, no return of function, or only an extremely slow and imperfect return, is possible so long as the blood pressure remains low. The conditions may be improved by increasing the blood pressure artificially. The conditions become worse when a fall of blood pressure is brought about by some means which does not involve transection of the spinal cord.

It is true that the conditions produced in our animals do not, at first sight at least, coincide in all respects with the conditions as they are supposed to exist in traumatic shock in which the trauma does not involve the central nervous system directly, and the objection may at once be raised that conclusions drawn from such a series of experiments cannot be transferred without modification to apply to conditions in a traumatic shock. But whatever the other conditions in traumatic shock may be, we find strong evidence for the view that some physical damage within the central nervous system must be included as one of them. Such damage may or may not be demonstrable histologically, but a considerable personal experience with conditions in which low blood pressure and diminished blood supply to certain regions of the body, added to the experimental facts contained in an extensive literature on these subjects, have led us to the conclusion that neither low blood pressure of the magnitudes recorded in cases of surgical or traumatic shock, nor the diminished supply of blood to the brain is sufficient in itself to produce such speedy death as is often reported in surgical or traumatic shock. What the nature of this injury to the central nervous system is we shall not now attempt to say. Porter's[4] views on fat embolism as the cause of surgical or traumatic shock are suggestive in this connection. The profound shock sometimes seen in caisson disease, in which air embolism is a common occurrence, is in line with Porter's observations.

There is no question in our minds that the general systemic blood pressure of mammals is higher than is strictly necessary for the maintenance of the life of uninjured cells. But injured cells require a better blood supply for their restoration than uninjured cells do for mere maintenance. There is, then, a possibility of a factor of safety in the blood pressure in the organism in health. There is a sufficient margin of safety to restore injured cells to a condition approaching normal if the injury has not been too great.

The general conclusion which we have reached as the result of a consideration of all the conditions known to us is that the general conditions of resuscitation[5] apply also in surgical or traumatic shock. Some means of raising the systemic blood pressure is necessary in the treatment of surgical shock. The laboratory worker has several such means at his disposal, but none of them are susceptible of easy and successful clinical application. Experiments looking toward the development of some method of raising blood pressure which will be susceptible of clinical application are now in progress.

2. Stewart, et al.: Jour. Exper. Med., 1906, **8**, 309-310.
3. Pike: Am. Jour. Physiol., 1912, **30**, 436-450.
4. Porter: Boston Med. and Surg. Jour., 1917, **176**, 248.
5. Pike, Guthrie and Stewart: Jour. Exper. Med., 1908, **10**, 417-418.

A TYPHOID CARRIER PROBLEM

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In the first week of April, 1917, I was delegated to investigate an intermittent outbreak of typhoid fever in Bakersfield, Kern County, Calif. The records of the health department of that city showed that for a twelvemonth, beginning June, 1916, cases of typhoid fever had appeared scattered over the city, both sexes had been attacked, and the age range had been from 3 to 46 years. That the outbreak was intermittent was evidenced by the total absence of typhoid in the city during September, October, November and December, 1916. In all, there had occurred twenty-two cases, with a mortality of 9 per cent.

The municipal water supply had been examined from time to time by the state bureau of sanitary engineering, and the typhoid incidence could not be connected with it. The matter of shellfish and of ice cream was also investigated with negative findings. Suspicion was therefore naturally directed toward the milk supply of the city.

There were twenty-five dairies supplying the people of Bakersfield, not including numerous producers who owned one or at most two cows and supplied their own family and the families of neighbors in their immediate vicinity. Furthermore, during the twelvemonth, the families in which one or more cases of typhoid had developed had, like other families in the city, repeatedly changed from one dairy to another or even to a neighbor's supply, when purchasing milk for domestic consumption. To ascertain definitely the name of the dairyman who had been supplying a family during the incubative period of the typhoid illness in that family was, therefore, an exceedingly difficult task.

Much direct and cross examination of members of the families in which typhoid had occurred brought forth a mass of confusing and conflicting evidence. This evidence was carefully weighed, and all irrelevant and extremely doubtful data ruled out by the investigator. The result left nine dairies under suspicion. These nine dairies were then investigated, and the result left three dairies still under suspicion. The evidence thus far gained, when taken in conjunction with the case report, showed that from June to September,

1916, all cases of typhoid in Bakersfield directed suspicion to Partnership Dairy A + B as their source of infection. At this time, however, an incident occurred in the ordinary pursuit of business which, had it not occurred, would have greatly simplified the typhoid problem. On or about Sept. 1, 1916, the partnership was voluntarily and amicably dissolved. Dairyman A returned to his original sources of supply, and Dairyman B to his. Dairy C did not come under suspicion until February 1 of the following year.

Following the dissolution of the partnership of A and B, the city remained totally free from typhoid until January, 1917, when five new cases appeared in the city, all directing suspicion to Dairy B. Both Dairy A and Dairy C had continued operating independently all this time without the occurrence of typhoid among their respective customers. What was the natural inference to be drawn from the situation as it now stood? That in Dairy B probably lay the source of all the typhoid infection to date. This inference was based on the record of typhoid in the city when Dairy B was operating in partnership with Dairy A, and with the record of typhoid in the city when Dairy B was operating alone.

The next step in solving the problem was an investigation of Dairy B. Its dairy farm was inspected, its water supply examined and found unsafe for domestic use, and Widal and feces tests were made of all persons connected with the dairy. All proved negative, however, save that in the stool of the owner an organism was obtained giving typical typhoid reactions on all mediums but not agglutinating with typhoid serum (Parke, Davis and State Hygienic Polyvalent), a gram-negative bacillus, slightly shorter than the typhoid bacillus.

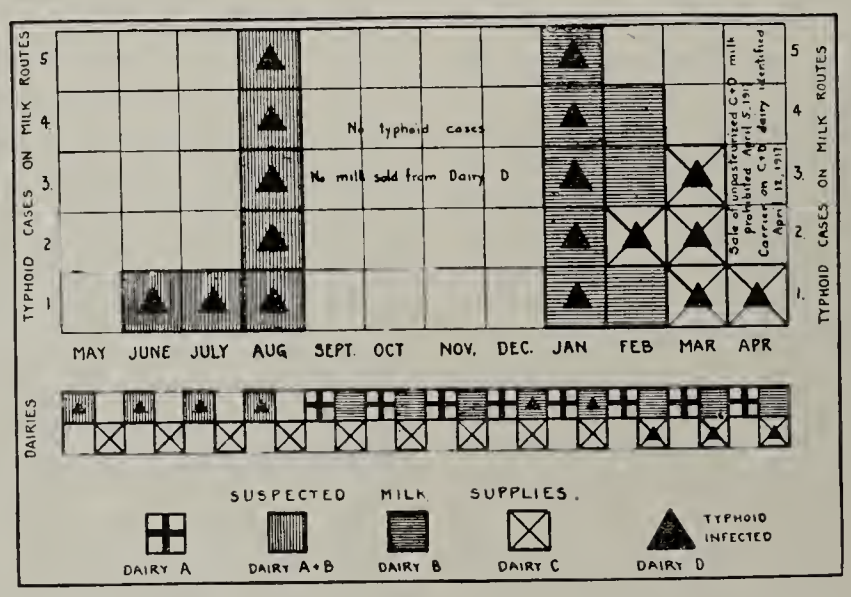


Chart showing by months the number of typhoid cases, the typhoid-infected dairies, and the sale of suspected milk. Dairy A+B was infected by D during May, June, July and August, as shown by the symbol for D inscribed within the symbol for Dairy A+B. There was no further sale of D milk until mid-December, as shown by the absence of the symbol for D until that time. Thereafter the symbol for D, inscribed within the symbols for Dairies B and C, respectively, show typhoid contamination of the milk of those dairies by the D supply. It will also be noted that wherever the symbol D is not inscribed within a dairy symbol, the milk from that dairy remained uniformly free from typhoid.

This necessarily was open to suspicion, and yet, on the other hand, no one in or about the dairy farm had been ill with typhoid, although the owner, his wife and three young children, as well as two dairy workers, had used and still were using the local well water supply and raw milk for domestic use. None in this group had ever had typhoid fever, nor had any received antityphoid vaccination.

The situation remained unaltered. Our inference that Dairy B was the source of typhoid infection had not been substantiated by the evidence thus far in hand. Some factor mysteriously entered into and then made its sudden exit from the situation. For some as yet unrevealed reason this factor had apparently lain dormant from mid-August to mid-December, if the typhoid incubative period is remembered in connection with the incidence of cases in the city.

The books of Dairy B were again searched for the missing link of ineffectivity, but without result. Every consideration was shown by the proprietors, every possible aid rendered, but we were unwittingly baffled in our efforts to arrive at a reasonable solution of the problem in hand.

The month of February, 1917, started on its typhoid career with the appearance of a case on the 12th ascribed to Dairy B. On the 15th, 21st and 26th, respectively, three more cases of typhoid occurred. Those of the 21st and 26th were ascribed to Dairy B, but that of the 15th was ascribed to one of two sources: (1) Dairy C, which had had a typhoid-free record for at least the four previous years, and (2) another dairy, which I shall call E. The local health authorities had been tireless in their efforts to get at the source of the outbreak without avail. They had erred, however, in setting down the case of February 15 as having had its source in Dairy B; hence when in March there occurred three more cases in the city they also counted them as against Dairy B.

An investigation by the state's agent in April resulted in a concurrence of opinion that the cases whose dates of onset had been, respectively, February 15, March 1, 5 and 9 and also that of April 4, 1917, were rather to be ascribed to Dairy C, which up to that time, however, had had no typhoid among its customers for at least four years previously. What now was the situation? The first cases had occurred among the customers of Partnership Dairy A + B. Following dissolution of this partnership, there had been no further incidence of typhoid in the city for four months — then typhoid occurred solely among the customers of Dairy B, and in March and April not among the customers of either Dairy A or Dairy B but in Dairy C. The presence of a typhoid carrier could therefore be reasonably assumed. The inference could readily be made that this carrier had been migratory—that he or she may first have been employed in Dairy A + B, then have left the city or have been out of employment or have made a change in occupation for five months, and thereafter have obtained employment in Dairy B and now in Dairy C. The inference of five months' absence from the city or unemployment or change of employment by the carrier was in line with the absence of typhoid in the city during September, October, November and December.

The situation had now resolved itself to a detection of a carrier in Dairy C. The migratory habits of dairy employees were well known. Such data as could be obtained relative to dairy employees in connection with the dairies under suspicion was found sadly lacking in many of the most important details.

It was ascertained that Dairy C was located at a little distance from the city, and inquiry was therefore made of the county health officer as to the incidence of typhoid at the dairy and within a 10 mile radius of the city. He stated that no recent typhoid had been reported within this area.

Dairy C was next visited, and after a conference with the proprietor and his family a clue to the probable missing link of infectivity was found, and as later laboratory tests showed, the carrier was definitely established. A situation in the city which had proved replete with complex factors had at last been relieved. It was found that the source of the series of typhoid cases which had occurred in the city between June, 1916, and April 4, 1917, was the milk supply of a small producer, D, who had intermittently sold bottled milk to the various other dairies from April, 1916, to Feb. 1, 1917, at which later time he had purchased the entire interests of Dairy C, and had merged its milk supply with that of his own cows and had continued to operate under the name of Dairy C. The evidence in support of this is as follows:

1. From April, 1916, to mid-August, 1916, D had sold all his milk to the Partnership Dairy A + B, with the result that all typhoid cases which occurred during that period were among Dairy A + B customers.

2. D did not produce or sell any milk from mid-August to mid-December, 1916. No typhoid cases occurred in the city during September, October, November and December.

3. D again sold to Dairy B intermittently from mid-December to Feb. 1, 1917, and typhoid cases occurred in the city intermittently as to time of onset and all among Dairy B customers.

4. Dairy C had maintained a typhoid-free record for at least four years among its customers previous to being bought up, Feb. 1, 1917, and merged and operated by D under the name "Dairy C," when new cases of typhoid arising in the city could be definitely ascribed to it.

5. The family of D gave a positive history of past typhoid infection. Mr. D had had typhoid forty-eight years before, and once since that time. Mrs. D had had typhoid twenty-eight years before, and once since that time. One son and one daughter, now married and living in distant parts of the state, had had typhoid several years before. Mrs. D's father, brother and nephew had died of typhoid.

6. The milk supplied by D was bottled at his dairy farm by himself, his wife and three daughters (the three daughters have never had typhoid). It was said that prior to Feb. 1, 1917, D had never had a milk route, and it was not known to the health authorities that he was producing milk for public consumption.

7. The state hygienic laboratory reported, April 12, 1917, that the feces specimen from Mrs. D had proved positive, morphologically, culturally and serologically, for typhoid bacilli. This proved Mrs. D a typhoid carrier.

CONCLUSIONS

The lessons to be derived from this investigation are:

Although all the milk suspected in connection with this outbreak was Grade A unpasteurized milk, it was not a safe milk, as the evidence clearly shows.

To insure safety, two measures already adopted by some municipalities are imperative: the licensing of persons who are connected in any manner with the handling of public or private milk supplies only after thorough and repeated blood and feces tests to exclude the typhoid carrier, and the penalizing of any person who shall violate such ordinance.

Still another lesson, and this more especially for the laity, is that before investing means and time in the establishment of a dairy farm and dairy route, it would be well first to ascertain one's qualifications from the standpoint of health in connection therewith or face a possible alternative of being declared a typhoid carrier by legal authority and having to sell out at a loss, because of inability to engage further in the production or handling of milk and its products.

Then again, there is the lesson for the community that it so support its local health department financially as well as legally that ample time may be devoted to the recording of all necessary data in relation to dairy and milk inspection and the compilation of all sources and changes in the milk supply of the city.

The importance of making an immediate memorandum of the family supply of milk by the attending physician in any suspected case of typhoid is also to be emphasized.

CONVENIENT DEVICES FOR MELTING PARAFFIN FOR BURNS*

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One of the main drawbacks in the paraffin method is the inconvenience of melting the paraffin and keeping it melted at the proper temperature, between 55 and 60 C. This is almost impossible by direct heat, since this would tend to overheat, and would also cool too rapidly. The device ordinarily used is a double boiler (cereal boiler). This answers, but is far from ideal. For simple dressings, as in office practice, it is inconvenient. With extensive dressings, as in shop practice, there is the further difficulty that the paraffin will either overheat or cool unduly while the attention of the surgeon is centered on the patient. The temperature could, of course, be kept constant by the ordinary scientific thermostats, but these are not practical, since they are too cumbersome, are immovable and are easily injured. Under the stress of war practice, the difficulties must be still greater.

I have experimented with two devices which are simple and appear practical: an electrical "food warmer" for office use; and an "acetate thermostat" for shop and field practice.

1. Food Warmer: This is the pint size sold in the stores for the warming of babies' milk bottles. When filled one half or two thirds with paraffin of melting point, 47.5 C., it can be used in three minutes after the current is turned on. If the current is then turned off for two minutes, it will have just the right temperature. It will remain usably melted for ten minutes without current, when a crust begins to form; it can then be again made usable by turning on the current for a few moments.

This should be particularly useful when the paraffin is used only occasionally, as in ordinary office practice.

Table 1 gives the data of an actual experiment.

2. Acetate Thermostat: Sodium acetate has the curious property of melting and congealing at just about the temperature that is needed for the application of the paraffin.[1] It retains this temperature constant for a long time while passing from the liquid to

* From the Pharmacological Laboratory of Western Reserve University, School of Medicine.
* Research partly supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

1. This property was brought to my attention by a report of the Chemical Laboratory of the American Medical Association (Annual Reports of the Chemical Laboratory of the American Medical Association, **9**, 105) on sodium acetate in warming bottles.

the solid state. For instance, some sodium acetate melted in a crucible remained at the temperature of 58 C. for an hour and ten minutes without the application of further heat.

TABLE 1.—PARAFFIN IN FOOD WARMER

Current	Temperature of the Paraffin (Degrees C.)	Remarks
On for 3 min.....	65.5	Nearly completely melted, except a crust around the margin; center usable, but rather hot
Current turned off		
3 min.	58.5	
9 min.	50	Still usable
20 min.	48	Pellicle of solid paraffin
36 min.	47.5	Not usable; mostly solid
Current turned on		
2 min.	66.5	Mostly melted; usable, but hot
Current turned off		
13 min.	48	Pellicle; just usable

This is shown by the following data:

Two nickel crucibles of the same size were filled, the one with 40 c.c. of water, the other with sodium acetate. They were heated to 68.5 C. The heat was then withdrawn, and the temperature noted from time to time as cooling proceeded (Table 2).

TABLE 2.—COOLING OF SODIUM ACETATE

Time (Minutes) After Removal of the Heat	Temperature of Sodium Acetate (Degrees C.)	Temperature of Water (Degrees C.)
1	66.8	66.5
6	61	54.5
10½	56.5	48.5
13	56.5	45
15	57.8	
17	58	41.5
21	58	37.5
26	58	31.5
60	58	26.5
75	57	25
90	51 (solid)	24

When sodium acetate is used to fill a pot surrounding a vessel containing paraffin, it keeps the paraffin melted at just the right temperature for application for three hours after the pot has been removed from the fire. If in the meantime it has been set into a fireless cooker, the time could of course have been further prolonged.

The advantages of this will be appreciated at once: the paraffin needs no further attention after it has been melted, until three hours afterward, and then it can be quickly reheated. The paraffin pot can be carried to any part of the shop, or in an ambulance to the dressing station. The sodium acetate is syrupy, and does not easily spill; it does not evaporate, so that no attention is required in this direction; indeed, the outer and inner vessels could probably be joined by solder.

TABLE 3.—PARAFFIN IN ACETATE THERMOSTAT

The pot was removed from the fire at 10:20 a. m. and set on the table.

Time After Removal from Fire	Temperature of the Melted Paraffin (Degrees C.)	Remarks
6 minutes	59	Ideal for use
16 minutes	58	
28 minutes	55	
45 minutes	54.5	
2 hours	53.5	
2 hours, 45 minutes.....	50	Faint film; usable
3 hours	48.5	Continuous film; just usable
3 hours, 15 minutes.....	48	Partly liquid; but not usable
4 hours	47.5	Mostly solid; not usable

The device that I am using, which appears especially practical, consists of an ordinary glue pot of size O. The outer pot is filled two thirds with official sodium acetate (requiring probably something over a pound). The inner vessel holds about a pound of paraffin.

In Table 3 are the data of an experiment, showing the rate of cooling.

Clinical Notes, Suggestions, and New Instruments

ACUTE DIABETES WITH ENORMOUS ELIMINATION OF NITROGEN: REPORT OF CASE WITH AT LEAST TEMPORARY RECOVERY*

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This case, first, is an excellent example of a certain type of acute diabetes which has received inadequate attention in the literature; secondly, it is of considerable interest on account of the almost unprecedented elimination of nitrogen during the early and fasting days after admission; thirdly, the high figures of ketone elimination deserve mention and emphasize the fallacy of basing prognosis solely on the degree of elimination, and finally, the dietetic and therapeutic measures pursued with prompt success are worthy of brief comment.

REPORT OF CASE

History.—S. W., man, aged 21, Jew, was admitted to the medical division of the University Hospital, Jan. 7, 1917. He stated that until four weeks before he had been in perfect health. Acute superficial pain then developed along the left costal margin, resembling needles being stuck into the skin. Shortly after the onset of the pains, he developed tremendous thirst and also began to lose weight. He stated that he had lost 18 pounds in the four weeks. Polyuria and frequency of urination developed, and the patient also complained of some slight cough and dyspnea. He had never been ill before.

Previous to this illness he drank about five glasses of beer a day. Otherwise his habits and occupation are of no importance. It was difficult to elicit this history, and no further information concerning the onset of his condition could be obtained.

Examination.—The patient was slender, with wasted musculature and a dry skin. He was markedly somnolent. There was a strong "acetone" odor to the breath. Thoracic and abdominal examinations were negative. The blood pressure was: systolic, 100; diastolic, 60. Urinanalysis revealed the urine a corn color; a light flocculent sediment; specific gravity, 1.035; acid; a trace of albumin; sugar present; acetone and diacetic acid present; no bilirubin or urobilin. Microscopic examination revealed light and dark granular casts, occasional leukocytes, and calcium oxalate crystals. Blood count revealed: hemoglobin, 100 per cent.; erythrocytes, 5,100,000; leukocytes, 26,400; differential count: polymorphonuclear neutrophils, 88 per cent.; small lymphocytes, 6 per cent.; large mononuclears, 1 per cent.; transitionals, 5 per cent.

The patient was admitted in the afternoon and received no food after 11 a. m. The next morning he was placed on whisky, coffee and sodium bicarbonate, receiving 56 gm. of soda on this day. He was still somnolent, and the breathing was somewhat deep and slow.

Treatment and Results.—January 9, the patient was not improved. The report from the laboratory, as indicated in the table, revealed the severity of the condition. The patient was kept on the same diet and given 87 gm. of soda, of which 30 gm. were given intravenously. The plasma carbon dioxid reading was 49 volumes per cent.

January 10: The patient's condition was worse. The laboratory reports showed no improvement. The diet was increased by the addition of skimmed milk and oatmeal. Sixty gm. of sodium bicarbonate were given.

January 11: The condition was about the same. The patient still showed slight hyperpnea, and was somnolent. The diet was slightly increased, and 75 gm. of glucose were given. Intravenous injection of 1 liter of a 3 per cent. sodium bicarbonate solution was given. The blood urea nitrogen was 13 mg. per hundred c.c., blood plasma chlorids 5.02 gm. per liter, and blood plasma carbon dioxid content 43 volumes per cent.

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January 12: The patient was better and brighter. No improvement was shown by the laboratory report over the specimen of the preceding day. The carbohydrate of the diet was increased, and the soda continued.

January 13: There was marked improvement. Soda was continued.

January 14: The patient felt better. The report from the laboratory showed improvement.

January 15: The urine was alkaline for the first time. The plasma carbon dioxid reading was 70 volumes per cent. The Wassermann test was negative.

January 19: There was great improvement. The carbohydrate of the diet was gradually reduced, and proteins and fats were increased. The white blood cells numbered 12,900. On this date, edema of the face was noted, and there was also noted a marked increase in weight. This edema was probably a "soda edema," and it disappeared rapidly on reduction of the amount of sodium bicarbonate administered.

January 24: The urine was sugar-free for the first time.

From this time on the patient continued sugar-free with an increasing tolerance for carbohydrate. On discharge, four weeks later, his tolerance permitted the addition of 40 gm. of bread, 50 gm. of potato and 100 gm. of oatmeal to the diet without the appearance of sugar in the urine.

Since discharge, he has been under observation in the outpatient department and has continued to be sugar-free and is gaining weight. His most recent observation was March 19.

LABORATORY DATA

Date, 1917	Intake			Analysis of Urine					Blood Carbon Dioxid, Volume per Cent.	Weight, Kg.
	Carbohydrate, Gm.	Nitrogen, Gm.	Sodium Bicarbonate, Gm.	Amount, C.c.	Reaction	Nitrogen, Gm.	Glucose, Gm.	Beta-Oxybutyric Acid, Gm.		
January 8–9	0	0	56	4,740	Acid	35.5	80.8	69.8	..	51
January 9–10	0	0	87	5,170	Acid	32.6	49.0	83.0	49	
January 10–11	35.0	1.9	60	5,515	Acid	38.9	94.4	82.8		
January 11–12	163.5	6.6	90	6,020	Acid	32.3	182.6	85.6	43	
January 12–13	180.0	4.5	60	6,670	Acid	38.5	306.0	85.6	..	47.4
January 13–14	260.0	11.2	60	6,130	Acid	31.3	330.1	76.0		
January 14–15	195.0	8.6	60	3,940	Acid	25.0	182.0	48.1		
January 15–16	206.0	8.3	60	3,570	Alkaline	18.9	178.2	34.7	70	49.5
January 16–17	205.0	9.4	60	3,020	Alkaline	15.8	143.0	22.2		
January 17–18	184.0	9.4	60	3,250	Alkaline	15.2	168.0	8.5		
January 18–19	186.0	9.7	30	3,770	Alkaline	17.6	139.4	4.0	..	52.2
January 19–20	148.0	10.3	20	3,920	Alkaline	14.1	223.0	5.8		
January 21–22	80.0	14.2	20	3,710	Alkaline	14.8	17.6	4.0		
January 22–23	76.0	9.1	20	3,620	Alkaline	17.2	17.2	2.7	..	46.8
January 23–24	0	0	20	1,120	Alkaline	8.5	0	0.8		

COMMENT

Although the history in this case is indefinite as regards the condition at and preceding the onset of the diabetes, yet there is some suggestion that the early symptoms were due to some acute infection. This is made more probable by the similarity between this case and other cases of acute diabetes following acute infection which have been observed. Such cases usually occur in young persons who have recently been subject to some rather severe acute infection; for example, one of our cases followed scarlet fever and erysipelas. The diabetic symptoms may appear with considerable suddenness, and are rapidly followed by great loss of weight and the symptoms of increasing acidosis. When seen at this stage, the high figures of elimination of nitrogen and of ketonic acids and the general appearance of the patient are apt to lead to a poor prognosis. Further studies, such as the estimation of the carbon dioxid tension of the alveolar air or carbon dioxid content of the blood, however, may show that the degree of acidosis is not so great as the figures of eliminated ketones might suggest, and the results of proper treatment indicate that the prognosis in such cases is better than it might at first glance appear. Under careful treatment, the carbohydrate tolerance is recovered with surprising rapidity and completeness, and the further return to a more or less normal condition is uneventful.

Elimination of Nitrogen.—For the six days after admission, the patient daily eliminated over 31 gm. of nitrogen, the daily average for the six days being 34.8 gm. During this period, the intake as shown in the table was low in nitrogen (24.16 gm.) and the nitrogen loss was therefore extremely great. In the similar case reported by Geyelin and Du Bois,[1] the loss of nitrogen by an acute diabetic, at first on starvation and for eight days after on a moderate nitrogen intake, was enormous (over 281 gm. for the eleven days). They assert that their figures are the highest yet reported for nitrogen elimination under these conditions. Our patient had a higher output for the first six days after admission, and on a fasting treatment his nitrogen loss was even greater than in their case at a corresponding time. This loss of nitrogen represents roughly a loss of about 2½ pounds of flesh per day, if it is assumed that all of the nitrogen came from that source. So far as we know, the figures here reported for this short period are, at least, as high as any on record.

A similar but less prolonged elimination of large quantities of nitrogen has been observed for a few days after admission in a number of our diabetic patients who had been on excessive protein diet before admission. The elimination in such cases continues but a brief period, is not accompanied by loss of weight, and has never been as high as in the present instance.

Elimination of Ketonic Acids.—The figures for the elimination of ketone bodies in this case are high and closely approach those of the case reported by Geyelin and Du Bois. The highest twenty-four hour elimination in our case was 85.6 gm. of beta-oxybutyric acid, while the highest output of ketones in the case reported by Geyelin and Du Bois is 87 gm. of beta-oxybutyric acid.

This degree of elimination is much greater than that seen in many cases which rapidly progress into fatal coma despite our best therapeutic efforts.

Treatment.—This case well exemplifies the value of flexibility in treatment, for no arbitrary outline of treatment can be rigidly applied in every case. In this instance, improvement seemed to commence with the change from a strict starvation treatment to the daily administration of moderate quantities of carbohydrate, and this method was continued until there was a distinct improvement in the acidosis. At the same time, large amounts of sodium bicarbonate were given both by mouth and intravenously.

Once improvement had appeared and the elimination of ketones had somewhat diminished, the carbohydrate of the diet was gradually replaced with protein and fat until the diet became practically our routine carbohydrate-free diet. During this period the urine had become sugar-free and all evidences of acidosis had disappeared.

After the patient had been sugar-free for a short time, carbohydrates were again tentatively added to his diet in small amounts without causing the appearance of the glycosuria. The degree of tolerance exhibited was marked, and on discharge, the patient was receiving such considerable amounts of carbohydrate without glycosuria as to suggest that his tolerance had been restored about to normal. The blood sugar had returned to a normal figure (0.07 per cent.) before discharge.

1. Geyelin, H. R., and Du Bois, E. F.: A Case of Diabetes of Maximum Severity with Marked Improvement, THE JOURNAL A. M. A., May 13, 1916, p. 1532.

A CASE OF TUMOR OF CAROTID BODY

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Tumors of the carotid body are of sufficient rarity to make it seem worth while to report their occurrence. Shipley and



Fig. 1.—Low power photomicrograph showing the general structure of the growth; × 65.

Lynn,[1] in May, 1916, tabulated all the reported cases up to that time, numbering sixty-five, and added their case to those previously reported. The growths and their pathology was thoroughly discussed by Callison and MacKenty[2] in 1911. We wish to add another case to this group of rather interesting tumors:

History.—A. M., Jewess, aged 51, born in Russia, was admitted to the Post-Graduate Hospital, Dec. 6, 1915, with the diagnosis of fibromyoma of the uterus and tumor of the right side of the neck. She stated that she had had a mass in the right side of her neck for at least eight years, and that up to a year ago it had not changed in size, but that since then it had enlarged slowly. It caused her no pain, no difficulty in deglutition, and except for the presence of the mass, no signs or symptoms.

The patient was a stout, healthy-looking woman, with a firm, deep-seated mass on the right side of her neck, at about the level of the hyoid bone, and presenting just anterior to the border of the sternomastoid muscle. It felt lobulated, and was not movable to any degree. There were no signs of any involvement of the adjacent nerves. A definite diagnosis was not made.

Dec. 7, 1916, hysterectomy and appendectomy were done by Dr. Herman J. Boldt, and immediately following, at his request, the tumor of the neck was removed by Dr. Cahill. A curved collar incision was made in one of the wrinkles of the neck, for the woman was quite stout, and the tumor was exposed. It was found to be very vascular, reddish like thyroid, and quite firmly attached to the deeper structures. An attempt was made to deliver the tumor, but this was found impossible. On careful dissection, it was found that the internal jugular vein ran into the mass and seemed to be incorporated with it. The jugular vein was ligated above and below the tumor. It was then possible to dissect the tumor free from the common carotid. It was located between the external and internal carotids, extending down into the bifurcation crotch, where it received a large arterial branch. After the ligation of this branch, the tumor was removed. Just below the tumor was a small round mass resembling a lymph node, which was also removed. On account of the close relation of the tumor to the hypoglossal nerve, the nerve was considerably stretched in the removal. The oozing of blood, until the tumor was removed, was very free. The wound was closed with a small tissue drain.

The patient was in fair condition and made a rapid recovery. Immediately following the operation, she had unilateral paralysis of the tongue and some difficulty in swallowing, but this proved to be only temporary. She was discharged from the hospital, December 24, the wound having completely healed. Unfortunately the patient was lost track of, and all attempts to locate her have failed, so that no subsequent history is available. The specimen was sent to Dr. Richard M. Taylor, who reported as follows:

Pathologist's Report.—The specimen consists of two pieces. First: A lobulated, light red, roughly rounded mass, measuring 4 cm. in diameter and weighing 30 gm. The surface is fairly smooth and it appears to be completely encapsulated. The consistency is moderately firm. On section, it is uniformly light pink throughout, except for a few small dark red areas scattered here and there. The cut surface is smooth and regular, but on close inspection it is observed to be divided into numerous irregular lobules by fine trabeculae. The capsule is very delicate, but intact. Second: A small dark red almond-shaped mass, measuring 3.5 by 1.5 cm. by 1.5 cm., and having the usual appearance of a lymph node.

Microscopic: The growth is surrounded by a thin but complete fibrous capsule, from which delicate interlacing trabeculae extend inward. These fibrous trabeculae serve the double purpose of carrying the blood vessels and acting as a support to the tumor cells. The primary blood vessels are quite large, and the walls are well formed by both connective and smooth muscle tissue. The large vessels soon branch and finally break up into a fine capillary network. The principal cell of the growth is a rather large cuboidal

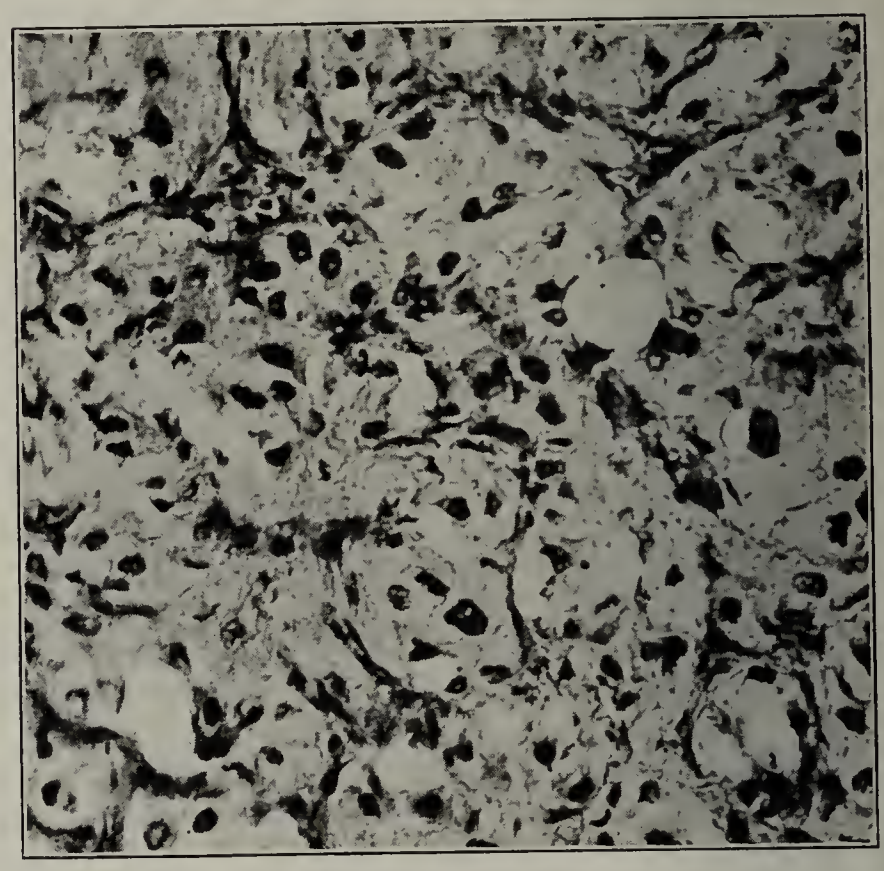


Fig. 2.—A higher power magnification of a selected field showing more intimately the character of the cells; × 300 diameters.

or polyhedral cell with a relatively small and deeply staining, centrally located nucleus, in which a nucleolus can usually be recognized. The cytoplasm is relatively abundant, stains rather indifferently with eosin, and has a homogeneous or finely granular structure, but frequently contains small vacuoles. In some instances, one sytoplastic mass seems to contain several nuclei. This may be only an apparent fusion,

1. Shipley, A. M., and Lynn, F. S.: Carotid Tumor and Aneurysm of the Internal Carotid, THE JOURNAL A. M. A., May 20, 1916, p. 1602.
2. Callison, J. C., and MacKenty, J. E.: Ann. Surg., 1911, **58**, 721.

but it is quite suggestive of a giant-cell formation. The cells are regularly disposed on a fine interlacing honeycomb-like stroma, which also contains the capillaries. The cells, therefore, come into intimate contact with the blood stream, and are well and systematically supplied with nourishment. This very intimate relation and frequently poor differentiation between the cells of the blood vessel walls and the tumor cells is suggestive of an endothelial origin, but the general appearance of the growth is certainly quite different from the usual forms of endotheliomas. While there is a marked departure from normal, there is a distinct resemblance of the growth to the normal structure of a carotid body, and its origin from this organ seems to us quite certain. The growth probably bears a closer resemblance to some of the thyroid carcinomas than to any other form of tumor, but in some respects there is also an analogy to the suprarenal tumors, both in the character of the cells and in the arrangement. The suprarenal tumors, however, have a greater tendency to form solid tubules or cords of cells, while in this tumor the cells are arranged more in small lobules or at least very irregular columns. No mitotic dividing forms were recognized, and, judging from the general arrangement of the cells and their relation to the stroma and the intact capsule, it would be inferred that the proliferation is slow and that the tumor is relatively benign and not prone to give rise to metastasis. The examination of the neighboring and somewhat enlarged lymph node reveals only a mild chronic inflammatory process.

Diagnosis: Tumor of carotid body.

ADENOCARCINOMA OF THE BREAST OCCURRING IN A BOY OF THIRTEEN

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Carcinoma of the breast in the male child is extremely rare. Some assert that it never occurs,[1] while others merely mention it as "possibly occurring, but very rarely." In light of the report of the case of carcinoma in the breast of a boy by Blodgett,[2] it would seem unwarranted to affirm its non-occurrence. Blodgett's patient was a boy, aged 12, and is the only case which I have been able to find in the literature in which a carcinoma occurred in the male breast at an earlier age than in the case which I am reporting.

REPORT OF CASE

History.—John S., aged 13, American, height 5 feet 5 inches, weight 127 pounds, well built, healthy and strong, had never had any serious illness, and was considered very hearty. His father and mother were both living and in good health. The grandfather on the father's side died of tuberculosis at the age of 40; the grandmother on the father's side was living and in good health. Both the grandparents on the mother's side were living and in good health. There had been no history of malignant disease in any of the grandparents. One sister of the father of the patient died at the age of 35 with an adenocarcinoma of the uterus. All other relatives were well and strong, and give no history of malignant disease.

About one year ago the patient was struck in the right breast with a baseball bat. The blow was light, and caused no immediate soreness. Soon after this violence the patient noticed after exertion a burning and stinging sensation in that breast. Five months before the patient was seen by the surgeon, swelling became noticeable and there was some tenderness. When seen by the surgeon, Jan. 25, 1917, the tumor was quite noticeable. At this time a tentative diagnosis of chronic mastitis was made, and the patient prepared for operation the following day.

Operation and Result.—Dr. J. F. Mackey, Odessa, Mo., performed a radical operation, removing the entire gland with the surrounding fatty tissue. The diseased tissue was approximately 8 cm. across and about 1.5 cm. thick in the center; toward the margins the tumor was thin. The axillary glands showed no enlargement.

The healing process was rapid. Three weeks after the operation, the union was perfect and the scar firm. At this time no abnormality could be detected by inspection or by palpation. There was no enlargement of the axillary glands on the side on which the operation had been performed. The left breast was examined, Feb. 25, 1917, one month after the operation. It showed some enlargement both to inspection and to palpation. The axillary glands on that side were not enlarged. The examining surgeon believed a tumor present in this breast, but since the parents of the patient did not consent to an operation, no diagnosis as to the nature of the tumor could be made with certainty.

Pathologic Report.—Microscopically there was a marked proliferation of the gland elements throughout the sections. The newly formed glands were very irregular in shape, and the epithelium was arranged in many layers. Some showed definite lumina, while in others the proliferation was so great that the lumen was entirely filled up with cancer cells. Many of the glandular structures showed an ingrowth of



Fig. 1.—A portion of the tumor showing the atypical gland formation. There is a new formation of cancer acini within the preexisting gland acini. Low power magnification.

stroma dividing it up into many smaller divisions. There was a tendency toward the formation of grapelike clusters of these atypical glands. The ducts showed some reduplication in the layers of epithelium. The stroma was abundant but not highly cellular. The adipose tissue appeared normal except for some areas in which the cancer had grown into it. There was a tendency to degeneration of the cells which lay centrally in the atypical acini, but this had not progressed to a marked degree.

The pathologic diagnosis was: adenocarcinoma of the breast, of the medullary type.

COMMENT

As stated, this case is largely of interest because of the infrequency of cancer in the breast of boys. Cancer of the male breast comprises only from 1 to 2 per cent. of all mammary neoplasms. Rodman[3] and Bryan[4] each put the figure at 1 per cent., Deaver and McFarland[5] at 1.5 per cent., and Schuchardt[4] places it at 2 per cent. While these figures indicate the relative infrequency of carcinoma in the male

1. "The first four quinquennia of life are completely exempt from malignant epithelial tumors of the mamma; at least I know of no well-authenticated case that can be cited as having occurred within this period." (Williams, W. R.: The Natural History of Cancer, New York, William Wood & Co., 1908, p. 329).
2. Blodgett, A. N.: Cancer of the Breast in a Child, Boston Med. and Surg. Jour., 1897, **136**, 611.
3. Rodman, W. L.: Diseases of the Breast, Philadelphia, P. Blakiston's Son & Co., 1908.
4. Cited by Deaver and McFarland (Footnote 5).
5. Deaver and McFarland: The Breast: Its Anomalies, Diseases and Treatment, Philadelphia, P. Blakiston's Son & Co., 1917.

breast, they do not show the frequency of cancer in the *young* male. No statistics have been found which give the relative frequency of mammary carcinoma in the male breast under 15 years of age, but this figure certainly must be very low. A search of the literature has revealed but two authentic cases, that of Blodgett,[2] who reported a carcinoma in the breast of a boy, aged 12, and that of Bryan,[1] who reported a case in a boy, aged 14 years and 8 months. In fact, cancer in the breasts of children under 15, regardless of sex, is very infrequent. The cases of mammary carcinoma reported by Lyford, Carmichael, Cooper and Howe,[6] who reported cases at the ages of 8, 12, 13 and 15, respectively, must be considered of doubtful diagnosis, since in none of these cases was the diagnosis confirmed by microscopic examination of the tumor. Thompson's[7] report is the only other one of a patient under 15 years of age which will bear critical examination. He removed the tumor from the breast of a girl, aged 11 years, and submitted it to the pathologists of Bradford, England, for diagnosis. It was reported as an adenocarcinoma. Philip[8] collected reports of 300 cases of malignant tumors in childhood, but in this number there was none found in the breast of children under 15 years of age. The present case, then, is unusual from the standpoints both of age and of sex.



Fig. 2.—Another portion of the tumor. The overgrowth of glandular elements is demonstrated. The cancer acini show multiple lumen formation. The ducts show an irregular overgrowth of epithelium. Low power magnification.

It is also of interest, in this case, to note that the trauma seems to stand in direct causative relation to the formation of the tumor. Phelps[4] states that only 9 per cent. of all writers since the middle of last century believe that transient injury might be a predisposing condition of malignant disease. In this case, however, the tumor development did occur "within a reasonable length of time after the injury," and so in this case an etiologic relation might well be ascribed to the injury. Furthermore, the fact that the tumor was actually noticeable by the patient himself seven months after the injury, together with the fact that even before the actual appearance of the tumor he complained of this stinging and burning sensation in the breast after exertion, would seem to substantiate such a view. These incidents, however, while seemingly unquestionable in sequence, may have been a coincidence and bear no relation to the tumor formation. One case is certainly not enough to prove such an assumption.

Writers seem to agree that malignant tumors occurring in the young are apt to be of a rapidly growing type. The examination of this tumor supports this view and emphasizes the importance of the early recognition of these cases of unusual carcinoma and their early and complete removal. The possibility of a neoplasm being carcinomatous should not be excluded because they are found in the breast of children, either male or female, until the true nature of the tumor is determined by microscopic examination.

6. Lyford, Carmichael, Cooper and Howe, cited by Rodman (Footnote 3).
7. Thompson: Brit. Med. Jour., 1908, **2**, 502
8. Philip: Ztschr. f. Krebsforsch., 1907, **5**, 326.

REPORT OF A CASE OF CHLOROMA *

G. B. KRAMER, M.D., AND T. L. BIRNBERG, M.D., ST. PAUL
Pathologist and Visiting Physician, respectively, City and County Hospital

History.—A girl, aged 4, was brought from an orphanage to the City and County Hospital, Sept. 7, 1916, for the purpose of having her tonsils and adenoids removed. One of the sisters in the orphanage had noticed that the child's eyes were getting larger and more prominent. An oculist who examined the child's eyes made little of the condition, and advised removal of the child's tonsils and adenoids, which was done.

Several days after the operation, the child contracted chickenpox, from which she recovered several days later. The physician in charge noticed that her eyes gradually became more prominent. For a time, it looked as though the exophthalmic condition was stationary, but later exophthalmos became more marked, the head became larger, and the nose became saddle-shapped. Examination of the eyes revealed choked disk. Exophthalmos of the eyes and enlargement of the head gradually increased, the glands of the neck and submaxillary glands became larger and hard, and the rami of the mandible of the jaw began to show more prominence. All sutures of the head began to separate and, between the sutures, a boggy mass about 3 cm. across was felt, the surface of which was smooth. This mass was present between and all along the sutures of the cranial bone. At that time one of us (T. L. B.) saw the patient and diagnosed the condition as chloroma. The temperature varied from 100 to 102 F. The symptoms continued to become marked until death, which occurred, Nov. 27, 1916. The child was greatly emaciated and anemic.

Laboratory Findings.—Examination of the urine revealed no albumin; the specific gravity was 1.028, the reaction was acid, and there were no casts. The Wassermann test was negative. A nasal smear revealed Friedländer bacilli and staphylococci. Blood examination revealed: erythrocytes, 1,200,000; white cells, 12,900; differential count: polymorphonuclears, 68 per cent.; lymphocytes, 16 per cent.; large mononuclears, 6 per cent.; transitionals, 30 per cent.; eosinophils, 2 per cent. Two weeks later: polymorphonuclears, 40 per cent.; lymphocytes, 39 per cent.; large mononuclears, 12 per cent.; transitionals, 7 per cent.; eosinophils, 2 per cent.; basophils, 1 per cent. Six days later: polymorphonuclears, 25 per cent.; lymphocytes, 26 per cent.; large mononuclears, 30 per cent.; transitionals, 7 per cent.; eosinophils, 2 per cent.; myelocytes, 5 per cent.

Postmortem Findings.—Necropsy was performed six hours after death. The head was large and asymmetrical. Both rami of the inferior maxilla were prominent, but the left was more prominent than the right. On each side of the hard palate there was an olive-shaped body about 1 cm. across. The submaxillary glands were enlarged and hard. The glands of the neck were enlarged and hard. The eyes showed extreme exophthalmos. The conjunctivae were edematous, the corneas slightly opaque. The pupils were equal in size. The veins of the neck were distended and prominent. The sutures of the cranial bones were separated, and all along between the sutures there was a boggy mass, 2 cm. across. On the inner surface of the sternum there was yellowish-green tissue 5 mm. in thickness. All along the thoracic vertebrae there was a thick layer of greenish-yellow tissue. There were several yellowish-green plaques on the pericardial wall. On the heart, in the middle of the left ventricle, there was yellowish-green tissue which was 8 mm. across and extended 3 mm. into the ventricular wall. On the lungs there

* From the Pathological Laboratory, City and County Hospital.

were deposits of yellowish-green tissue, the distribution of which was irregular, the deposits varying in size from 3 to 5 mm. across. On the surface of the liver and also on the cut surface there were greenish-yellow areas. On the cut surface these were generally found near and around the blood vessels. The pancreas all the way through was greenish-yellow and harder than normal; on section the greenish-yellow also prevailed. The lobules were indistinct. The mesenteric



Patient with chloroma.

glands were slightly enlarged. The surfaces of the kidneys were greenish-yellow, the color being irregularly distributed. On section the same color prevailed. The markings were indistinct. The cortex was slightly thickened. The ovaries and tubes were harder than normal, and on section were greenish-yellow.

When the scalp was removed, the cranial bones were found to be separated and held firmly together by hard greenish tissue, 3.5 cm. in diameter and 1 cm. thick. The tumor mass extended more extracranially than intracranially; the bones were of normal thickness. On the dura there was a deposit of green tissue which followed the sinuses. Here too the tissue was 2.5 cm. across and 8 mm. thick. The dura between the tumor masses appeared normal. The base of the skull presented the same appearance as the cranial bones described above. The sutures were separated, and between the sutures there was a greenish tumor. The orbits were filled with green tumor masses which caused the eyes to protrude. The ribs and costal cartilages were enveloped in a greenish-yellow tissue 3 mm. in thickness.

Microscopic examination of the tumor, bone, meninges, brain, muscle, heart, lungs, liver, kidney, spleen, pancreas and lymph glands showed the tumor to be made up of lymphoid cells. Some of the nuclei of the cells were round and others oval. The cytoplasm varied in amount in different cells. In the areas in which the organs were involved the cells formed dense masses and were held together by a delicate fibrous tissue network. The infiltrations of these cells were chiefly interstitial.

The clavicular and costal periosteum was densely infiltrated with the type of lymphoid cells maintained above.

The muscles showed extensive involvement. The tumor cells were most prominent between the bundles of muscle fiber. The muscle fibers in certain areas were entirely gone, and in their place there were dense masses of lymphoid cells. The serous coverings of the lungs in places were infiltrated with the tumor cells. The same kind of cells were also seen in the alveoli and around the bronchioles and blood vessels.

The splenic pulp was made up of mononuclear cells. The malpighian corpuscles did not show hyperplasia. Many eosinophils were present in the splenic tissue.

In the liver the infiltration was interlobular and intralobular, and it was also seen in the columns between the hepatic cells.

In the pancreas the tumor cells took the same interlobular course and were also present around the pancreatic ducts and acini.

The uriniferous tubules of the kidneys in areas were swollen, and their lumens contained albumin. Between the tubules there was extensive lymphoid cell infiltration. In some parts the infiltration was so dense that it was not possible to make out the kidney structure.

Microscopic examination of the brain did not reveal any pathologic change.

The anatomic diagnosis was general chloroleukosarcomatosis.

A HOME MADE VERTICAL FLUOROSCOPE

HENRY L. SHIVELY, M.D., AND CHARLES R. TYLER, PH.G., NEW YORK
Visiting Physician and Radiographer, respectively,
St. Joseph's Hospital for Consumptives

A year ago, when the Roentgen laboratory installation was purchased for St. Joseph's Hospital, the limited funds available for the purpose made it necessary to study economy in order to secure all the apparatus desired. By dint of a careful study of our needs, the elimination of everything not strictly necessary, and by collective buying with three other institutions, we were enabled to obtain a complete and satisfactory equipment consisting of a 6 to 10 kilowatt interrupterless transformer, a current generating unit for heating the Coolidge tube, a stereoscopic tube stand, an automatic plate changing table, a Wheatstone stereoscope, and vertical fluoroscope at a very moderate cost—not exceeding $1,200.

The listed prices, from $300 to $700, of the manufacturers of fluoroscopes under such fancy names as "orthoscope," "trochoscope" and "diagraphoscope" seemed out of all pro-

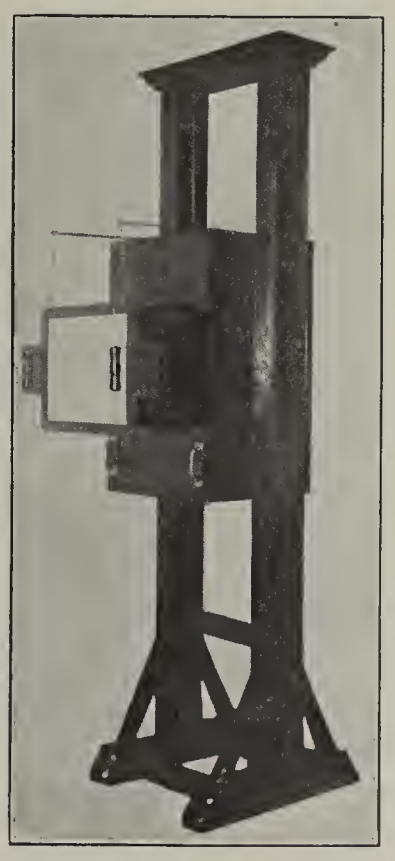


Fig. 1.—Front of fluoroscope with screen suspended.

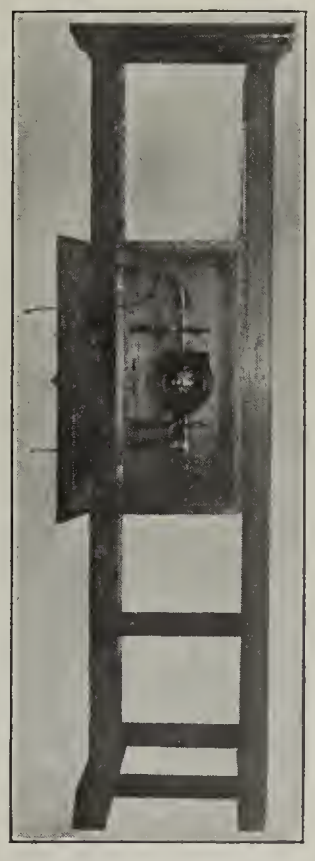


Fig. 2.—Back of fluoroscope; tube box containing Coolidge tube open.

portion to the cost of construction, and we determined to make our own. When it is remembered that the fluoroscope is simply a contrivance for suspending the fluorescent screen, carrying the tube box, and securing a synchronous adjustment of the two, with adequate protection for the operator, the mechanical problems did not appear beyond the constructive ability of an intelligent carpenter. All the combi-

nation vertical and horizontal machines we have seen built in the folding bed manner are clumsy, stiff, difficult to operate, and unsatisfactory, besides being unduly expensive. A permanent, upright model was chosen as most useful for our needs, and our experience with this home-made fluoroscope at a cost of $60 and a saving of at least $250 has been so satisfactory that we have thought a description of it might be useful to institutions interested in the installation of Roentgen equipment at moderate cost.

The apparatus consists of a tube box 13 by 13 by 29 inches, covered with sheet lead one-eighth inch thick and hung with counterweights in a solidly constructed vertical frame of oak. Inside the box at each end, grooves are provided which allow the insertion of a Kelley-Koett tube board. The high tension leads are carried through the hinged door at the back, encased in insulators of heavy glass tubing. In the center of the front of the box is a 6 inch square opening for the passage of the Roentgen rays. Four inches from the front and parallel to it is a three-fourths inch board, 18 by 30 inches, having a 14 inch square aperture concentric with that in the front of the tube box. The interior of the box is lined with mica sheets to prevent "jumping" of the high tension current.

The fluoroscopic screen, 12 by 16 inches, of lead glass with protected handles is suspended from sliding brass rods attached to the top of the tube box, permitting the screen to be freely moved from side to side, toward or away from the box, and adjusted to the intervening surface of the body of the patient under examination. The uprights of the supporting frame are hollow and enclose the counterweights, which are of lead, weigh about 350 pounds, and were cast to order.

The leaded box is held in a perpendicular position by means of guides running in slots on the inner faces of the uprights. The counterweights are attached to the top of the tube box by wire cables running over pulleys similar to those used in suspending window sashes, inserted in the inner faces of the uprights.

The apparatus was constructed in the hospital workshops at a cost of $60 by our own mechanics, an estimate of the various items being: lumber, varnish, etc., $25; lead sheets and counterweights, $27; Kelley-Koett tube board, $8.

A liberal estimate for the cost of necessary labor would be $25. The machine is flexible and easy working, has been in use for ten months, and has proved satisfactory in every way.

303 Amsterdam Avenue—168 West Eighty-First Street.

Syphilis in Massachusetts.—In a report of progress on a regulation of the state authorizing the state department of health to provide for the prevention and suppression of syphilis, Commissioner Allan J. McLaughlin (*Public Health Bulletin,* February, 1917) says that approximately 10 per cent., probably many more, of the inmates of the state insane hospitals are insane because of syphilis. On this basis there are about 1,700 syphilitics continuously under the care of these hospitals. Such studies as are available, McLaughlin says, indicate that about 5 per cent. of syphilitics develop general paralysis of the insane. In 1914, 258 such patients were admitted to the state insane hospitals, which number would represent about 5,160 syphilitics. The commissioner says that there is reason to believe that syphilis is responsible for possibly one quarter of all stillbirths. In 1914 there were 3,478 stillbirths in Massachusetts, which means that 869 infants were born dead from the effects of this infection, which was present in their mothers and probably in most of their fathers. Since the establishment of the Wassermann laboratory by the state department of health in June, 1915, some 37,000 tests have been made, 5 per cent. of which were positive, representing, it is said, at least 850 syphilitics. This is believed to be a fair representation of the condition of the general population with reference to syphilis, and by some observers is considered too low. As a cause of suffering, sickness and death, the commissioner says syphilis undoubtedly ranks next to lobar pneumonia and tuberculosis, the two latter being responsible, respectively, for about 6,000 and 4,000 deaths annually.

APPARATUS IN BIRTH-FRACTURE OF FEMUR

THOMAS H. RUSSELL, M.D., AND HARRY S. REYNOLDS, M.D.
NEW HAVEN, CONN.

The case reported below presented problems which were so easily and satisfactorily overcome by a new application of a known principle that it seems worthy of mention.

Feb. 3, 1917, one of us (H. S. R.) was called to see A. D., a girl, aged 9 days, because of swelling of the left thigh. The delivery had been effected by a colleague after a difficult dry

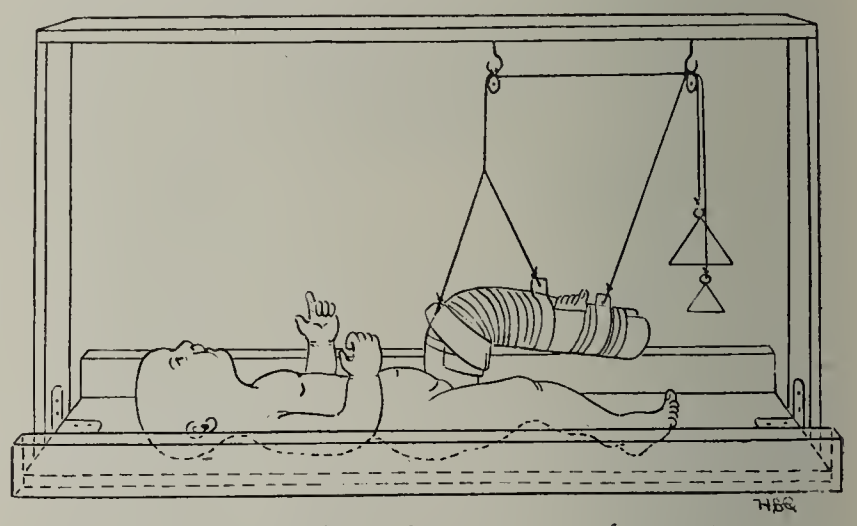


Fig. 1.—Construction and arrangement of apparatus.

version. Two physicians, who had previously been called, had advised the family that the child could be delivered only by morcellation. At the time of delivery no lesion had been noticed, although the obstetrician has stated that he noticed a snapping sensation.

The baby had nursed well and had seemed all right, except for this swelling and a disposition to cry most of the time.

On physical examination, the left thigh was found to be shortened, and considerably increased in its diameter, the thigh muscles being hard, firmly contracted and bulging. A point of false motion was detected in the femur at about the junction of its upper and middle thirds; the lower fragment had overridden the upper laterally and there was marked angulation. A roentgenogram, made by Dr. A. P. Bergman, later confirmed the diagnosis of birth-fracture of the femur, and revealed a beginning new-bone formation between the fragments.



Fig. 2.—Condition of fracture at time of beginning treatment; new-bone formation already begun between fragments.

As the nature of the case brought it outside of the domain of pediatrics, the cooperation of a surgeon (T. H. R.) was enlisted.

The problem called for a scheme of treating a patient, from whom no cooperation could be expected, by providing efficient extension with a minimum of irritation of the delicate skin, which would not well tolerate adhesive straps for extension; repose in as natural a position as possible in a comfortable bed; portability; convenient means of nursing, and suitable and hygienic administration of the baby's toilet, the care falling on a mother burdened by a large family of small children and many household duties. These demands were successfully complied with by the following simple expedient:

A plaster saddle was molded to fit the under surface of the knee, which was flexed to form an angle of about 120 degrees

with the thigh, and was carried below the foot about 3½ inches to act as a counterweight; this saddle, suitably padded, was bandaged on beneath the knee and suspended from the crossbar of an apparatus constructed of a board 13 by 32 inches, with side strips 3 inches wide, and with a 21 inch upright at each end to which was attached a horizontal crosspiece, the suspension being carried out by means of adhesive straps around the saddle, a cord and pulleys, and a 3 pound weight. The extension of plaster below the foot acted as a counterweight to hold the foot down and prevent the saddle from sliding out of position. As there was a slight tendency for the limb to swing from its proper axis after the patient's toilet, etc., had been attended to, a string was attached to the end of the saddle and the latter held in proper position with slight traction by means of a light weight attached to one of the pulleys. When the limb was suspended, the patient promptly fell asleep, evidencing the comfort of the apparatus.



Fig. 3.—Condition fifty-three days after fracture.

It was hoped that the traction would pull the fragments into position, but this had to be accomplished the following day by manipulation, as malunion had already begun.

February 20, the union appeared to be so well under way that the leg was taken down. Union has taken place without shortening or other deformity.

The Buck and Hodgen splints are not well adapted for children, and Bryant's extension places the patient in a most unnatural position. DaCosta states that "in children under 3 years of age the extension apparatus will not satisfactorily immobilize the fragments." Stimpson has recommended vertical extension of both legs in children. Eisendrath (Keen's "Surgery") says, "In children a fracture of the shaft is most easily treated by the use of Schede's vertical suspension."

The methods advocated by these authors all necessitate the use of adhesive strips applied to the skin, which our saddle principle obviates. Our method as a whole, we believe, fulfils all of the requirements enumerated in the early part of this report.

Discovery of Ether.—Ether was prepared for the first time in the sixteenth century by Valerius Cordus from spirit of wine. It was formerly thought to contain sulphur, and was therefore given the name sulphuric ether, still in use. Its true composition was established by Saussaure and by Gay-Lussac (1807 and 1815) and the constitution was enunciated by Laurent and Gerhardt and confirmed experimentally by Williamson. It was thought for a long time that the sulphuric acid employed in the manufacture of ether possessed the sole function of fixing and subtracting water from the alcohol. Since, however, it was found that water formed in the reaction always distilled with the ether, this hypothesis became invalid, and Berzelius and Mitscherlich attributed the reaction of etherification to the catalytic action of the sulphuric acid.—General and Industrial Organic Chemistry, Dr. Ettore Molinari, Translated by Thomas H. Pope, Second Edition, 1913, p. 192.

UNIQUE ROENTGENOGRAPHIC DEMONSTRATION OF A URIC ACID CALCULUS

A. RAYMOND STEVENS, M.D., NEW YORK
Assistant Attending Surgeon, Urologic Service, Bellevue Hospital

This brief report of a case of uric acid ureteral calculus illustrates a novel means of diagnosis, as demonstrated by the accompanying roentgenographic print.

A diagnosis of uric acid stone usually depends on the wax-tipped catheter, or a visual demonstration of dilatation of the ureter and pelvis above the obstructing stone by means of a pyelogram and ureterogram. In a few instances, after the injection of collargol into the pelvis of the kidney and subsequent draining off of the collargol, an otherwise obscure calculus has become evident on Roentgen examination because of the adherence of some of the collargol to the rough surface of the calculus. In this following case, the urate stone appears on the roentgenogram as a vacuole in the dense shadow thrown by thorium injected into the ureter.

The patient, a man, aged 51, was admitted to the medical side of Bellevue Hospital, Sept. 30, 1916, and subsequently transferred to Dr. Keyes' urologic service. He gave a history of intermittent passage of dark colored urine for about a year, and of dull aching pain in the abdomen to the left of the umbilicus, off and on for four months. The urine showed blood microscopically. Repeated Roentgen examinations revealed at time suspicious shadows in the left kidney region, but never any suggestion of calculus in either ureter. The genital organs and bladder seemed normal. Catheters passed up the right ureter easily, but on two occasions were obstructed at a point from 4 to 5 cm. up the left ureter. A little pus was obtained from both kidneys. The output of urea and phenolsulphonephthalein indicated practically equal function. The only prepared wax-tipped catheters at hand would not enter the small left ureteral orifice. By manipulation, a 5 F. catheter was made to pass the obstruction, thorium was injected, and a roentgenogram taken. The diagnosis of a uric acid or urate ureteral calculus was based on the dilitation of the ureter, and on the presence of something permeable to the Roentgen ray situated at the lower portion of the dilatation in the field of thorium.



Appearance of urate stone as a vacuole in the shadow thrown by thorium injected into the ureter.

I performed an extraperitoneal operation, and a dilated ureter with an impacted rough stone near the bladder was found. The calculus could not be milked up the ureter, and was removed by an incision in the ureter over the stone. Chemical analysis showed the latter to be calcium urate.

40 East Forty-First Street.

A RADIUM APPLICATOR FOR THE THROAT

C. W. HANFORD, M.D., CHICAGO

In treating the tonsil and soft palate with radium, it is necessary that the tube containing the radium should come in close contact with the neoplasm for a number of hours. It is impossible for the patient to hold it in position. When I am



Fig. 1.—Plate and wire.

called to treat cancer at these sites, I have a dentist make a rubber plate to fit the upper jaw. At the back of this plate and on its undersurface I have a pure silver wire embedded. The wire is about 2 inches long and 1 mm. in diameter (Fig. 1). The tube containing the radium is properly screened (Fig. 2), and the wire is then wound



Fig. 2.—Applicator ready for insertion.

about it and the whole then covered with a finger cot. The wire can be bent to any angle, and when the plate is in position, the tube, by manipulation of the wire, will come in direct contact with the part to be irradiated and will remain so. In order that the plate will stick to the roof of the mouth, I sprinkle a little powdered gum on the top of the plate, which insures its holding in place.

31 North State Street.

A TREATMENT FOR THE SOLITARY FURUNCLE

WILLARD BARTLETT, A.M., M.D., ST. LOUIS

Trauma plays a definite rôle in the development of a solitary furuncle, after the primary infection has taken place. This lesion, which is so frequently encountered on the back of the neck of a man, is most common in my experience just at the height of the top of the collar, and located immediately over the spinous processes in the midline, or over the prominence of the right or left muscle masses—areas in which collar and clothing exert the most pressure. The truth of the foregoing statements would seem to be borne out by the rarity of this malady in women, who treat the back of the neck, as far as dress is concerned, with much more consideration than do men. The proposal of an early abortive treatment is based on this anatomic observation.

On the appearance of the first symptoms, the lesion should be protected with a bunion plaster or a vaccination shield. It must not be pricked, touched with the fingers, squeezed out, or rubbed by the collar and clothing. It should be exposed to the direct rays of the sun, or to those of an ordinary incandescent light bulb, as much as possible. The action of sunlight in the treatment of inflammatory lesions is too well known to justify extended consideration, and Crile has recently called our attention to the fact that the light rays of the ordinary incandescent bulb are practically analogous to those of the sun. Acetylsalicylic acid in doses of from 5 to 10 grams greatly aids in limiting spontaneous pain during this period. If the furuncle is not aborted by this treatment, one should wait until a frank pustule has developed, then infiltrate in healthy tissue around the lesion a definite ring of 0.5 per cent, novocain, to the ounce of which 4 drops of 1:1,000 epinephrin solution have been added. After the lesion has become insensitive to pain, it should be opened widely by a crucial incision, made with a thin platinum electrocautery blade. Rather long incisions can be made without danger of opening up healthy tissue to infection. If sufficient time has elapsed before the incision is made, the necrotic center of the lesion can be lifted out at once; but if it is not loose, gentle suction should be employed every hour or so, the wound being merely covered by a vaccination shield and exposed to the rays of an incandescent bulb, placed so close to it as to produce an agreeable warmth.

A 15 watt lamp gives a delightful sense of warmth, as my own recent experience has demonstrated; while the ordinary green metal household shade protects surrounding parts from heat and light. In a short time the necrotic center can be sucked out in toto, after which the defect rapidly granulates and no further treatment is needed beyond protection of the wound with a vaccination shield, and an occasional cleansing with alcohol, to prevent reinfection of the surrounding skin openings. In case the lesion is on the back of the neck and any form of circular bandage is worn, painful pressure and distressing massage of the lesion are unavoidable every time the head is turned. To avoid this form of torture, the patient endeavors, by using all of the neck muscles, to hold the field at rest, and soon excessive local fatigue makes his lot still more unhappy. It may further be said that any form of dressing makes a pus poultice, and accounts in a great measure for reinfections and neighboring secondary furuncles, while the growth of bacteria is hindered by the drying up of excretions from a wound exposed to the air.

This treatment may be carried out by any intelligent member of a family or office force, which brings it well within the range of possibility for many men, without upsetting the ordinary routine of life. If carried out faithfully, with regard for every detail, it robs this distressing malady of its most serious features. The sort of stock affected by horsemen and golfers can readily be worn over the vaccination shield, and the patient, though somewhat uncomfortable, will be much more presentable than is the case when an otherwise well-groomed man with a stiff neck goes about, minus collar and tie, with a surgical bandage where they should be.

Bier's suction rapidly reduces the edema in adjacent muscles, with the consequent early disappearance of the stiff neck so characteristic of the condition.

410 Metropolitan Building.

A SIMPLIFIED METHOD FOR DETERMINING THE ISO-AGGLUTININ GROUP IN THE SELECTION OF DONORS FOR BLOOD TRANSFUSION

W. L. Moss, M.D., Baltimore

The introduction within the past few years of satisfactory methods for the indirect transfusion of blood has done much to popularize this procedure. Fortunately the popularity of the procedure rests not solely on a simple and satisfactory technic but also on its therapeutic value in a number of conditions.

It is now generally recognized that isohemolysis and iso-agglutination constitute a possible source of danger in transfusion unless a donor is selected who belongs to the same iso-agglutinin group as that of the patient.

Although many transfusions have been performed between members of different groups without untoward results, there are a sufficient number of "accidents" on record to remind one that there is an element of danger. That the transfusionist appreciates this is evidenced by the fact that more and more frequently he or his colleague of laboratory habits is taking the trouble to select donors belonging to the same group as the patient, although this involves the use of a technic which, while not difficult, requires a little practice, and is somewhat time-consuming.

Depending on the ability of the serum to agglutinate the corpuscles of other individuals and of the corpuscles to be agglutinated by the serum of other individuals, every person falls in one or other of four groups:

Group I. Serum agglutinates no corpuscles. Corpuscles are agglutinated by the serum of Groups II, III and IV.

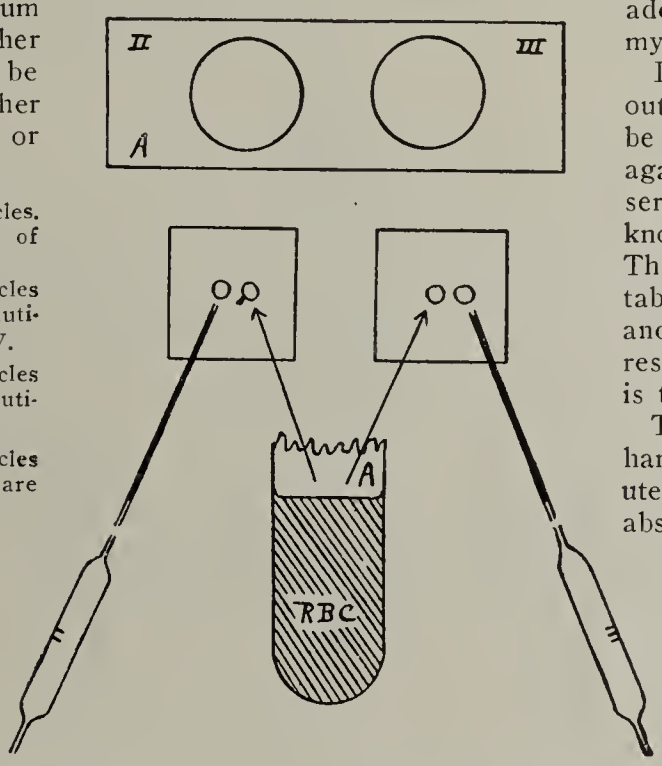
Group II. Serum agglutinates the corpuscles of Groups I and III. Corpuscles are agglutinated by the serums of Groups III and IV.

Group III. Serum agglutinates the corpuscles of Groups I and II. Corpuscles are agglutinated by the serum of Groups II and IV.

Group IV. Serum agglutinates the corpuscles of Groups I, II and III. Corpuscles are agglutinated by no serum.

The serum of a given individual may or may not contain an isohemolysin; but if an isohemolysin is present, it acts in accordance with the laws governing the action of the iso-agglutinins. Thus the serum of Group I, which contains no iso-agglutinin, never contains an isohemolysin. The serum of Group II may or may not contain an isohemolysin, but if present it can act only on the corpuscles of Groups I and III. If the serum of Group III contains an isohemolysin, it can act only on the corpuscles of Groups I and II, while isohemolysin occurring in the serum of Group IV may act on the corpuscles of Groups I, II and III.

Consideration of this classification shows that if transfusion is performed between members of the same group, the danger of iso-agglutination and isohemolysis is obviated; but if the patient and donor belong to different groups, the possibility of danger is present.



Technic employed in determining group to which an individual belongs by testing his corpuscles against known Group II and Group III serums. If a number of individuals are to be tested, the tubes containing the corpuscle suspensions may be designated by letter and the corresponding letter placed on the slide.

TABLE 1.—SERUM TEST AGAINST KNOWN CORPUSCLES*

Serum	Corpuscles		Group to Which x Belongs
	Group II	Group III	
x	0	0	I
x	0	+	II
x	+	0	III
x	+	+	IV

* In the tables, + represents agglutination, and 0, no agglutination.

The method usually employed for determining the compatibility of patient and donor with reference to iso-agglutinin and isohemolysin consists in testing the serum of the patient against the corpuscles of each of the prospective donors, and the serum of each of the prospective donors against the corpuscles of the patient. Any person whose serum does not agglutinate the patient's corpuscles and whose corpuscles are not agglutinated by the patient's serum belongs to the same group as the patient, and is suitable as a donor as far as iso-agglutinin and isohemolysin are concerned.

TABLE 2.—CORPUSCLE TEST AGAINST KNOWN SERUM

Corpuscles	Serum		Group to Which x Belongs
	Group II	Group III	
x	+	+	I
x	0	+	II
x	+	0	III
x	0	0	IV

This test determines which, if any, of the prospective donors are in the patient's group, but does not indicate what that group is.

Rous, Minot, Brem and others have devised simplified methods for the selection of a donor of the same group as that of the patient. To these I wish to add one which has proved satisfactory in my experience.

In a previous publication[1] I have pointed out that the group of any individual may be determined by testing his corpuscles against known Group II and Group III serum or by testing his serum against known Group II and Group III corpuscles. This is illustrated by the accompanying tables, which show all the possible results and the group to which *x* belongs for each result, *x* being the individual whose group is to be determined.

The test is easily performed in the hanging drop, it requires but a few minutes to set up, and the presence or absence of agglutination is observed under the microscope.

Group II and Group III serum may be kept on hand in the laboratory ready for use; it is then necessary only to get a single drop of blood in salt solution for corpuscles in order to determine the group of any individual.

The technic which I employ and have found satisfactory requires: Group II serum; Group III serum; capillary pipets; hollow-ground slides; cover slips; test tubes; physiologic sodium chlorid solution (0.85 per cent.); microscope.

The collection and preservation of Group II and Group III serum is accomplished thus: Five c.c. of blood are withdrawn from an arm vein of a Group II individual and the same amount from a Group III individual, placed in sterile centrifuge tubes, allowed to clot, centrifugalized, and the serum transferred to other sterile tubes. From the latter, capillary pipets are to be filled.

A number of capillary pipets are prepared from glass tubing 3 or 4 mm. in diameter by drawing each end out into a capillary. The capillary at one end is cut off within 1 inch of the body of the tube. That at the other end is left 6 or 8 inches long. These are sterilized and half are used for the Group II and half for the Group III serum, the long capillary stem being filled half full of serum, the tubes tilted so that the end of the column of serum will be about an inch from the end of the capillary, and then both ends of the tube sealed in the flame. Two file marks on the glass indicate the tubes

1. Moss, W. L.: Paroxysmal Hemoglobinuria, Bull. Johns Hopkins Hosp., 1911, **22**, 238-247.

containing Group II serum and three marks those containing Group III serum. The tubes are stored away in boxes at room temperature but protected from the light. These tubes may be kept in the laboratory and are ready for immediate use whenever required. Serum preserved in this way retains its agglutinating power six months or longer.

With Group II and Group III serum on hand, the determination of the group of any individual is easily and quickly done. A single drop of blood from the finger-tip or ear is allowed to fall into a test tube containing 8 or 10 c.c. of physiologic sodium chlorid solution (0.85 per cent.). The tube is shaken or rotated in order to obtain a uniform suspension. On each of two cover slips a very small drop of the corpuscle suspension is placed by means of a capillary pipet or platinum loop; to one a drop of Group II serum is added and to the other a drop of Group III serum. The serum and corpuscles are mixed on each cover slip, inverted over a hollow ground slide, and examined under the microscope. Agglutination may take place in a few minutes at room temperature, but it is a safe rule to allow half an hour at 37 C. to elapse before concluding that there is no agglutination.

CHONDROMA OF THE SOFT PALATE, LONG OVERLOOKED

BEN C. GILE, M.D., PHILADELPHIA

It sounds like a paradox to say that we need to be reminded of familiar truths, but this is a fact. Every physician knows that a correct diagnosis is invaluable and that we should earnestly strive to discover and remove the cause of the diseases we encounter, and yet quite frequently we learn of cases in which the treatment has been exclusively symptomatic and etiologic investigation has been entirely neglected. Of course, we are often required to treat symptoms: it may be our first duty to check a hemorrhage or relieve a severe pain, irrespective of causation; when we have time for investigation, however, especially in chronic cases, purely symptomatic treatment is justified only by conditions in which: (1) the cause cannot be discovered; (2) the cause is a self-limiting process, as in many of the disorders occurring during pregnancy, or (3) the cause, though known, is beyond remedy and must be reckoned with as a permanent factor. Apart from situations such as these, the restriction of our therapy to the palliation of symptoms is negligence hard to condone.

In the case described herein, a slowly growing tumor, in an accessible locality, had reached a considerable size and had given rise to a number of symptoms. The patient had been successively under the care of four practitioners, two of them laryngologists. Various remedial measures, medical and surgical, had been employed, but all treatment had been addressed to symptoms: no one did anything with the causal tumor and, in truth, only one of the four scrutinized the region in which it was to be found. The varied treatments temporarily palliated the symptoms, but had no permanent effects, and the patient was growing worse until at last the tumor was recognized as the sole cause of the morbid conditions, and was extirpated, bringing about complete recovery.

As some of the statements in this narrative may seem strange, I wish to be particularly clear and definite regarding the authority on which they rest. Nothing which transpired before I took charge of the case came within my own personal knowledge. When the patient consulted me, she had already parted with her former advisers and I had no opportunity to confer with any of them. The patient is a young woman of intelligence, and I believe her to be entirely trustworthy. On account of her prolonged treatment and her large outlay of money, this illness was for her a very trying episode, and she put in writing a history of her experiences, from the time when she first sought medical aid until its final cessation, on her recovery of health. It is on this record that I have depended for the facts preceding the time when I made her acquaintance. I believe that, to the best of her ability, she has told with accuracy what occurred in her case.

REPORT OF CASE

History.—In 1911, Miss E. W., aged about 30, sought the advice of her family physician, because of persistent earache on the right side. There was no discharge, and hearing was not impaired. The throat was not examined, and the treatment consisted of internal medication. The pain gradually passed away.

In 1913 there was another prolonged attack of earache and an intercurrent tonsillitis. Both subsided in a couple of weeks, but left a cough which continued for months. The same physician was in charge, and the patient took many bottles of medicine, the character of which she did not know. There were no surgical procedures.

In 1914 a very painful abscess developed in the right ear and was lanced by Dr. X, a laryngologist. No examination of throat or nose was made. Later in the same year occurred another attack of tonsillitis with troublesome cough. These affections were treated by Dr. Y, who administered a good deal of medicine by the stomach. No surgery was done, and no examination of the nose or of the nasopharynx was made.

Near the end of 1914, the patient, much discouraged by her frequent attacks of illness, applied to a laryngologist, Dr. Z, and was under his care for eight months, extending beyond the summer of 1915. There was no surgery, but medicines were applied to the throat and nostrils. With warm weather the symptoms were somewhat mitigated.

In April, 1916, there was another abscess in the right ear, accompanied by a persistent cough. The patient returned to the laryngologist, Dr. Z, who lanced the abscess and also inspected the soft palate, as far as that could be done by simply looking into the mouth without any instrumental aid, or any attempt to take a posterior view. Inadequate as this examination was, it showed that the soft palate was distended by tumefaction of some kind, and Dr. Z informed the patient of the abnormal condition which existed, adding that he did not know what the growth was and did not think it wise to interfere with it. A Wassermann test was made with negative result; but the eustachian catheter was not used, nor were the Valsalva or Politzer methods of inflation. The patient continued to visit Dr. Z up to August, 1916, when swelling again appeared in the right ear and lancing brought temporary relief; but the trouble soon returned, and Miss W., in a discouraged frame of mind, was looking forward to another repetition of the incision, when the condition of a tooth led her to consult Dr. Briggs, a dentist in whom she had confidence. This was a fortunate incident, for Dr. Briggs assured her that the throat was seriously affected and required radical treatment to reach the cause of the recurrent disorder in the ear. At his solicitation she came to my office, Sept. 30, 1916.

Examination.—At that time, in addition to mental and physical depression, the patient was suffering from a rasping cough and her throat was sore, though not acutely painful. Her chief discomfort was in the right ear, in which there was a sensation of tension and stuffiness, and she was strongly impressed with the notion that the time had come for another cutting of this much-incised organ. Tests of the hearing showed that it was decidedly impaired on the right side, and they also localized the trouble in the middle ear. Examination with the aural speculum indicated that there was considerable liquid in the right tympanitic cavity, escape being prevented by occlusion of the eustachian tube on that side.

The anterior view of the fauces showed, at the first glance, that the soft palate was in a very abnormal condition. It was distorted by some internal pressure causing it to bulge forward. The quinsy points were conspicuous; showing through the mucous membrane were small nodules, pale, firm and hard, but not tender under the touch. The postnasal mirror showed a small chink behind the soft palate on the left side; but the right was filled up by a swelling projecting from the soft palate into the nasopharynx and preventing the finger from entering the postnasal space. This adventitious structure was firm and gave no sign of inflammation. Neither of the eustachian eminences could be seen. Inflation by the Politzer method succeeded on the left side, but failed

on the right. The eustachian catheter passed readily along the nasal floor but, when its beak reached the soft palate, it met an obstruction and could not be advanced farther, nor could it be rotated.

These examinations proved that a tumor of considerable size was embedded in the soft palate, and from the signs given to sight and touch, combined with the clinical history, I came to the conclusion that it was a chondroma, a judgment which was corroborated by the laboratory tests made subsequently. I informed the patient of what had been found, telling her frankly and firmly that the best treatment, indeed the only proper treatment, was the entire removal of the tumor: that this course would give her good prospect of recovery; but that partial, half-way measures would be of no advantage. She took a sensible view of the matter and agreed to a prompt operation.

Just here let me say that I claim no credit for recognizing this neoplasm. It was in an accessible locality and could be seen distinctly by posterior rhinoscopy. Any laryngologist should have made himself familiar with its chief features on his first inspection of the throat. The puzzling questions are, why one specialist never looked for it and why another, after seeing it, told the patient that he did not know what it was and considered it best to let it alone.

Operation and Results.—Two days later, October 2, the operation was performed under general anesthesia induced by ether. The right tonsil, which was somewhat morbid, was enucleated and the wound enlarged until it reached the level of the upper margin of the chondroma. This was dissected out. When its attachments had been severed, it was seen to have a lobular structure and came away in three pieces. Taken together these weighed a little more than an ounce. Bleeding was controlled by pressure, and the postoperative condition was normal.

The patient had a rapid convalescence. Although the right ear received no topical treatment, hearing became absolutely normal in forty-eight hours. The cough showed prompt improvement, and in ten days ceased entirely. Healing was complete on the sixteenth day, and there remained no disability of any description.

More than five months have now elapsed since the operation, and no morbid sequels have appeared. I saw the patient within a fortnight, and she was in excellent health and spirits. There can be no doubt that the chondroma was the cause of all the varied symptoms from which she had suffered during six years and whose persistence threatened to bring her to invalidism.

COMMENT

I have given the history of this case thinking that it may prove both a caution and an incentive. We are all liable to err, and if oversights, such as those narrated, are frankly criticized, this is not done with a purpose to humiliate our colleagues, who appear to have been at fault, but in the hope that all of us may be stimulated to renewed appreciation of the importance of thoroughness in searching for causation.

Only by making a correct diagnosis and directing our treatment to the radical removal of the causes of disease can we do our full duty to our patients and attain that high professional ideal which combines wide knowledge of medical science with expert proficiency in the honored profession, which is our chosen vocation.

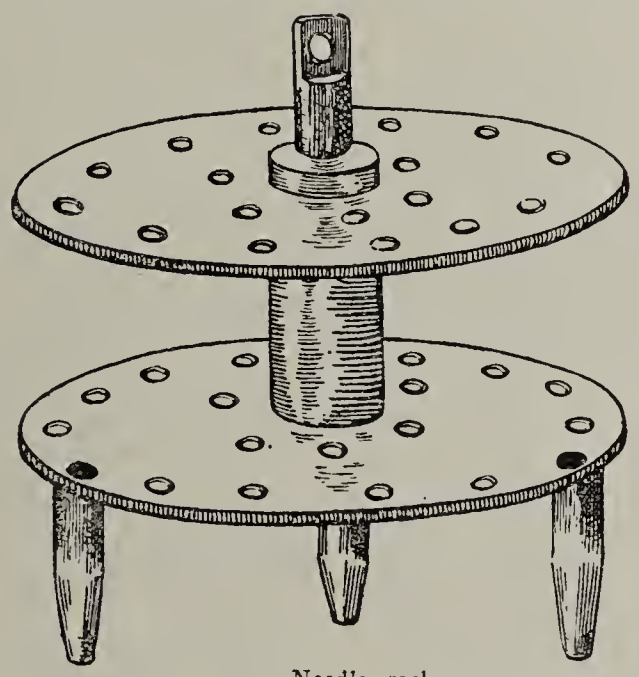
1906 Chestnut Street.

Practical Theories.—The practical effect of a belief is the real test of its soundness.—Froude.

STERILIZATION OF SURGEONS' KNIVES AND SCISSORS BY HEATING IN LIQUID PETROLATUM *

HENRY LYMAN, M.D., BOSTON

The subject of properly sterilizing knives and scissors has always given the surgeon more or less trouble. Boiling water or 70 per cent. alcohol, if applied long enough to be effective, inevitably destroys the edge, while the instruments so treated have a strong tendency to rust. It has been my practice for some time to sterilize needles which were to be used for drawing blood, by heating them in liquid petrolatum at 120 C. for twenty minutes. The needles may then be left for an indefinite length of time without danger of rusting, and are moreover coated with a film of oil which tends to prevent clotting. I soon noticed that needles so treated were peculiarly sharp and could be used and resterilized many times without losing their points. It occurred to me that the same method might well be employed on the scalpel and scissors of the surgeon with advantage, provided this heating did not affect the cutting qualities of the instruments. I therefore sharpened a knife to a razor edge, heated it in the oil at 200 C. for over half an hour, and again tested the edge. It was exactly as sharp as before heating, and repeated experiments with other knives and with scissors gave the same result. The reason for this seems clear. Both boiling water and alcohol attack steel, thus ruining the edge, while liquid petrolatum, being exceedingly inert chemically, has no such effect.



Needle rack.

The first question which arises in our minds in this connection is, "Does oil, which may be considered dry heat, destroy organisms as quickly at the same temperature as does boiling water?" Since no adequate references could be found in the literature, I was obliged to investigate this point myself. I was fortunate enough to interest Dr. Harold C. Ernest in this work, and the experiments were carried out under his supervision in the bacteriologic department of the Medical School of Harvard University.

The following technic was employed: Strips of tin, used to simulate scalpels, were dipped into a culture of the organism to be investigated, dried, and dropped into a test tube containing about 10 c.c. of liquid petrolatum previously heated to the desired temperature in an oil bath. After the temperature had been maintained for ten minutes, the strip was removed and firmly stroked on a slant of agar nutrient medium. For fear the organisms might have been washed off in this process, the oil was treated with sterile bouillon, thoroughly stirred, allowed to settle, the bouillon pipetted off, and both the bouillon and the agar incubated. Numerous controls were run on each batch of determinations.

It was found by this method that the *Staphylococcus pyogenes-aureus* and *albus* were killed in ten minutes at a temperature of 105 C., and that anthrax spores, possibly the hardest form of life to destroy of which we know, were killed in ten minutes at 150 C. The staphylococci were killed at 150 C. in fifteen seconds. If, therefore, the surgeon will keep his knives and scissors in an oil bath at 150 C. for ten minutes, their cutting qualities will not be affected, they will not rust, and they will become the strongest link in the chain of asepsis, instead of being the weakest, as is the case under the usual method of sterilizing.

To obtain the best results, the oil used should have the following characteristics: it must be nonirritating, it must be chemically inert, it must be clear so that the instruments may be easily seen, and it must have the highest possible

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* From the Huntington Memorial Hospital.

flash point on account of danger from fire. Animal and vegetable oils, such as sperm and cottonseed, have a tendency to polymerize on repeated heating and are therefore unsuitable. Liquid petrolatum fulfils all the conditions well; but as it costs from $6 to $7 a gallon at retail, it is expensive when a large sterilizer is to be used, although it may be used over again indefinitely. To avoid this difficulty, I have obtained from Alden Speare & Sons, Cambridge, Mass., a so-called cutting mineral oil at 75 cents a gallon which, in spite of being somewhat yellow, answers the purpose perfectly and which seems to destroy bacteria at the same temperature as liquid petrolatum. Its flash point is about 225 C. Doubtless any nonirritating hydrocarbon lubricating oil of good grade would answer the purpose.

Since thermometers are easily broken and constant temperature devices are expensive, the simplest way of telling when the oil bath has reached 150 C. is by an indicator. A small glass ampule containing chlorid iodid of mercury, such as was used in the Folin method for determining urea, may be placed in the coolest part of the sterilizer. This salt is a red powder at room temperature, turns yellow at 118 C., and melts to a clear amber fluid at 155 C. All that is necessary, therefore, is to keep the indicator melted for ten minutes. Since the oil if heated very hot will smoke and smell somewhat, it is as well to turn the gas or electricity partly off after the indicator becomes yellow.

NEEDLE RACK

The needle rack illustrated herewith, devised by Dr. R. D. Bell, facilitates the heating of these instruments in oil. As many needles as desired are placed in the rack, points down, and the rack lowered into a beaker full of oil, the oil heated at 150 C. for ten minutes, and the rack picked out with a sterile wire hook or mouse toothed forceps. It is allowed to drain for a moment or two, and then placed in a dry sterile receptacle with a cover to protect the contents from dust; an ordinary dressing jar does very well. The needles may be picked out by the butts with unsterile fingers as needed, and a large number may be thus kept ready for immediate use.

THE RESPIRATION OF SIMPLE CARDIAC FATIGUE

Leo Ricen, Ph.D., M.D., Portland, Ore.

I have observed a type of breathing which resembles the Cheyne-Stokes respiration in its first phase, but differs from it in its second phase, thereby constituting a type by itself.

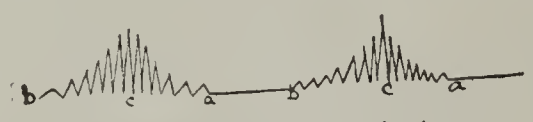


Fig. 1.—Cheyne-Stokes respiration.

The Cheyne-Stokes type of breathing is usually represented in a graphic manner, as in Figure 1, in which *ab* corresponds to the period of apnea, which is followed by a series of respirations (*bc*) at first short and shallow and then gradually increasing in rate and volume until a maximum is reached, after which a gradual return to the apneic state takes place.



Fig. 2.—Respiration of simple myocardiac fatigue.

The type of breathing which I have observed is graphically represented by Figure 2. In it we have the same apneic state (*cb*) followed by a gradual increase period (*bc*); but the period *ca* (Fig. 1) of gradual decrease is lacking, being replaced by the period of apnea, which sets in immediately after the deepest and longest breath.

I have found this type of respiration in cases of cardiac fatigue before actual decompensation takes place. By a careful watching of the patient this symptom can be made use of for the prevention by proper treatment of serious consequences.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 1817*)

POSTOPERATIVE RENAL INFECTION

This should be suspected when, during convalescence, the patient has a sudden chill, mild or severe, a rise of temperature, with or without pain in the affected kidney, and head symptoms, followed by irregular and remittent fever. This is true, of course, only when more obvious causes of these symptoms are excluded. The urine is at first scanty; later it may show albumin, blood, pus, casts and colon bacilli or other bacteria.

PYELITIS IN INFANCY

This disease is about three times as frequent in girl as in boy babies, and the colon bacillus is by far the most frequent germ of infection found. Smith[131] states that the pelvis of the kidney is the part most commonly affected, with the ureters and bladder generally normal. Some cases may show inflammatory changes in the kidney substance, due to extension from the pelvis of the kidney. Even in children, the right kidney seems to be the one most frequently affected in unilateral infection.

Smith gives a long list of references, but thus sums up the mode of infection:

> From the intestinal tract or some other source bacteria get into the lymphatic vessels and then into the blood, or possibly directly into the blood. They are transferred by the blood to the kidney. After reaching the kidney they pass through the glomeruli and are excreted at the pelvis. They may pass out of the body in the urine without doing any damage, or they may set up an infection at the point of excretion, that is, produce a pyelitis.

The colon bacillus probably comes directly from the intestinal tract. Smith and other writers agree that the gastro-intestinal tract should be properly treated in pyelitis, not only when the colon bacillus is the source of infection, for, as in adults, other bacteria may reach the kidneys and cause infection from such sources as the tonsils. Not only typhoid bacilli and tubercle bacilli, but also colon bacilli may pass through the kidney substance without causing any localized infection. While it is not thought that colon bacilli or other bacteria often travel upward, even in women, some injury may cause absorption of these germs, which are so constantly present in the genital organs of females.

There is a difference of opinion as to the frequency with which colon bacilli occur in the urethra of female children and of women. Alsberg[132] found colon bacilli in the urethra of adult women in 100 per cent. of the cases. On the other hand, Beeler and Helmholz[133] say that while pyelitis is much more common in young girls than in boys, the colon bacillus is not normal in the female urethra, and they came to this belief after examining thirty infant girls and thirty-one girls over 2 years of age. In infections not genito-urinary, in girls under 2 years of age, the colon bacilli are frequently found in the urethra.

131. Smith, R. M.: Pyelitis of Infancy, Am. Jour. Dis. Child., September 1916, p. 235.

132. Alsberg: Arch. f. Gynäek., 1910, **90**, 255.

133. Beeler, Carol, and Helmholz, H. F.; The Bacteriology of the Urine in Healthy Children and Those Suffering from Extra-Urinary Infections, Am. Jour. Dis. Child., October, 1916, p. 345.

The symptoms of a pyelitis in a child are well described by Smith,[134] who states that the infection begins in a child with a chill and fever which is relapsing or remittent. He finds that a chill occurring in an infant under 2 years of age is very suggestive of this disease.

The nervous phenomena occurring in the beginning of this infection may even suggest a meningitis. There is apt to be frequent and painful micturition, but perhaps no other genito-urinary signs. Sometimes the patient is very pale and the abdomen tender, or a kidney region may be tender, while often the spleen is enlarged. There may be joint tenderness and herpes. With recurrences of fever there may be vomiting, and even coma may occur. The urine may show pus, or it may be clear if the ureter is blocked by the pus; hence every urinary excretion must be caught and examined in order to make the diagnosis, as the purulent urine is apt to be intermittent. There may be albumin in the urine.

Smith says that the prognosis is generally good, that the disease is rarely fatal. The acute symptoms, however, may last several weeks, and the recovery may be protracted; or the infection may persist, or recurrences may take place for years. Later the bladder may become infected, and there may be abscesses in the kidney structure. There may be a history of sore throat or some intestinal upset occurring immediately before this infection.

The treatment consists in locating, and removing if possible, the causative infection. Purgatives should be given, and colon washings are often advisable. A liberal amount of water should be given the patient, so as to encourage a free outflow of pus. Alkalies, such as potassium citrate, are advisable, given in the dose and frequency sufficient to alkalize the urine. As cautioned with adults, the urine should not be made alkaline for too long a time; or, if it is found alkaline (which is rare), it should be made acid. Hexamethylenamin in proper dosage for the age of the patient may be tried, as it will sometimes be found of advantage, although it often fails, especially in colon infection. Vaccines may be tried if deemed advisable and if the disease is protracted; surgical measures may be necessary.

HEMATOGENOUS INFECTION OF THE KIDNEYS

In 1906, Brewer[135] first described this condition as a distinct pathologic entity. In a series of subsequent communications he has clarified the understanding of this not infrequent condition, and shown the best treatment for it. One of his latest papers[136] brings the subject nearly up to date.

Pathologically, the local lesion is caused by the plugging of one or more blood vessels, with groups of organisms acting as emboli. Inflammatory and protective processes begin around this infarct, and the center becomes a minute abscess. Several of these plugs and subsequent abscesses may run together and form larger abscesses, or a plug of a larger arteriole may cause a large section of the kidney to break down at once. If the condition is neglected, these larger abscesses may not break into the urinary tubules or into the kidney pelvis and be thus evacuated, but may rupture the kidney capsule and form a perinephritic abscess.

The origin of these localized kidney infections may be a serious infective process or some simple infection, such as a boil, a carbuncle, tonsillitis, a tooth or sinus infection, or an infected wound. The infarcts in the kidneys may be bilateral, but are frequently unilateral.

Brewer recognizes three types of hemic kidney infection: The first is the serious and fulminating type, which is rare. In this form there are symptoms of acute general infection, with the kidney signs very hazy, and death may occur almost without a kidney symptom. However, when both kidneys are affected there may be total suppression of urine, rapid prostration, and death will result from sepsis and uremia. When only one kidney is thus seriously attacked, death is due to sepsis.

The second type is serious, but does not become acute as rapidly; however, the prognosis is bad, although the disease reaches a fatal issue more slowly. In this type the progress is so rapid and the local signs may be so few that the whole kidney may be destroyed before a diagnosis has been made, while the function of the other kidney also may become impaired.

The third is a milder type in which the condition occurs and the patient recovers often without a diagnosis. This type of mild infection frequently accounts for slight unexplained rises of temperature, followed after some weeks by an unaccountable pyelitis.

This disease or kidney infection may not begin with a chill, unless it is of the severer type, but the temperature may rise to 103 or 105, with a pulse rate of 120. The toxemia is severe, and the general condition of the patient may resemble a severe hidden or central pneumonia. Soon he complains of vague pains in the abdomen or in the flank on the affected side. If the right kidney is affected, the symptoms and signs may resemble an acute appendicitis or an acute gallbladder infection, and from these conditions it may be difficult to make a differential diagnosis. The affected kidney may secrete but little urine, while the other kidney may secrete freely, or even more urine than normal. Careful examination of the urine, however, may show traces of albumin, blood and pus, and in doubtful conditions the ureters should be catheterized. Brewer considers the presence of a decided unilateral costovertebral tenderness a pathogenic sign. In these acute cases he believes the only safe treatment is immediate nephrectomy.

The milder forms of this infection, which are more frequent, often resemble appendicitis, cholecystitis, or abscess of the liver.

If the disease is not recognized and not surgically treated, it progresses to the formation of large abscesses, as just stated, and even to pyonephrosis. These abscesses are smaller and fewer than occur in the acute or fulminating type, and cutting down on the kidney, stripping the capsule, and opening and draining the cortical abscesses may often save the kidney. A neglected case may require complete nephrectomy. When a diagnosis has been made the treatment is rest, plenty of water, and hexamethylenamin.

Brewer believes the reason this disease is so generally unilateral is that a well kidney may throw off such an infection, while a kidney which has had some previous lesion or disturbance, or a kidney that is loose or mobile, is more susceptible to infection. He has isolated the *Bacillus coli,* the *Streptococcus*

134. Smith, R. M.: Recent Contributions to the Study of Pyelitis in Infancy, Am. Jour. Dis. Child, March, 1913, p. 273.
135. Brewer: Surgery, Gynec. and Obst., May, 1906, p. 485.
136. Brewer: New York Med. Jour., March 20, 1915, p. 556.

pyogenes, the *Staphylococcus pyogenes-aureus* and the *Bacillus typhosus* in these cases. He has come to the conclusion that hematogenous infection is doubtless the cause of the greater number of renal sepsis cases.

TUBERCULOSIS OF THE KIDNEY

The kidney is not an infrequent location of this disease; unfortunately, however, often the disease is not discovered until a sepsic infection has been added to the primary condition, that is, pyelitis has occurred. It occurs most frequently at the age when general tuberculosis occurs, namely, from adolescence to 35 or 40 years of age. In the beginning the disease is probably always unilateral, and ordinarily the other kidney seldom becomes involved, unless the patient has been seriously neglected. This disease of the kidney is often secondary but frequently it is a primary infection; hence the urgency of early diagnosis and its eradication lest the disease generalize and affect other parts of the body.

The pathology is that of tuberculous lesions — first small points of infection, then nodules, later destruction, and finally abscess formation. The pathologic findings seem to show that while certain lesions may be evacuated and become cured, or may heal as do tuberculous deposits in the lungs, still other parts of the kidney show continued tuberculous degeneration. In other words, there is no proof that a tuberculous kidney ever becomes permanently or safely healed; consequently, the only treatment, after the diagnosis has once been made, is nephrectomy.

Probably the involvement of the ureter or of the bladder is always secondary, and such infection would not have occurred had the diagnosis been made early.

The usual symptoms are: pain, not always a factor, as there may be only a sense of discomfort in the abdomen, more noticeable on the affected side; backache; a frequent desire to urinate, and as the disease progresses, usually a slight amount of blood in the urine, or a real hematuria. Soon pus appears.

As these symptoms progress, there is generally afternoon or evening fever, possibly night sweats, loss of appetite, loss of weight, and general debility. Varying amounts of albumin and casts are usually found in the urine. There may be occasional attacks of colic caused by obstruction of the ureter with pus or débris, with the usual symptoms of rise in temperature, pain, possibly vomiting and chills, and later evacuation of urine that is loaded with pus.

Blood or pus in the urine, as repeatedly stated in this discussion, necessitates examinations to determine the source. The frequency of tuberculosis of the kidney should cause one to suspect this disease when pus or blood, or both, appear in the urine. Physical examination may readily show which kidney is affected. Carefully cleansing the genitals of all smegma, centrifuging the sediment of the suspected urine, and staining for tubercle bacilli will frequently reveal the germ, if it is present. Or, the urine obtained by a catheter passed into the ureter of the involved kidney may be thus treated. Failure to find tubercle bacilli by these methods does not prove that the disease is not tuberculosis. The guinea-pig test with the sedimented, centrifuged urine is apparently reliable, and the number of weeks necessary for such a test to give a positive or negative result may be shortened by exposing the injected animal to the Roentgen ray, as has been shown by Murphy and Ellis[137] and by Morton.[138] Observation of the temperature of the patient for several days will aid in deciding whether or not the kidney is tuberculous.

If the kidney is tuberculous, there is no effective treatment except nephrectomy, and the ureter, if infected, should be removed as low down as possible. Tubercle bacilli may continue to appear in the urine from an infected ureter or infected bladder for weeks or even months after the operation, but they generally disappear. Of course if the other kidney is diseased, the operation would not be advisable, but, as stated, the two kidneys are rarely affected with tuberculosis at the same time. After the operation the remaining kidney slowly hypertrophies, and within several months is able to carry on the ordinary functions of both kidneys.

When the offending organ has been removed the patient should for a long time be treated as though affected with pulmonary or general tuberculosis. This means rest, fresh air, good food, the prevention of such exertion as will cause fever or loss of weight, and such exercise or overfeeding as will overtax the kidney before it is able to do its double work. He also generally requires iron for some time. Vesical irritability may be relieved by alkalies, if the urine is acid. If there is considerable infection of the bladder, it may be carefully washed out for a time. Phenyl salicylate may be given in small doses; hexamethylenamin, if used, should be given in small doses, as great care is necessary in administering any drug which tends to irritate the remaining kidney.

MALIGNANT TUMOR OF THE KIDNEY

The cardinal symptoms of cancer and sarcoma of the kidney are pain, blood in the urine, and palpable enlargement of the kidney. The pain may be local, or may be referred to different parts of the abdomen, to the back, to the epigastrium, or downward. If the right kidney is involved, the disturbance must be dissociated from a gallbladder infection. The pain may be dull, boring, or burning in character. In occasional cases there is no pain except that of the dragging of the tumor, which may be alleviated by a support of the abdomen and the tumor. Sometimes there are shooting nerve pains like an intercostal abdominal neuralgia or neuritis.

In the majority of cases, blood is found in the urine, and by the time the patient seeks help, there is generally a tumor mass. A tumor in the kidney region may be of some other organ than the kidney, it may have displaced a kidney, or it may be an abnormally large kidney from hydronephrosis or pyonephrosis. The centrifuged urine will generally show not only blood, but also pus and cells of broken down tissue, often characteristic of the growth. With a demonstrable tumor and the urine showing this pathologic condition, the affected kidney is clearly revealed. Of course, catheterization of the ureters not only will give more concentrated pathologic findings in the urine, but also will show the condition of the other kidney.

The general condition of the patient is an important indication of the gravity of the lesion. There may be secondary disturbances, weakness, anemia, emaciation, and gastro-intestinal abnormalities.

Braasch[139] finds that renal growths are more frequent in men than in women.

137. Murphy and Ellis: Jour. Exper. Med., 1914, **20**, 397.

138. Morton: Jour. Exper. Med., 1916, **24**, 419.

139. Braasch, W. F.: Clinical Data on Malignant Renal Tumors, THE JOURNAL A. M. A., Jan. 25, 1913, p. 274.

Renal function tests and blood tests should always be made and the efficiency of the other kidney determined before a nephrectomy is done; pyelography is occasionally necessary.

Whether or not life will be prolonged by nephrectomy depends on how far the case has progressed. As so often repeated, every bleeding into the urine should be investigated in order that an early diagnosis of a kidney growth may be made before an operation is of no avail. While cancer of the kidney may be primary, in the majority of cases it is secondary.

Carcinoma of the kidney causes a great deal more pain than does tuberculosis, and the progress of the disease is much more rapid, although, as stated above, it is sometimes devoid of pain. Colicky pains may occur when small clumps of degenerated tissue or blood clots pass down the ureter.

Sarcoma of the kidney is perhaps more frequent than carcinoma, and the progress to a fatal issue more rapid. Like carcinoma or sarcoma in any other part of the body, and perhaps particularly when affecting the kidney, on account of late discovery, recurrence of these growths after nephrectomy is frequent.

HYPERNEPHROMA

This growth of the kidney is more frequent than has been recognized. It has a tendency to cause metastases and although often accompanied by pain, profuse bleeding may be the only symptom. Generally there is a palpable tumor. When cystoscopy reveals hemorrhage and enlargement of one kidney, when there is no pus in the urine, and no symptomatic or roentgenographic evidence of stone, hypernephroma or some other malignant growth should be diagnosed, and an early operation is necessary to avoid metastases and recurrence of the growth.

CYSTIC DISEASE OF THE KIDNEY

In this condition there are multiple cysts in the kidney structure, and one or both kidneys may be involved. The symptoms are enlargement, recurrent pains, and more or less profuse hematuria. Sometimes these patients live for many years and endure well the loss of blood; others quickly become anemic; still others develop serious insufficiency of the kidneys. Surgical cure, even when only one kidney is involved, cannot be promised, as the mortality is great, and when both kidneys are involved, surgical interference should probably not be attempted.

Congenital small cysts may occur on the kidneys, and perhaps cause no symptoms for a long time. However, these nodular kidneys increase in size and become tumor masses, and sooner or later the kidney structure becomes involved, resulting in kidney insufficiency.

(To be concluded)

The Growth of Filtration Systems.—It is an interesting fact that a very large number of cities which formerly used water without purification now have water-works filtration plants. In 1900 less than 2,000,000 people were using filtered water; in 1910 approximately 10,000,000 were using it, while at the present date about 20,000,000 people are served by filtration plants. In 1900 fifty cities were using filtered water, and in 1917 there were 781 cities thus supplied, a truly remarkable increase. Reliable data pertaining to typhoid show that the death rate has decreased at about the same proportion as filtered water has increased. This alone is sufficient reason for the rapid adoption of filtration plants by municipalities.—*The American City,* June, 1917.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BETANAPHTHOL BENZOATE (See N. N. R., 1917, p. 197).

Betanaphthol Benzoate-Anthony-Hammond Chemical Works, Inc.—A non-proprietary brand complying with standards for betanaphthol benzoate.

Manufactured by Anthony-Hammond Chemical Works, Inc., New York City.

CALCIUM CACODYLATE.—Calcii Cacodylas.—A calcium salt of cacodylic acid containing from 43.5 to 48 per cent. of arsenic in the form of cacodylic acid and free from arsenite, arsenate and monomethylarsenate.

Actions and Uses.—Calcium cacodylate has the mild arsenic action of cacodylates. Its action is essentially the same as that of sodium cacodylate but it is preferred by some.

Dosage.—0.045 Gm. (¾ grain), repeated if necessary, at twenty-four hour intervals.

Ampuls Colcium Cocodylate Solution-Mulford.—Each ampule contains calcium cacodylate 0.045 Gm. (¾ grain) in 1 Cc. sterile physiological sodium chloride solution.

The calcium cacodylate used in the preparation of these ampules complies to the following tests:

No turbidity is produced in 10 Cc. of an aqueous solution of the salt (1:20) by 1 Cc. of calcium chloride test solution, either in the cold or upon heating (*monomethylarsenate*). No yellow precipitate is produced in an aqueous solution of the salt (1:20) by ammonium molybdate test solution; nor is a yellow precipitate produced by sodium thiosulphate test solution; nor is a yellow precipitate produced by hydrogen sulphide test solution. No white precipitate is produced in an aqueous solution of the salt, after acidulating with hydrochloric acid, by barium chloride test solution.

Dissolve 1 to 2 Gm. calcium cacodylate, accurately weighed, in 25 Cc. distilled water, then titrate with normal hydrochloric acid volumetric solution, using methyl orange as indicator. Each gram of calcium cacodylate requires not less than 4.3 Cc. nor more than 5.6 Cc. of normal acid; if to the finished titration phenolphthalein solution is added, 5.8 to 6.4 Cc. of normal volumetric potassium hydroxide is required to produce a red color for each gram of calcium cacodylate, showing not less than 43.5 per cent. nor more than 48.0 per cent. arsenic (As). Theoretically calcium cacodylate, $Ca[(CH_3)_2AsO.O]_2$, contains 47.7 per cent. arsenic.

Prepared by H. K. Mulford Company, Philadelphia.

Calcium Cacodylate occurs as a white, granular powder, almost odorless or having a slight odor of hydrogen arsenide. It is very soluble in water.

Calcium cacodylate loses about 8.5 per cent. of its weight when dried at 100 C.

The aqueous solution of calcium cacodylate is alkaline to litmus, but acid to phenolphthalein.

With silver nitrate test solution an aqueous solution of the salt (1:20) yields a white precipitate, soluble in nitric acid or ammonia water.

A mixture of 1 Cc. of an aqueous solution (1:100) of the salt with 10 Cc. of hypophosphorous acid develops the disgusting odor of cacodyl (caution on account of the extreme poisonous nature of the gas).

CHLORAZENE (See N. N. R., 1917, p. 140).

The following dosage form has been accepted:

Chlorozene Surgicol Creom.—It contains chlorazene 1 Gm. in 100 Gm. of a base composed approximately of sodium stearate 15 per cent. and water 85 per cent.

BORCHERDT'S MALT EXTRACT WITH COD LIVER OIL.—A liquid stated to be composed of cod liver oil 20 per cent. and Borcherdt's Malt Extract Plain, 80 per cent.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

BORCHERDT'S MALT EXTRACT WITH CREOSOTE.—Each 100 Cc. is stated to contain beechwood creosote 0.83 Cc. (4 minims per fluidounce) in Borcherdt's Malt Extract Plain.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

BORCHERDT'S MALT EXTRACT WITH CASCARA SAGRADA.—Each 100 Cc. is stated to represent cascara sagrada 12.5 Gm. (60 grains per fluidounce) in Borcherdt's Malt Extract Plain.

(Accepted for inclusion with the appendix to New and Nonofficial Remedies.)

Prepared by the Borcherdt Malt Extract Co., Chicago.

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SATURDAY, JUNE 23, 1917

THE EFFECT OF WAR ON DIETARY PREJUDICES

A recent number of The Journal[1] contained two items, presented primarily in the form of news, which are of more than passing interest because they show how unjustifiable prejudices may be overcome by the exigencies of the times. It is announced that the legal restriction of the sale of skimmed milk in New York has been withdrawn. The Wicks bill, which has already taken effect, provides that the prohibition contained in the law regulating the sale of adulterated milk shall not apply to skimmed milk, which is clean, pure, healthy, wholesome and unadulterated, except by skimming, if it is sold for and as skimmed milk. This bill also stipulates that prohibitions against the sale of cheese made from adulterated milk or cream shall not apply to pure skim-cheese made from milk which is otherwise clean and pure except by skimming. It was high time that the unjust and inadvisable exclusion of cream-free milk and food products made therefrom should cease to bear the authority of law. There may have been a time when a drastic measure was called for to prevent the fraudulent sale of skimmed milk as an adulteration or substitution for whole milk. But the restriction had long served to exclude from human use a wholesome and inexpensive food of exceptional nutritive merit.

Aside from the fat contained in the separated cream, skimmed milk — more properly designated separator milk in view of the common creamery practices of today — contains all the foodstuffs of the milk and has no mean food value. But its usefulness in the dietary must not be measured merely in terms of calories. The salts of the milk, including the highly desirable calcium, are present in the fat-free product, along with the water-soluble vitamin that has been demonstrated to promote nutritive well-being in ways formerly unsuspected. Separator milk, in contrast with the skimmed milk of a generation ago, is quite as fresh and can be quite as clean as, or presumably cleaner than, the whole milk of which it represents a fraction. For a variety of culinary purposes it answers as well as the fat-containing product. It is as fortunate as it is sensible that so valuable a food product need no longer be relegated solely to the use of swine and poultry, or converted into putrescible wastes.

The second item refers to the New York ordinance permitting the use of horse flesh as food. As Commissioner Emerson expressed it, this has made it possible for many of the poor of New York to keep the soup-pot boiling during the past winter who otherwise could not have done so. Why the musculature of the horse should be less wholesome than that of the cow, hog, sheep or hen has never been clear to an unbiased questioner. Like the unfounded proscription of young veal,[2] the prejudice against horse flesh must at length yield to intelligent criticism. No one would argue for any superiority of the food products referred to; but in times of scarcity, at least, it is folly to base the popularity or unpopularity of any item that may increase the dietary solely on inherited prejudices which, in ultimate analysis, are devoid of any known hygienic or physiologic justification.

1. Sale of Skimmed Milk Legalized, The Journal A. M. A., May 26, 1917, p. 1565; Food Supply in War Time, p. 1576.

SPECULATIONS ON THE GENESIS OF SOME DISEASES OF THE BILIARY SYSTEM

Consideration will bring to mind various instances in which antagonistic mechanisms are concerned in the body. If flexor and extensor muscles attached to the same movable structure were stimulated to contract simultaneously, the muscular efforts would usually result in a most unfortunate inability to execute the movement that was actually intended. It is clear, therefore, that when two sets of muscles can act on a movable organ such as an eye or part of a limb in such a way that they would antagonize one another, some device must be available to prevent this conflict. This is provided by the phenomena of inhibition whereby during the performance of a particular reflex movement the contractions of the muscles opposing this are inhibited. Obviously the inhibition of the one group must proceed simultaneously with the excitation of the other group, to insure a well controlled and steady motion.

To the English physiologist Sherrington above all is due our knowledge of what is frequently called the reciprocal relation of antagonistic muscles. Something of the sort here referred to characterizes the behavior of the alimentary tract in more or less well marked manner from the lower part of the esophagus to the rectum. In front of a part that is excited, as for example by the distention produced by a mass of food in the lumen of the gastro-intestinal tube, a relaxation occurs. Behind the stimulating mass, on the contrary,

2. Is "Bob Veal" Toxic, editorial, The Journal A. M. A., March 15, 1913, p. 834; "Bob Veal," June 7, 1913, p. 1795; Immature Veal as Food, March 11, 1916, p. 820; Immature Veal and Hard Palates, Nov. 11, 1916, p. 1449.

there is increased tonic contraction with greater vigor of rhythmic movement. This reciprocal relationship, working only in one direction which obviously facilitates the onward progress of the contents of the intestine, has been called the "law of the intestines." The bolus causes a reflex contraction of the muscle above it, and a reflex inhibition or dilatation below.

Meltzer, who studied these phenomena long ago, designated these relations by the more general term of the law of contrary innervation. He has long directed attention to the general principle that "impulses inhibiting the action of antagonists must be an integral part of any kind of movement in the animal body." Meltzer has also been active in indicating how a disturbance in the contrary innervation may become of pronounced pathogenic significance. Thus he has defined intestinal and gastric colic as being due to a disturbance of the law of contrary innervation — namely, that the caudal end of the bowel remains contracted and stationary while the cephalic end contracts and progresses forward. The volume between the two contracted limits becomes gradually smaller while the contents of this volume remain practically unchanged; hence the increasing tension which leads to the unbearable colicky pain.

More recently Meltzer[1] has applied somewhat analogous considerations to problems in the diseases of the bile ducts and the gallbladder. The latter is provided with muscular fibers, the contraction of which will free this storage organ of its fluid contents. The papilla of Vater at the termination of the common bile duct is also provided with circular muscular fibers which can contract to close the orifice. It is clear, says Meltzer, that the muscle fibers of the gallbladder and those of the papilla are antagonists. Applying our knowledge of the mechanism of the urinary bladder, and more generally the law of contrary innervation, the physiologic mechanism of bile storage and bile discharge is quite simple. During the storage the muscle fibers in the papilla are contracted and those of the gallbladder are inhibited; during the discharge, the gallbladder contracts and Oddi's muscle is relaxed; the bile has then no other way out but into the duodenum.

What brings about, at suitable intervals, this well regulated alternating discharge and storage of the bile? Meltzer believes that the discharge of chyme into the duodenum provokes the performance of the reciprocal reflexes. In his own words, it seems quite safely established that the physiologic discontinuous character of the flow of bile into the duodenum is regulated by a reflex mechanism, dominated by the law of contrary innervation; that the integrity of the gallbladder is an important part in this reflex mechanism; that the discharge of bile can be greatly curtailed by the absence or a restriction of the discharge of chyme from the stomach into the duodenum, and that the discharge of bile through the papilla of Vater into the duodenum is greatly enhanced by the presence in the lumen of the latter of peptone or albumoses.

On this basis, pathologic stasis, as contrasted with physiologic storage of the bile, might arise from a variety of causes including the absence of sufficient chemical products of digestion to promote the normal functioning of the papillary reflex. The assertion is even ventured that "the abstaining from taking proteins or partaking them infrequently or in minimum quantities may prove to be another factor in the pathogenesis of biliary diseases."

As a practical outcome it is suggested as advisable to partake of comparatively frequent meals, although they need not consist of large quantities, and that the meal shall contain foods which readily send peptone and albumoses into the duodenum. The principle ought to be especially observed in infectious diseases during which the bile contains the causative organisms. In typhoid, for instance, food should be administered every two hours, and the food should contain materials which may readily be converted into peptone and albumoses. The frequent elimination of the bacteria-laden bile may be the means, Meltzer further states, of preventing the development of cholangeitis and cholelithiasis. These suggestions lead us to interesting speculations; but our knowledge of the physiology of the biliary mechanism will need far more elucidation and extension before the "meatless days" of struggling Europe or other forms of a low protein regimen can be made clearly responsible for the incidence of biliary disease.

1. Meltzer, S. J.: The Disturbance of the Law of Contrary Innervation as a Pathogenetic Factor in the Diseases of the Bile Ducts and the Gallbladder, Am. Jour. Med. Sc., 1917, **153**, 469.

THE FREQUENCY OF TUBERCULOUS INFECTION OF THE LUNGS

The old tradition that "every one has a little tuberculosis" was converted into a demonstrated fact not many years ago by careful anatomic studies. In 1900, Naegeli in Zurich reported that he had found recognizable tuberculous lesions in 97 per cent. of the bodies examined by him. Although this statement did not at once receive universal acceptance, and much lower figures were reported by others, yet it is now generally recognized as being quite correct, other pathologists, especially Burkhardt, having obtained similar results. Until recently we have lacked comparable investigations on the population of this country, where, in view of somewhat different living conditions, the incidence and behavior of tuberculosis might perhaps be different. An interesting study of a relatively small number of bodies by Opie[1] in St. Louis, however, has established the universality of tuberculous infection in that community. Opie's material, while smaller in amount than that of the German observers, is of

1. Opie, E. L.: The Focal Pulmonary Tuberculosis of Children and Adults, Jour. Exper. Med., 1917, **25**, 855.

particular value, because, by making roentgenograms of the lungs under examination, lesions were located much better than they can be by unaided dissection.

As pointed out by Ghon in his important monograph on pulmonary tuberculosis in children, the lesions in the lungs during the first few years of life may occur in any part of the lung, and usually are accompanied by involvement of the lymph glands that receive the drainage from this area, this lymphatic tuberculosis usually being extensive and often dominating the tuberculous process. In ninety-three children under 18 years of age, Opie found that eleven children had died of tuberculosis, and that of the remaining eighty-two children dead from other causes, eleven showed tuberculous lesions. The nonfatal tuberculous lesions were found only in children over 2 years of age, and increased in proportion as age advanced; that is, of the children from 2 to 5 years of age, 27 per cent. showed nonfatal tuberculosis, those from 5 to 10 years old showed 33 per cent. incidence, and those from 10 to 18 years old, 62.5 per cent. Of fifty adults, however, every one showed recognizable tuberculous lesions. In the adults, however, two distinct types of tuberculous lesions were recognized. One type, consisting of encapsulated caseous or calcified tubercles, with a correspondingly late type of lesions in the nearest lymph glands, seems to represent unquestionably healed or latent childhood infections. The other type is the familiar apical lesion, tending to spread diffusely through the apex and unaccompanied by caseation or calcification of the regional lymphatic nodes; this lesion may heal completely, progress to a fatal termination, or remain in a latent condition. The apical type of pulmonary lesion is not found in young children, but increases in frequency with age. In many adult bodies, both types of lesions are found.

From these observations the prevailing opinion that our resistance to tuberculous infection during adult life is due to a more or less complete immunization through infections received and overcome in youth receives strong support. It is seen that tuberculosis infection, active, latent or healed, is practically always present in adults, and that, in adults, reinfections take on a different character from the infections of childhood. In the young person infected for the first time with tuberculosis, the lesion assumes the features seen in susceptible animals inoculated with tubercle bacilli, for the infection spreads to the regional lymph glands and usually produces considerable caseation before it is overcome by the development of a specific increase in resistance. In the adult, presumably because of the persistence of this acquired partial immunity, the apical lesion usually pursues a chronic course and does not spread to the lymph glands; this is a characteristic of second infections in animals already tuberculous which was observed first by Koch. The healed tuberculous lesions found in the lungs and peribronchial glands of adults are truly vaccination scars.

THE PATENT LAWS AND PATENT OFFICE PRACTICE

The inequity of our patent laws, or possibly it would be more correct to say, of the interpretation of our patent laws, has been commented on many times in The Journal. The Journal also has had occasion to call attention to patents that have been issued for obviously unscientific and quackish devices and preparations. The cases of the preposterous gas-pipe fake "Oxydonor" and the creatinin mixture for the alleged conferring of immunity against diphtheria, pneumonia, scarlet fever, syphilis, tuberculosis, etc., are cases in point.

In a patent issued the early part of this year for the "discovery" of a method of flavoring Epsom salt, the patent office has, in fatuity, piled Pelion on Ossa. The "inventor" declares that his invention relates to a pharmaceutical preparation and a special method of treatment of the medicinal agents whereby said agent will be rendered much more efficient in character. He further avows that the "prime object" of his "invention" is to "disguise the normal taste and impart an agreeable odor or smell to salts commonly employed as a cathartic." Parenthetically it may be said that probably not a day passes that some physician in the United States does not do substantially the same thing when writing a prescription. The "inventor" further claims that the object of his "invention" is to utilize the salts as a vehicle to carry an antiseptic and anesthetic agent whereby the salts when administered as a cathartic "will also act beneficially on the entire digestive tract" and "whereby cramped and spasmodic conditions are at once relieved with a resulting cure of flatulency, indigestion, sick and sour stomach, colic and the destruction of worms, etc."

Such claims are so absurd that the only excuse for commenting on them is the effect they have on the public mind. The layman reading the specifications of this patent would naturally conclude that an invention of great importance had been made—of such importance as to warrant the government in rewarding its inventor by granting him a seventeen year monopoly on the sale of his invention.

The law requires that, to be patentable, inventions shall be new and useful and shall show a higher degree of skill in their inception than is naturally to be expected from those who are skilled in the arts to which the inventions belong. It has been decided again and again that physicians' prescriptions are not patentable because it is assumed that an educated physician will utilize his knowledge of pharmacy in devising proper compounds of medicines to meet the indications of disease. When a physician prescribes a dose of Epsom salt to be taken in one of the official aromatic waters, he does not produce or create a new invention by so doing. Of course, in one sense every prescription is an invention — an invention to meet the conditions presented by the patient — but such inven-

tions are not patentable, because they represent the ordinary skill of a physician in carrying on his vocation.

If the patent office goes on granting patents for such "inventions" as flavored Epsom salt, and it should be found financially profitable to secure such patents and place the products on the market, it will only be a matter of time before the materia medica will be so restricted that a physician will be unable to write a prescription without infringing somebody's patent.

The splendid conception of the framers of our constitution in providing a plan for promoting progress in science and useful arts by granting to inventors for a limited time the exclusive use of their inventions, in exchange for the publication of full knowledge thereof, is being debased. No branch of our government is of greater importance to the progress of the country than the patent office, provided that office is intelligently administered. When the patent office is used, however, for an extension of the nostrum business, founded on the abuse of patent and trade-mark laws, it becomes a menace to the public health. The objects of the patent law are being defeated by the practices of the patent office.

THE CALCIUM CONTENT OF THE BLOOD

The increasingly numerous studies on the composition of the blood under varying conditions within both physiologic and pathologic ranges are serving to emphasize a rather remarkable constancy in the chemical make-up of the circulating fluid. The older idea that elements in the blood were increased or diminished according to special circumstances has been largely discredited by the facts of experimental investigations. There is no pronounced addition to the content of sugar in the blood when carbohydrate is ingested in abundance; nor is there, on the other hand, a disappearance of the sugar when the diet fails to include a supply of its sources. On the contrary, an effective regulatory mechanism maintains a degree of fixity in the composition of the blood that insures a medium of nearly uniform character, aside from such slight alteration as local increments or withdrawals of substances may occasion before the device of adjustment has an opportunity to perform.

The quoted instance of the blood sugar is in no sense an isolated illustration. The maintenance of the neutrality of the blood, with its concomitant excretion of acid, is an example of this regulatory efficiency. Indeed, as L. J. Henderson[1] has remarked, of all forms of organic regulation it probably is that which, quantitatively and in all its phases, we now most clearly understand. There is also a striking regulation of the amount of water in the blood. When large quantities of water are drunk, an increasing secretion of urine follows. The blood is not noticeably diluted. The increased secretion of urine is the expression of "the effort of the body to rid itself of unnecessary water."[2] The regulation of the proportion of water in the blood can be placed side by side as regards delicacy with the regulation of its reaction and components; its content of sugar, urea, salts and other substances.

The element of regulation is an outstanding feature of biologic phenomena. As Haldane has expressed it, the internal environment which is maintained so constant is but the expression of a balance between activities which disturb and activities which restore it. A striking illustration of the degree to which this may be secured is afforded by recent investigations on the calcium of the blood. Thus Meigs and Blatherwick[3] have found that the calcium content of cow's plasma is surprisingly constant. It is somewhat over 0.11 per cent. in very young heifer calves, and falls off gradually with increasing age until it reaches about 0.010 per cent. toward the end of the first year, from which point it remains nearly constant. Their results indicate that it is not appreciably altered by pregnancy, lactation, or by considerable changes in diet. Their highest figure for plasma calcium has been 0.0114 per cent., and their lowest, 0.0086 per cent.

To one not appreciative of the regulatory aspects of metabolism, these facts with respect to calcium might almost seem improbable because of the constant withdrawals of lime that must be made by pregnant animals that are building tissues rich in this element and by lactating individuals secreting a milk containing a liberal content of calcium. But the remarkable constancy of blood calcium, found by Meigs and Blatherwick at times when the mobilization of calcium must be very great compared to the amount present in the bones, has been substantiated in other ways by the studies of Halverson, Mohler and Bergeim[4] at the Jefferson Medical College in Philadelphia on the calcium in the blood of human subjects in tuberculosis, as recently described in THE JOURNAL. No marked deviations from the normal were observed in the calcium content of the serum of patients in the various stages of the pulmonary disease. Even when a high milk diet, notably rich in lime, was furnished over long periods, the blood calcium values were not increased above normal. The calcium content of the blood serum of normal human adults appears to range between 9 and 11 mg. per hundred c.c., usually, however, below 10.5 mg. The maximum variations observed in tuberculosis were from 8.4 to 11 mg. of calcium per hundred c.c.

1. Henderson, L. J.: The Excretion of Acid in Health and Disease, The Harvey Lectures, 1914-1915, Philadelphia, J. B. Lippincott Company.

2. Haldane, J. S.: Organism and Environment, 1917, p. 79.

3. Meigs, E. B., and Blatherwick, N. R.: Calcium and Phosphorus in the Blood of Lactating Cows, Proc. Am. Soc. Biol. Chem., Jour. Biol. Chem., 1917, **29**, xi.

4. Halverson, J. O.; Mohler, H. K., and Bergeim, Olaf: Calcium in the Blood in Tuberculosis, THE JOURNAL A. M. A., May 5, 1917, p. 1309.

From the Harvard laboratories likewise has come new evidence for this constancy of the calcium content of human blood. In the great majority of subjects, according to Lyman,[5] the figures vary little. Even in cases of advanced uremia, in which the total nitrogen was extremely high, the calcium was not increased. On the other hand, the hemophiliac and the case of purpura hemorrhagica were not lower than what we may regard as normal. The average for males was 6.1 mg. of calcium per hundred c.c. of blood; while that for females was 7.1, a difference sufficiently great to stimulate further investigation.

It is pertinent to inquire how this great nicety of regulation can be attained, particularly in cases in which there must at times be a deficiency in the intake of calcium. A partial answer has been presented by Halverson, Mohler and Bergeim.[4] The total blood of a 60 kg. man contains about 0.3 gm. of calcium. The bones contain approximately 4,000 times as much. These investigators add this significant comment: With this great reserve supply of calcium, a portion of which is available, as is indicated by the great constancy of blood calcium under varying diets and conditions, a physiologic basis for the administration of calcium salts in tuberculosis has yet to be demonstrated.

Current Comment

POLITICS ENDANGERS A GREAT UNIVERSITY

It is reported that Governor Ferguson of Texas has vetoed an appropriation of $1,600,000 voted by the legislature for the University of Texas for the next biennium including $197,500 for the medical department. This seriously endangers the life of the institution. According to reports, the governor sought the dismissal of the president and members of the faculty of the university. On the refusal of the board of regents to dismiss these members, the attack was turned on that board. Resignations of two members of the board were obtained, by methods not explained, and a third member was dismissed on a technicality. The places of these three regents were filled by the governor's appointees, so that the majority of the regents are evidently subservient to his wishes. A temporary injunction was obtained by the university authorities restraining the regents from dismissing the president or any members of the faculty. Also suit was started on behalf of the state of Texas to restrain one of the newly appointed regents from acting or attempting to act as a member of the board in place of the dismissed member. Being thus hindered in his efforts to have the president and faculty members discharged, the governor vetoed the university's appropriation. An opinion from the attorney-general, however, gives hope that the veto will be ineffective, since the governor vetoed only certain items, but failed to include that portion of the act which contains the totals appropriated. These procedures by the governor have thoroughly aroused the people of Texas, and mass meetings are being held at which the governor's actions are vigorously criticized. The efforts by the governor of a great state to dictate the policies of a state university are to be deplored. Political interference should not be permitted to lower the high ideals or to hamper the splendid work of the University of Texas and its medical department. State universities should be beyond the control of politicians, especially those who are willing to sacrifice the good of the institution to satisfy their own selfish interests.

RANK OF ARMY MEDICAL OFFICERS

The proposed amendment to Senate Bill 1786,[1] by Senator Owen, is of decided importance at the present time, and of personal interest to every medical man. The amendment simply provides that there shall be the same rank in the Army as in the Navy. Why medical officers in the Army should not have as high rank as similar officers in the Navy never has been explained. There is no objection to the higher grades in the Navy, but there is no reason why like grades should not be given to medical officers in the Army. In the line there is one general officer to every 170 commissioned officers; in the Medical Corps there is only one general officer, no matter how many commissioned officers there may be. The regular army when fully manned will require over 2,000 medical officers, and yet unless the present law is modified there will be only one general — and he the Surgeon-General. This is unjust — also unwise. It is unwise because preventive medicine is of such tremendous importance so far as the Army is concerned, whether in time of war or in time of peace, that every encouragement should be given to the best trained medical men to offer their services. At the present time when a young man is considering whether or not he will enter the Medical Corps of the Army as a life work he is confronted with the fact that no matter what diligence he may exercise, what skill he may possess, how faithful he may be, or how much good he may do, the highest rank he can receive, unless he should happen to be made Surgeon-General, is that of Colonel, paying but $5,000 a year. And in the ordinary course of events he would be an old man before he reached this rank.[2] That the Medical Corps is now having difficulty in filling its ranks is not to be wondered at. Heretofore it has maintained a high standard. Admission has been refused to inferior men, and those composing the Medical Corps are, therefore, of the highest personal character and professional ability. But if this high standard is to be maintained there must be better inducements for high class men than are now offered. It must not be forgotten that modern medicine has required a higher standard of medical education, and that civil practice offers greater inducements than has been the case in the past. Every other nation is

5. Lyman, H.: The Calcium Content of Human Blood, Jour. Biol. Chem., 1917, **30**, 1.

1. Page 1917, this issue.

2. According to the present law he must serve five years as lieutenant, and his promotion after that is correspondingly slow.

recognizing the fact that army medical officers should be given rank commensurate with their duties and the responsibilities they assume in carrying out the principles of preventive medicine. As we stated at the beginning, the amendment offered by Senator Owen is most important and should be adopted. It is so important that it is worth while for every physician who has any influence with his congressman or with his senator to use that influence in behalf of this amendment.

THE RESPONSIBILITY FOR THE HEALTH OF OUR TROOPS

If epidemics develop among our troops in this war similar to those which occurred during the Spanish-American war and large fatalities result, the Medical Department of the Army will be criticized; at the same time, it may be as innocent as it was in 1898. Time and again medical officers at Chickamauga and other encampments made recommendations and suggested improvements in sanitary conditions, which, if carried out, would have prevented the terrible fatalities which occurred. But the recommendations and suggestions were ignored by line officers. Now it is reported that plans for some of the great cantonments for the half-million men who soon are to be taken from our citizenship were finished without consultation with the Surgeon-General's Office. If this is true, let those responsible bear in mind that they, and not the Medical Corps, will be accountable for what may develop through neglecting to put in effect the fundamental principles of modern medicine and sanitary science in military camp construction. These cantonments can be made as sanitary as was the Isthmus of Panama during the construction of the great canal. But the same principles must be carried out in the one instance as in the other. During the construction of the canal Colonel — now Surgeon-General — Gorgas had absolute control over sanitary arrangements and conditions. So it should be in the building of these cantonments. We rejoice to note, therefore, that among the amendments to the act now before the Senate "for making further and more effectual provision for the national defense" there is one offered by Senator Owen, which reads:

That the Surgeon-General of the United States Army shall be directly responsible to the Secretary of War for the sanitary condition of the troops, camps and hospitals of the United States, and it shall be unlawful to disregard his sanitary regulations and recommendations, except on the ground of battle or other extraordinary emergency.

Under such a provision the Medical Corps would be responsible to the Secretary of War — not to some line officer. In the summer of 1898 when 20,000 of the men who enlisted to serve their country were sick, dying or dead of typhoid fever, the cry went up that the Medical Department was a failure. Let it be repeated again and again: If the Medical Department is to bear the blame and the criticisms for illness and deaths which may occur through failure to apply modern sanitary science, then give it authority now to use its special knowledge while there is yet time to apply that knowledge.

Medical Mobilization and the War

Raising the Rank of Army Medical Corps Officers

The following was introdueed, June 12, and referred to the Committee on Military Affairs:

AMENDMENT intended to be proposed by Mr. OWEN, to the bill (S. 1786) to amend certain sections of the Act entitled "An Act for making further and more effectual provision for the national defense, and for other purposes," approved June third, nineteen hundred and sixteen, and for other purposes, viz: On page 7, after line 20, insert the following:

Provided, That so much of the Act of Congress approved August twenty-ninth, nineteen hundred and sixteen, as provides for determining the number of officers authorized for the Medical Corps of the Navy and for the distribution of such officers in the various grades, shall hereafter apply to the Medical Corps of the Army, except that the Army titles shall be substituted for Navy titles of corresponding grades in accordance with the relative rank fixed by law between officers of the Navy and officers of the Army, to wit: One-half of one per centum to be major generals of the senior and junior grades, as fixed by the President; four per centum colonels; eight per centum lieutenant colonels; and eighty-seven and one-half per centum distributed among the lower grades, as in the Medical Corps of the Army as established by law.

This of course applies to the regular Medical Corps. When the regular army, provided for in the act of June 3, 1916, is fully manned with its 293,000 men, the Army Medical Corps will consist of about 2,000 medical officers. If the above amendment is adopted it will provide for ten brigadier-generals, eighty colonels and sixteen lieutenants. At the present time there are twenty-one colonels and thirty-six lieutenant-colonels, but no brigadier-generals in active service. (The surgeon-general is usually a brigadier-general. General Gorgas, however, was made major-general by special act of Congress in recognition of his services in connection with the Panama Canal.) The following table gives the comparative ranks, and the pay, of the Medical Corps of the army and navy:

Navy Rank	Navy Pay	Army Rank	Army Pay
Lieut. Junior Grade	$2,000	Lieutenant	$2,000
Lieutenant	2,400	Captain	2,400
Lieutenant commander	3,000	Major	3,000
Medical inspector, rank of Commander	4,500	Lieut. colonel	4,500
Medical director, rank of Captain	5,000	Colonel	5,000
Medical director, rank of rear admiral, lower half	6,000	Brigadier general	6,000
Medical director, rank of rear admiral, upper half	8,000	Major general	
Vice-admiral		Lieutenant-general	
Admiral		General	

Medical Officers with General Pershing

On the staff of General Pershing the following men represent the medical department: Col. Alfred E. Bradley, chief surgeon, is a New Yorker and has been an officer of the Medical Corps since 1888; Col. M. W. Ireland, senior assistant surgeon, is from Indiana and entered the service in 1891; Major George Peed, second assistant, is from Virginia and was commissioned in 1899; Capt. Henry Beeuwkes is junior assistant surgeon. He is from New York and has been in the army since 1909.

Fatalities Among Physicians in the British Army

The *Official Bulletin*—the government's daily newspaper—for June 16 publishes an interview with Col. T. H. Goodwin of the Royal Medical Corps of Great Britain, flatly contradicting the story that "60,000 English doctors have lost their lives in the service." The total loss, Colonel Goodwin is quoted as saying, is not 2 per cent. of that number, and that there are only 12,000 medical men in the British army.

Special Neuropsychiatric Units

The National Committee for Mental Hygiene has created a subcommittee on furnishing hospital units for nervous and mental disorders to the United States government, the project having been approved by Surgeon-General Gorgas. This subcommittee, of which Dr. Pearce Bailey, New York, is chairman, is authorized to secure the services of alienists and neurologists to be commissioned in the Medical Reserve Corps and to serve in the neuropsychiatric units which are to

be attached to the base and other hospitals of the military services of the United States. Further information will be given, and application forms sent to physicians qualified in this branch of medicine, on application by letter or in person to the National Committee for Mental Hygiene, 50 Union Square, New York City.

Enlisting with Provisos

A physician asks: 1. Can one enlist for service in the United States only? 2. Can one enlist for medical work only, not surgical? 3. Can a physician over 45 years, up to 55, enlist and be exempt from service at the field hospitals and firing line at his discretion? 4. What is the pay? 5. Is the pay the same for army and Red Cross work?

Answer.—1. The physician who enlists for service with the Medical Department of the Army is expected to go where he is sent, whenever he is ordered. At present only the younger men are being sent abroad. 2. The physician in the Medical Corps does whatever work he is ordered to do. The superior officers, however, are supposed to acquaint themselves with the officer's capabilities so that he will not be ordered to undertake work which he cannot do. 3. See answer 1. 4. The remuneration of medical officers is: first lieutenant, $2,000 per annum; captain, $2,400; major, $3,000 and allowances. 5. In time of war, the base hospital units formerly under the direction of the Red Cross pass into the control of the Medical Department of the Army, and the commissioned officers of these units receive pay according to the rank which they hold in the reserve corps.

Mobilizing the Medical Reserve Corps

During the week ending June 16, there were recommended to the adjutant-general of the army for commissions in the Medical Reserve Corps, 1,032 medical officers, including ten majors, 117 captains and 905 lieutenants. From April 21 to June 16, 4,026 physicians have been recommended for commissions.

Requirements for the Nurse Corps

Miss Edith M. Barrett, Thompsonville, Conn., requests information in regard to the requirements for the Nurse Corps of the Army.

Answer.—Candidates for the Nurse Corps must be graduates of hospital training schools for nurses and have passed a satisfactory professional and physical examination. An applicant for a first appointment must be between 25 and 35 years of age and unmarried. Application from states and territories where registration is required by law will be considered in the cases only of training schools which are acceptable to the state or territorial boards of registration. The applicant must undergo a physical examination which will be made, when practicable, by a medical officer of the army. The applicant must be not less than 60 inches nor more than 70 inches in height, and must weigh not less than 100 pounds nor more than 195 pounds. Marked disproportion between height and weight is a cause of rejection. No applicant is appointed unless she agrees to serve for three years. All nurses in the Nurse Corps are appointed or removed by the surgeon-general of the army with the approval of the secretary of war.

Qualifications Under the Draft

Dr. Herman Cohen, Bronx, N. Y., asks whether a physician can be drafted for services who (1) is 37 years old, (2) has a left inguinal hernia, an abdominal scar from a previous operation, and (3) flat feet?

Answer.—1. The present draft law includes only men between the ages of 21 and 31 years. 2. An inguinal hernia may be a cause for rejection. Such a defect may ordinarily readily be corrected. 3. Flat foot is a cause for rejection when accompanied by symptoms of weak feet. Simple sinking of the arch of the foot is extremely common and unless attended with symptoms of weakness, is of no consequence. The strength of the foot is tested by requiring the applicant to walk on his toes and to hop on the toes of each foot. He should be able to rise on the tip toes strongly, to hop well, and to alight on the toes after springing from the ground. Pronounced cases of flat foot, attended with marked eversion of the foot and marked bulging of the inner border due to inward rotation of the astragalus, are disqualifying regardless of the presence or absence of subjective symptoms.

Report of the National Committee on Red Cross Medical Service

The following is the report of Col. Jefferson R. Kean, M. C., U. S. Army, director-general of military relief, at the meeting in the Academy of Medicine, New York, June 7:

ARMY BASE HOSPITALS

The organization of army base hospitals has gone steadily forward, there being at this date thirty-eight organized, with three others to which a provisional authorization has been given provided the prescribed conditions can be met. In all cases the first and basic requirement—that a base hospital in order to be authorized shall have behind it a parent institution, either a great hospital or a strong medical school—has been rigidly maintained. The advantages of this requirement are each day more evident, since the staff of a hospital so organized is composed of men who are accustomed to work together and so selected with the full knowledge that the good name of the institution which they are to represent depends on the selection. The parent institution can also be depended on to replace vacancies. The effort to combine representatives of more than one hospital or school in a base hospital has been attended with failure. Great pressure has been brought to bear to authorize distinguished individuals to organize base hospitals or hospital units about themselves as the connecting bond; but such offers have been steadily declined because the cohesion and value of the organization depend in this case on a single individual, who is usually somewhat advanced in years and whose loss from ill health or other causes would be apt to cause a disruption of the organization.

The number of army base hospitals to be organized was, in March, fixed at thirty-six; but when it was determined to send six of these large units to France to assist our British Allies, it seemed advisable to replace those by additional organizations. The surgeon-general has not been anxious to increase the number of base hospitals beyond the immediate and evident prospective needs of the army, because in the organization of each twenty-four medical men, fifty nurses, and a numerous subordinate personnel are tied up whose services might otherwise be used individually.

Since the departure, in the first half of May, for the theater of war, of the six base hospitals above mentioned, four others have been placed under orders to be prepared for foreign service. In the appended list of base hospitals those that have already sailed and those under orders are indicated.

NAVY BASE HOSPITALS

Navy base hospitals to the number of five, which is as many as the Navy Department desired, have been organized at Brooklyn, Providence, Philadelphia, San Francisco and Los Angeles.

The cost of the equipment of base hospitals has greatly increased during the year since the organization of the first of them began. At that time it was fixed at $25,000 for each army base hospital, the money being furnished by the chapter in the city where the unit was organized or by private subscription. At the present time the cost of the equipment is between $40,000 and $50,000, and many articles of equipment, such as blankets and instruments, can only be secured with a promise of delivery at a more or less indefinite future date. Fortunately, however, the purchase of the equipment of many of them was sufficiently advanced at the time when the occurrence of war became probable to make it possible to meet the demands which have occurred and will probably occur in the immediate future until such time as the government shall have accumulated an adequate supply of medical equipment.

HOSPITAL UNITS

These organizations consist of twelve medical men (divided equally between surgeons and internists), twenty nurses, and such number of orderlies and other subordinate personnel as may be authorized. They are intended to supply the skilled professional personnel for camp hospitals and to reinforce the staff of other existing hospitals when necessary. Therefore no effort is made to supply them with hospital equipment, but only the instruments which may be necessary for the practice of the various specialties of the staff. The organization of these units was not undertaken until within the past three months. Eighteen of them have been organized.

AMBULANCE COMPANIES

Ambulance companies are intended for the transportation of the sick and wounded and their care en route. The organization approved by the War Department for the Red Cross has a captain, four lieutenants and eighty-six of other

ranks. Fifty ambulance companies have been organized. The number and location of these are appended. The companies are being mustered into the national service and furnished their military equipment and ambulances as rapidly as possible. It is anticipated that ten of them will be ordered to foreign service in the near future.

OTHER PROFESSIONAL PERSONNEL

During May the Red Cross was asked by the surgeon-general of the army to select for service abroad, with the British government, 112 physicians between the age of 25 and 35, and twenty-one skilled orthopedic surgeons. These, with the assistance of the members of the National Committee on Red Cross Medical Service and the state committees, were carefully selected and have already sailed.

RED CROSS NURSES

Nurses are enrolled in the Red Cross Nursing Service only after very careful investigation of their training and professional records. The enrolment is made through local committees in all the principal cities of the country. These nurses are given also a physical examination and before being ordered into active service are required to be immunized against smallpox and typhoid fever. Their standard is such as to satisfy the requirements for the army and navy nurse corps, for which they constitute the officially recognized reserve.

In addition to the nurses attached to base hospitals and hospital units, groups of ten, under a chief nurse, have been organized throughout the country, called emergency detachments. The members of these detachments are ready to respond to call within twenty-four hours and the detachments can therefore be used to meet pressing emergencies. Larger detachments called naval detachments have been organized in areas surrounding the naval base hospitals and the permanent naval hospitals at home ports, so as to permit a prompt expansion of the services of these hospitals in case of necessity.

The number of nurses called into active service since the beginning of the war has been:

Army: With base hospitals, 389; otherwise, 26.....415
Navy: In hospitals..... 65

480

All the nurses sent to Europe have been completely equipped with uniform and personal equipment at the expense of the American Red Cross.

STEAM YACHT SURF

The use of the steam yacht *Surf* has been given by its owner, Dr. John A. Harris, who meets all expenses for the service of the Red Cross, and has been assigned to the duty of collecting the sick from the patrol fleet within a certain area of the northeastern coast. The *Surf* was placed in commission, May 27, by Medical Inspector T. W. Richards, U. S. Navy, assistant director-general of military relief. P. A. Surg. J. B. Laughlin of the Public Health Service has been loaned by that service to take charge of the medical service.

BUREAU OF INFORMATION OF CASUALTIES

A Red Cross bureau of information of casualties has been formed, with W. R. Castle, Jr., as director. The purpose of the new bureau is to get information of casualties to the families of men wounded, missing, or taken prisoners, and to act as a means of communication, through the International Red Cross, between American prisoners in Germany and their families, and between German prisoners in America and their families. It is also to furnish lists of prisoners in America to the International Red Cross in Geneva, and to receive from it lists of Americans in German prison camps.

The central office of the bureau will be in Washington, D. C. Here will be kept card catalogues of prisoners, and of all Americans killed, wounded or missing.

The head office for Europe will be established in Paris. To this office will be sent all information collected in the field, and by it transmitted promptly to the central office in Washington. The Paris office will also receive reports from the International Red Cross in Geneva for transmission to Washington. Representatives of the bureau will be stationed in all divisional headquarters for the purpose of gathering and codifying information. These representatives will direct the work of their assistants in the field and at all the hospitals, where facts as to killed and wounded will be established and all possible information gathered which may throw light on the fate of missing men. The information so gathered will be codified and forwarded daily to the principal European office in Paris, and by this office will be sent either by letter or cable to the central office in Washington.

RED CROSS SUPPLY SERVICE

The Red Cross Supply Service has been organized as a bureau of the Department of Military Relief of the American Red Cross. Briefly the purposes of this bureau are:

1. To encourage the production and contribution of useful articles.
2. To standardize the specifications.
3. To collect, inspect, pack in suitable cases, and store these articles until needed.
4. To distribute them in the right quantity, in the right place, at the right time.

The central office of the Red Cross Supply Service is at Washington, and eleven branches with warehouses have been established at the following stations: Atlanta, Baltimore, Boston, Chicago, Denver, Minneapolis, New Orleans, New York, San Francisco, St. Louis and Seattle. These branches carry a stock of raw materials which is being sold to the chapters

AMERICAN RED CROSS ARMY BASE HOSPITALS AND DIRECTORS

No.	Parent Institution	Location	Director	Address
1	Bellevue Hospital	New York	Dr. Edw. L. Keyes	109 E. Thirty-Fourth Street
†2	Presbyterian Hospital	New York	Dr. George E. Brewer	16 E. Sixty-Fourth Street
3	Mount Sinai Hospital	New York	Dr. N. E. Brill	Mt. Sinai Hospital
†4	Lakeside Hospital	Cleveland	Dr. George W. Crile	1021 Prospect Street
†5	Harvard University	Boston	Dr. Harvey Cushing	Peter Bent Brigham Hospital
*6	Massachusetts General Hospital	Boston	Dr. F. A. Washburn	Massachusetts General Hospital
7	Boston City Hospital	Boston	Dr. J. J. Dowling	Boston City Hospital
8	New York Post-Graduate Hospital	New York	Dr. Samuel Lloyd	12 W. Fiftieth Street
9	New York Hospital	New York	Dr. C. L. Gibson	72 E. Fifty-Fourth Street
†10	Pennsylvania Hospital	Philadelphia	Dr. R. H. Harte	1503 Spruce Street
11	St. Joseph, St. Mary and Augustana Hospitals	Chicago	Dr. A. J. Ochsner	2106 Sedgwick Street
†12	Northwestern University Medical School	Chicago	Dr. F. A. Besley	104 S. Michigan Avenue
13	Presbyterian and County Hospital	Chicago	Dr. Dean D. Lewis	122 S. Michigan Avenue
14	St. Luke's and Michael Reese Hospitals	Chicago	Dr. L. L. McArthur	122 S. Michigan Avenue
*15	Roosevelt Hospital	New York	Dr. Charles H. Peck	30 W. Fiftieth Street
16	German Hospital	New York	Dr. Fred Kammerer	51 E. Sixty-Sixth Street
*17	Harper Hospital	Detroit	Dr. Angus McLean	David Whitney Building
*18	Johns Hopkins Hospital	Baltimore	Dr. John M. T. Finney	Johns Hopkins Hospital
19	Rochester General Hospital	Rochester	Dr. John M. Swan	457 Park Avenue
20	University Pennsylvania Hospital	Philadelphia	Dr. John B. Carnett	123 S. Twentieth Street
†21	Washington University Medical School	St. Louis	Dr. Fred T. Murphy	5738 Coates Avenue
22	Milwaukee County Hospital	Milwaukee	Dr. C. A. Evans	809 Evans Building
23	Buffalo General Hospital	Buffalo	Dr. Marshall Clinton	556 Franklin Street
24	Tulane University	New Orleans	Major John B. Elliott	Maison Blanche Building
25	Cincinnati General Hospital	Cincinnati	Dr. William Gillespie	670 June Street
26	State University of Minnesota	Minneapolis	Dr. Arthur A. Law	420 Syndicate Building
27	University Pittsburgh Medical School	Pittsburgh	Dr. R. T. Miller	Diamond Bank Building
28	Christian Church Hospital	Kansas City	Dr. J. F. Binnie	Rialto Building
29	City and County Hospital	Denver	Dr. Henry Sewall	Majestic Building
30	University of California	San Francisco.		
31	Youngstown Hospital	Youngstown	Dr. Colin R. Clark	415 Bryson Street
32	City Hospital	Indianapolis	Dr. Edmund D. Clark	1236 N. New Jersey Street
33	Albany Hospital and Medical College	Albany	Dr. A. W. Elting	119 Washington Avenue
34	Episcopal Hospital	Philadelphia	Dr. A. P. C. Ashhurst	811 Spruce Street
35	Good Samaritan Hospital	Los Angeles	Dr. J. J. A. Van Kaathoven	Grand Avenue and Seventh Street
36	College of Medicine	Detroit	Dr. Burt R. Shurly	32 W. Adams Street
37	King's County Hospital	Brooklyn	Dr. Edwin H. Fiske	132 LaFayette Street
38	Jefferson Medical College	Philadelphia	Dr. W. M. L. Coplin	Jefferson Hospital

† Have sailed.

* Under orders to sail.

at cost. They will also carry a stock of comforts and necessities which may be drawn on by the troops in service.

We shall appoint a representative to be stationed at each of the base hospitals, training camps and other posts of the army and navy. This officer will carry a Red Cross commission and wear a uniform. In each camp a small warehouse will be erected by the army for our use and supplies will be kept therein for distribution by our field representatives.

The Red Cross Supply Service will also serve as a medium for purchasing supplies for use abroad and will attend to their transportation and distribution.

The management of the supply service consists of a director, two associate directors and an advisory board, including a transportation expert, an engineer and a doctor of public health.

RED CROSS AMBULANCE COMPANIES

No.	Location	Captain	Ready for Service
1	Pasadena, Calif.	Chas. D. Lockwood	Yes
2	Berkeley, Calif.	Alvin Powell	No
3	Chicago	Elbert Clark	Yes
4	Cleveland	Ralph K. Updegraff	Yes
5	Washington, D. C.	Ryan Devereux	Yes
6	Fordham, N. Y.	Joseph Donnelly	Yes
7	New York	Chester F. S. Whitney	Yes
8	Detroit	Charles Barton	Yes
9	Chicago	Stephen V. Balderston	Yes
10	New York	Wm. H. Rockwell	Yes
11	Battle Creek, Mich.	James T. Case	Yes
12	Seattle	David C. Hall	Yes
13	Pittsfield, Mass.	Robert J Carpenter	Yes
14	Eugene, Ore.	John E Kuykendall	No
15	Grand Rapids, Mich.	Thos. D. Gordon	No
16	Fredonia, Kan.	Edgar C. Duncan	No
17	Boston	Edward A. Cunningham	Yes
18	Indianapolis	Mason B. Light	No
19	Portland, Ore.	Ernest H. Streit	No
20	Atlanta, Ga.	Leo. P. Daly	No
21	Flint, Mich.	Walter H. Winchester	No
22	Charleston, W. Va.	Timothy L. Barber	No
23	Portland, Maine	Ernest B. Folsom	No
24	Kansas City, Mo.	Ernest W. Cavaness	No
25	Vermont	Wm. Stickney	No
26	Columbia, S. C.	Marion H. Wyman	Yes
27	Salt Lake City	Hugh B. Sprague	No
28	Detroit	Griffith A. Thomas	No
29	Atlanta, Ga.	Walpole C. Brewer	No
30	Denver	Thomas M. Hopkins	No
31	Greensboro, N. C.	Charles S. Lawrence	No
32	Greenville, S. C.	James E. Daniel	No
33	Summit, N. J.	William H. Lawrence, Jr.	No
34	Hudson County, N. J.	Frederick J. Quigley	No
35	Buffalo	Not appointed	No
36	Houston, Texas	Claude C. Cody	No
37	Minneapolis	Ralph Thomas Knight	No
38	San Antonio, Texas	Not appointed	No
39	Memphis, Mich.	George Waters	No
40	Fort Worth, Texas	Not appointed	No
41	Valparaiso, Ind.	Not appointed	No
42	Des Moines, Iowa	Not appointed	No
43	Vicksburg, Miss.	Not appointed	No
44	Topeka, Kan.	Not appointed	No
45	Raleigh, N. C.	Not appointed	No
46	Lock Haven, Pa.	Not appointed	No
47	Tulsa, Okla.	Not appointed	No
48	Oklahoma City	Not appointed	No
49	San Francisco	Not appointed	No
50	Danville, Ill.	Not appointed	No

HOSPITAL UNITS

A. Philadelphia Presbyterian Hospital.—Dr. John H. Jopson, 1824 Pine Street, Philadelphia.

B. Yonkers, N. Y.—Dr. S. E. Getty, 84 Ashburton Avenue, Yonkers.

C. Spokane, Wash.—Dr. S. E. Lambert, Old National Bank Building, Spokane.

E. Richmond (Va.) Memorial Hospital.—Dr. Robert Bryon, Grace Hospital, Richmond.

F. New York City, Harlem Hospital.—Dr. Lewis K. Neff, 1213 Park Avenue, New York.

G. Portland, Maine.—Dr. W. L. Cousins, 181 State Street, Portland, Maine.

H. New York City, Fordham Hospital.—Dr. Alex. Nicoll, 119 W. Eighty-Eighth Street, New York.

K. Council Bluffs, Iowa.—Dr. Donald McRae, City National Bank Building.

L. Pittsburgh (Pa.) Allegheny General Hospital.—Dr. B. W. Caldwell, Allegheny General Hospital, Pittsburgh.

M. Fort Wayne (Ind.) Hope Hospital.—Dr. Miles F. Porter, Physicians' Defense Building.

N. New York City, Flower Hospital.—Dr. R. S. Copeland, 58 Central Park West, New York.

O. Charlotte, N. C.—Dr. Addison G. Brenizer, Jr., Blandwood Apartment.

P. Memphis (Tenn.) General Hospital.—Dr. Battle Malone, Exchange Building, Memphis, Tenn.

Q. Grand Rapids (Mich.) Butterworth-Blogett.—Dr. Richard R. Smith, Metz Building, Grand Rapids, Mich.

R. Fairfield, Iowa.—Dr. M. Fred Clarke, Fairfield, Iowa.

S. Nashville (Tenn.) Vanderbilt University.—Dr. Richard A. Barr, Eve Building, Nashville, Tenn.

V. Syracuse (N. Y.) General Hospital.—Dr. E. S. Van Duyn, Syracuse.

Organization of Ambulance Companies

After consultation with representatives of the French and English governments, who recently visited this country, the War Department authorized the organization of an ambulance corps for service abroad at the earliest possible date, This service is needed in the area behind the firing lines. The equipment will consist of 2,000 Ford ambulances, 100 Packard 2-ton trucks, 100 Ford ¾-ton trucks, 100 Ford touring cars and 100 motor cycles, distributed among the 100 sections into which the corps is divided.

It is proposed to organize the personnel of each section as follows: one first sergeant, one sergeant, one corporal, two orderlies, two clerks, one chief mechanic, two mechanics, one cook, one assistant cook, twenty-four motor drivers—total 36.

The corps will be constituted of members of the Medical Enlisted Reserve Corps of the United States Army and the officers will be selected from the Medical Reserve Corps. Each section of thirty-six men will be commanded by a first lieutenant, five sections will be placed under a captain, and twenty sections will be commanded by a major.

All enlistment papers read for four years, but the government has announced that enlistments made after war was declared are construed as for the period of the war only. All enlistments are made in the grade of private and promotion is made on the recommendation of the section commander.

The recently authorized schedule of pay runs from $30 for the private to $56 for the first sergeant—the usual allowances, clothing, rations, transportation and quarters, are in addition to the above.

Half the entire enlisted personnel will be supplied from colleges and universities. One or more sections are recruited at Harvard, Yale, Princeton, Amherst, Williams, Massachusetts Institute of Technology, Dartmouth, Johns Hopkins, University of Virginia, University of Pennsylvania, Washington and Lee, Oberlin, Purdue, Indiana State, University of Illinois, Northwestern University, State University of Iowa, Hamline, Leland Stanford Jr., University of California, and many others. The Stonemen's Fellowship of Philadelphia has furnished several sections, and several industrial organizations, such as the Packard Motor Company, have organized a section. While no guarantee can be given that sections so organized will always be held intact by the government, the advantages incident to maintaining such organizations are recognized, and the probability is that they will be continued.

Enlistments for this corps can be arranged for in most of the large cities of the United States. After enlistment in the Medical Enlisted Reserve Corps, recruits may be called into active service and transported to the concentration camp at Allentown, Pa., at government expense. The government bears no part of the applicant's expenses until he is called into active service.

Only men of high grade—physically and morally—are desired for this particular service.

Further information can be secured by addressing Major H. C. Coe, M. R. C., 251 West Eightieth Street, New York.

Harvard Base Hospital Unit in Action

A special cable to the New York *Tribune* reports the following interview with a wounded American officer in London regarding the service of the Harvard Medical Unit:

The medical unit was originally informed that they were to have the care of 400 beds, and a staff was selected on that basis. When they arrived in England they were informed that the hospital contained 1,000 beds, but when they reached France they discovered that there were 1,300 beds, with an expansion limit of 1,900.

After Messines the hospital was filled immediately to its utmost capacity. The American staff was only adequate to deal with a quarter of the number of cases, but they worked like supermen, only appealing to the British units for extra assistance in doctors and nurses when it had become humanly impossible to deal with all the cases coming in.

British assistance was sent as soon as it was asked, and the major commanding the unit told me it was impossible for him to express his gratitude for the loyal and enthusiastic cooperation of the British element. The Harvard unit, with the assistance of the British, dealt with all cases coming in and since then have received three or four hundred daily.

I, as an American, was simply thrilled with their work which I know has won unstinted admiration from the British army medical service. I have also heard stories of the work of Dr. Harvey Cushing. He went into the most advanced clearing station and there dealt with all the most serious cases as they came along.

Members of Medical Corps Ordered to Active Duty

ALABAMA

To FORT RILEY, KANSAS. Assigned to station, Capt. William H. Richardson, Clinton, being relieved from further station at Ft. Bayard, N. M.

To FORT SAM HOUSTON, TEXAS. To report to board for examination for promotion, Lieut. Octavius M. Spencer, Birmingham.

To ALLENTOWN, PA. For temporary duty, Lieut. Percy O. Chadron, Dothan.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C. For instructions, Drayton H. Dougherty, Selma.

ARIZONA

To FORT BENJAMIN HARRISON, IND., Roy K. Evans, Douglas.

To HOME, from Southern Department, Alva R. Hull and Adolphus A. McDaniel, Douglas.

ARKANSAS

To FORT RILEY, KANSAS, J. H. Downs, Vilonia; Braxton V. Powell, Camden; and Feast L. Proctor, Little Rock.

To ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, Lieut. Loyd Thompson, on completion of present duty.

CALIFORNIA

To PROPER STATION AT EXPIRATION OF LEAVE, Lieut. Herman J. Schlageter, San Francisco.

To WRIGHTSTOWN, N. Y. As camp sanitary officer, Major Frederick S. Macy, San Francisco.

To SAN FRANCISCO and report to commanding general, Western Department, for assignment to duty, John A. Dougherty, San Francisco. Major Walter C. Chidester, San Mateo; Capt. Norman E. Williamson, Stockton; and sail about July 5 for Hawaii for duty; Lieut. Robert K. Hackett, Los Angeles, for duty with Field Hospital and Ambulance Co. No. 2.

To HOME, Lieut. Elmer S. Tenney, Ft. Baker, Calif., relieved from duty at Fort Warren, Mass.

To DETROIT, Lieut. Thomas G. Holmes, San Francisco.

To FORT RILEY, KANSAS, Lieutenants Frank E. Winter and Jesse M. Burlew, Santa Ana; Harry B. Reynolds, Palo Alto; William A. Howard and John L. Pomeroy, Los Angeles.

To SACRAMENTO, CALIF., Lieut. James H. Parkinson, Sacramento.

To LETTERMAN GENERAL HOSPITAL, Presidio of San Francisco, Calif.; Lieuts. Lionel D. Prince and John G. Harrington, San Francisco.

To FORT MCDOWELL, CALIF., Capt. Ernest Dozier, Redding, Calif.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction, Lieut. Col. Edward R. Schreiner, San Francisco.

To FORT BENJAMIN HARRISON, training camp; Lieut. Jean R. Oliver, San Francisco.

COLORADO

To FORT RILEY, KANSAS, William W. Jones, Wallace C. Kent and Harold G. Garwood, Denver; Curtis Atkinson, Fort Collins; William W. Frank, Glenwood Springs; Homer C. Moses, Colorado Springs.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieut. James Redmon, Denver, Colo.

CONNECTICUT

To FORT BENJAMIN HARRISON, IND., Captain Richard Blackmore, Farmington, Conn.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieut. J. I. Wiseman, Middletown, Conn.

DELAWARE

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieut. Meredith I. Samuel, Wilmington; Lieut. Lewis Booker, New Castle, is honorably discharged from the service of the United States.

DISTRICT OF COLUMBIA

To HOME AND TO REPORT TO ADJUTANT GENERAL, Capt. Kerwin W. Kinard, Washington.

To ATLANTA, Capt. William S. Shields, Washington, and assume charge of medical supply depot.

To NEW YORK, William S. Shields, Washington.

FLORIDA

To CHARLESTON, VA., Lieut. George M. Randall, St. Petersburg.

GEORGIA

To FORT OGLETHORPE, GA., Lieut. William N. Adkins, Atlanta, is relieved from duty at Fort McPherson, and is to report to the commanding officer of the medical officers' training camp at Ft. Oglethorpe, for duty. Lieut. Madison H. Bowman, Ft. McPherson, is relieved from duty in the Southern Department and will proceed home.

Par. 34, S. O. 125, May 31, 1917, War D, as relates to Lieut. Evans B. Wood, Atlanta, is revoked.

To HOME, from Southern Department, Lieut. Stevens T. Harris, Atlanta.

Par. 61, S. O. 124, May 29, War D, as relates to Major William L. Cousins, Atlanta, is revoked.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Charles H. Harvey, Fairburn.

IDAHO

To WASHINGTON, D. C., Lieut. Frank L. Cole, Rigby.

ILLINOIS

To FORT BENJAMIN HARRISON, IND., Lieut. Russell M. Wilder, Chicago.

To FORT SNELLING, MINN., Captains Ephraim K. Findlay and Carey Culbertson, Chicago; Lieut. Charles H. Lovewell, Chicago.

To FORT RILEY, KANSAS, Lieuts. William W. Hendricks, Randolph; Jesse T. McDavid and Arthur F. Wilhelmy, Decatur; Bert I. Wyatt, August H. Lueders, Harry S. Gradle, Harry E. Mock, Horatio P. Freeman, Samuel M. Edison, Aubrey K. Brown and Charles S. Williamson, Chicago; Maurice L. Puffer, Downers Grove; William L. Hall, Greenville; Emory C. Gaffney, Lincoln; Edward K. Ellis, Murphysboro; Clarence M. Dargan, Pontiac; and Frank M. Barker, Waukegan.

To WASHINGTON, D. C., Lieut. Ross W. Griswold, Litchfield; Henry J. Ullman, Highland Park; Leon Unger, Chicago; Lieut. Royal Tharp, East St. Louis.

To HEADQUARTERS, CENTRAL DEPT., CHICAGO, Capt. Charles F. Clayton, Chicago, and Lieut. John W. Tope, Oak Park.

INDIANA

To FORT BENJAMIN HARRISON, IND.: Lieut. George G. Van Mater, Peru; Capt. George L. Guthrie, Lieut. Ernest De Wolfe Wales, B. T. Daggy, Fred E. Hickson, Floyd N. Shipp, Eddie De B. Thixtum, and Cecil L. Wayman, William F. Clevenger and Blanchard B. Pettijohn, Indianapolis; George C. Carpenter, Terre Haute; Albert W. Collins, Anderson; Harold B. Cox, Morristown; Paul Higbee, Sullivan; Earl D. Jewett, St. Paul; Valentine A. Magenheimer, Mooresville; Elmer B. Moser, Windfall; John T. Smaples, Boonsville; Henry H. Thompson and Frederick A. Tucker, Noblesville; Frederick M. Whisler, Wabash; and William H. White, Edinburg.

To HOME, from Southern Department, Lieut. Barzilla M. Hutchinson, Mishawaka.

So much of Par. 61, S. O. 124, May 29, War D, as relates to Lieut. Adrian E. Fauve, Ft. Wayne, is revoked.

IOWA

To DUBUQUE, IA., Aviation Station, Capt. Eugene R. Lewis, Dubuque.

To COM. GEN., CENTRAL DEPARTMENT, Lieut. John S. M'Atee, Council Bluffs.

To FORT RILEY, KANSAS, Harry C. Parker, Dubuque; Ora F. Parrish, Grinnell; Fred J. M'Allister, Hawardin; and William D. M'Faul, Miles.

KANSAS

To FORT RILEY, Richard C. Young, Arkansas City; Orestes L. Garlinghouse, Iola; Samuel Murdock, Jr., Sabetha; and George I. Thacher, Waterville; Capt. W. L. Wilmoth, Denison; Lieuts. H. L. Chambers, Lawrence; J. C. Lardner, Fort Scott; J. D. Riddell, Salina; H. L. Scales, Hutchinson; J. R. Scott, Newton; and Capt. William H. Richardson, Ft. Riley.

Par. 68, S. O. 124, May 29, War D., as relates to Capt. Harold P. Kuhn, Kansas City, is revoked.

To FORT BENJAMIN HARRISON, Lieut. George W. Lee, Yates Center.

KENTUCKY

To DUTY WITH AMBULANCE CO. No. 6, Lieut. Charles K. Berl, Louisville.

To HOME, Lieut. William A. Quinn, Henderson.

MAINE

To FORT OGLETHORPE, GA., Lieut. Bial F. Bradbury, National Soldiers' Home.

To FORT PREBLE, ME., Lieut. F. N. Whittier, Brunswick.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction: Lieuts. David E. Dolloff, Biddeford.

To FORT BENJAMIN HARRISON, Captain Alfred W. Haskell, Portland; Lieut. George A. Allen, Lovell.

MARYLAND

Lieut. Frederick V. Beitler, Halethorp, is honorably discharged.

To FORT MYER, VA., Lieut. Henry L. Smith, Baltimore.

To ALLENTOWN, Capt. John R. Devereux, Chevy Chase.

Par. 52, S. O. 121, May 25, 1917, War D., as relates to Lieut. Kenneth A. Phelps, Baltimore, is revoked.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Robert W. Johnson, Jr., Towson.

To FORT NIAGARA, N. Y., Capt. F. M. Chisolm, Annapolis.

Par. 34, S. O. 125, May 31, W. D., as relates to Lieut. Oscar V. Linhardt, Baltimore, is revoked.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieuts. John E. Evans, and Joseph E. Moore, John A. Etheridge, Baltimore.

To FORT RILEY, Lieut. Oscar V. Linhardt, Baltimore.

MASSACHUSETTS

To FORT H. G. WRIGHT, N. Y., Capt. Glenn I. Jones, Ayer.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Howard M. Clute, Hyman Green, Boston; William D. Reid, Newton.

Capt. Walter Clarke Howe, honorably discharged from service, Boston.

To FORT BANKS, MASS., Lieut. W. L. Tucker, Hinsdale.

So much of Par. 61, S. O. 124, May 29, as relates to Capts. W. J. Mixter, S. M. Bunker, and Lieut. G. A. Leland, Jr., Boston, is revoked.

To HOME, Lieut. Elmer S. Tenney, Ft. Warren.

To BASE HOSPITAL No. 6, BOSTON, Lieut. James H. Means, Boston.

To HOME, from Fort Logan, Lieut. Walter A. Jilsson, Westboro.

To FORT STRONG, Lieut. John W. Bartol, Boston.

To FORT WARREN, Lieut. James J. Goodwin, Clinton.

To FORT BANKS, Willys L. Tucker, Hinsdale.

To FORT BENJAMIN HARRISON, Capt. Miles D. Chisholm, Westfield; Timothy F. Goulding, John L. Mahoney, Boston; Capt. Harvey A. Kelly, Winthrop; John D. Peters, Great Barrington; Lieuts. Chester C. Beckley, Lancaster; Joseph D. Collins and William J. Collins, Northampton; Ralph W. Dennen, Waltham; John H. Kearney, Fitchberg;; Benom M. Latham, Mansfield; Charles W. Pease, Needham; Samuel D. Rumrill, and Erdix T. Smith, Jr., Springfield; Willis L. Tucker, Hinsdale.

MICHIGAN

To FORT BENJAMIN HARRISON, Lieut. Clarence E. Burt, Ithaca. Captains Frederick W. Baesleck, Carey P. M'Cord, Detroit; George

S. Foden, Highland Park; Warren P. Morrill, Benton Harbor; Gordon F. Willey, Kalamazoo; Lieut. George M. Lochner, Adrian.

To WASHINGTON, D. C., Capt. Hugh A. Freund, Lieut. Harold E. Clark, Nelson Allan Myll, Detroit; Capt. William H. Honor, Wyandotte.

To HOME, from Southern Dept., Lieut. Charles F. Smith, Whitehall.

MINNESOTA

To FORT SNELLING, Lieut. Hugh F. M'Gaughey, Winona.

To TRENTON, Mo., to examine applicants for the Officers' Reserve Corps, Lieut. James R. McVay, Rochester, Minn. After completion of this duty he will return to his home and be relieved from further active duty.

To FORT RILEY, KANSAS, Lieuts. George W. Snyder, Belleplain; John C. Sessions and Daniel M. Shewbrooks, Minneapolis; Harley G. Rickford, Minnesota Lake; Joseph O. McKeon, Mt. Gomery; Charles Bolsta, Ortonville; William H. Hengstler, Osakis; John C. Wilkinson, Red Lake Falls; Frank H. Clay, St. Charles; Walter D. Brodie and Major Paul B. Cooke, St. Paul.

To MILLARD HALL, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, Lieut. James M. Northington, Minneapolis.

MISSISSIPPI

To FORT RILEY, KANSAS, Robert M. Stephenson, Lexington.

Resignation of Lieut. Ed. L. Robertson, Belzoni, of his commission is accepted.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., James P. Wall, Jackson.

MISSOURI

To KANSAS CITY, Mo., examining board, Capt. Roger B. Brewster, Kansas City.

To FORT LEAVENWORTH, KAN., to report to the commanding officer for duty, Capt. Frederick W. Shaw, Mt. Vernon.

To FORT RILEY, KAN., John W. Johnson, Hayti; Reginald H. Meade, Kansas City; William H. Breuer, St. James; Nelson J. Hawley, St. Louis; William A. Beckmeyer, Sedalia.

To ST. LOUIS, Capt. Harry S. Crossen and Lieut. Pierre I. Chandeysson, St. Louis.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Wallace A. Belsey, St. Louis; Clarence A. MacGuire, William T. Fitzsimmons, Kansas City; Lieut. Robert Vinyard, St. Louis.

MONTANA

To FORT RILEY, KAN., Robert E. Hathaway, Glendive; James H. Irwin, Great Falls.

NEBRASKA

HONORABLY DISCHARGED, Lieut. Oswald H. Margaret, Papillion.

To FORT RILEY, Theodore H. Koefoot and William R. C. Neumarker, Columbus; Henry Eugene King, Belgrade; Willis J. Redfield, Grand Island; Lieuts. Harold E. Eggers, Albert A. Fricke, Capts. Henry L. Akin, Aldis A. Johnson, George R. Gilbert, Omaha.

NEW HAMPSHIRE

To ARMY MEDICAL SCHOOL, Lieut. Benjamin P. Burpee, Manchester.

NEW JERSEY

To FORT OGLETHORPE, GA., Lieut. John L. Meeker, Newark.

To ARMY MEDICAL SCHOOL, WASHINGTON, Lieut. C. A. McGuire, Atlantic City.

To SYRACUSE, N. Y., to report to commanding general, Eastern Department, at Governor's Island, N. Y., for assignment to duty with United States troops at Syracuse, Lieut. Philip H. Finkelstein, Paterson.

To MAJOR DAVID A. KRAKER, to examine applicants, Lieut. Guerney Williams, Atlantic City.

NEW MEXICO

To BALTIMORE (JOHNS HOPKINS HOSPITAL), for duty as adjutant with Base Hospital No. 18, Capt. Thomas H. Johnson, Ft. Bayard.

To JEFFERSONVILLE, Capt. John P. Fletcher, Ft. Bayard, to establish an automobile ambulance depot in the vicinity of that place.

To WASHINGTON, Capt. John P. Fletcher, Ft. Bayard, to report to board at Washington for examination for promotion.

NEW YORK

To WEST POINT, Lieut. Kenneth A. Phelps, New York.

To HOME AND REPORT TO ADJUTANT GENERAL, Lieut. Charles B. J. Mittlestaedt, Fishers Island.

To SYRACUSE, N. Y., Lieuts. Earl H. Eaton, David Lothringer and Byron H. Hermann, New York; Louis E. Breslau, Brooklyn.

To NEW YORK, and report to Major Henry C. Coe, M. R. C., 40 East Forty-First Street, for the purpose of examining applicants for the Officers Reserve Corps: Major Graeme M. Hammond, Capts. Burton J. Lee and James H. Lawson, and Lieut. Herbert Wilcox, New York.

To ALLENTOWN, PA., Major Rolfe Floyd, Capt. Clarence A. McWilliams, Lieuts. Henry W. Cave, John E. Williams, Thomas C. Peightal and John R. Carlisle, New York.

To MINEOLA, L. I., Lieut. Everett G. Brownell, New York, and report to Major Raynal C. Bolling, aviation section Signal O. R. C.

To FORT OGLETHORPE, GA., to officers' training camp, Lieut. John R. Lecomte, New York.

To FORT RILEY, KAN., Charles B. Palmer, Plymouth.

To WASHINGTON, D. C., Lieuts. Francis F. Callahan, Castleton Corners; William H. Baughman, James N. Worcester, H. Green and H. J. Etheridge, New York; Capt. Francis J. Cahill, Hoosick Falls; Frank H. Hurst, Guilderland Center; Everett C. Jessup, Brooklyn.

To FORT BENJAMIN HARRISON, Majors Haven Emerson, Thomas W. Hastings, Capts. James B. Gere, Llewellyn E. Hetrick, Charles J. Imperatori, Robert L. Loughran, Marion B. McMillan, Albert S. Morrow, Reeve Turner, Frederick T. Van Beuren, Jr., Lieuts. Harry D. Brewster, Daniel B. Brinsmade, Meyer M. Eckert, Reuben J. Held, Bruno S. Morowicz, James W. Jameson, David M. Kaplan, Joseph E. J. King, Henry M. Larson, Maximillan L. Loeb, William A. Morgan, Rufus A. Morison, Jacob J. Steinfelder, Charles W. Strowger, Norman E. Titus, Harry H. Varner and Joseph G. Yocum, New York; Capts. Palmer H. Lyon, Valois; Willard D. Preston, Attica; Lieut. Clarence E. Mullens, James N. Vanderveer, Albany; Capt. Dayton C. Wiggin, Staten Island; Lieuts. Joseph H. Beattie, Dobbs Ferry; Carl Boettiger, Long Island City; Francis X. Brown, John B. Byrne, Harry Cleveland Harris, John J. Hauff, Benjamin E. Helprin, Howard LeRoy Norton, Brooklyn; David C. Byrne, Jr., Great Neck; John C. Hoeffler, Salamanca; Frank M. Holcombe, Keesville; Charles W. Selover, Stanley; Harrison G. Slot, Glen Cove; Joseph Sparck, Castleton Corners; Harry A. Steckel, Kings Park; Benjamin Van Campen, Olean. Lieut. Louis de Keyser Belden, New York; Lieut. James M. Flynn, Rochester.

So much Par. 61, S. O. 124, May 29, as relates to following officers, M. R. C., revoked: Lieuts. L. E. Deyoe, G. K. Rhodes, Abraham Zingher, New York.

To PLATTSBURG, N. Y., Capt. R. W. Andrews, Poughkeepsie; Lieuts. A. W. Cutler, Omeonta; T. W. Jenkins and Joseph A. Lanahan, Albany; C. W. Many, Florida; G. W. Timmers, Castleton, and Wilmarth S. Buck, Plattsburg.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Major John Warren, New York, is revoked.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Major Fred H. Albee, New York, is revoked.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Lieut. Clarence P. Thomas, New York, is revoked.

To MADISON BARRACKS, Major John Warren, New York.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Capt. Edgar A. Vander Veer, Albany, is revoked.

FROM SOUTHERN DEPARTMENT TO HOME: Lieut. Henry S. Fruitnigh, New York.

To WEST POINT, MILITARY ACADEMY, Licut. Fredk. L. Senger, Brooklyn.

To HOME: Thomas Kenyon, New York.

NORTH CAROLINA

To WASHINTON, D. C., Capt. William P. Herbert, Asheville.

NORTH DAKOTA

To FORT RILEY, KAN., Samuel J. Hillis, Berthold; Philip G. Reedy, Regany.

To ARMY MEDICAL SCHOOL, Lieut. Olaf Kittleson, Grand Forks.

OHIO

To FORT BENJAMIN HARRISON, IND., Lieuts. De Enna Darrell DeNeen and Howard J. Ware, Cincinnati; Jay M. Harrison, Toledo; Edwin J. Kennedy, Peebles; Fred W. Lane, Cambridge; Judson Teeter, Pleasanthill.

To FORT SNELLING, MINN., Lieut. Horatio Z. Silver, Eaton.

To CLEVELAND, to report to Major Paul S. Bond, Corps of Engineers, for duty in connection with the securing enlistments for the nine regiments of engineers for the Engincer Officers Reserve Corps, Lieuts. Robert W. Williams and Charles D. Treister, Cleveland.

To HOME, Lieut. W. A. Quinn, Portsmouth.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. A. Strauss, Cleveland.

To FORT BENJAMIN HARRISON, IND., to training camp, Benjamin C. Barnard, Alliance; Roy A. Wilson, Dennison; Herbert W. Bennett, Lisbon.

OKLAHOMA

To ATLANTA, as sanitary officer, Capt. Clarence E. Fronk, Ft. Sill. Par. 68, S. O. 121, May 25, 1917, War D., as relates to Lieut. Abraham L. Blesh, Oklahoma City, is revoked.

OREGON

To SAN FRANCISCO, and report to commanding general, Western Department, for assignment to duty: Capts. Walter C. Belt, Gresham; Jesse P. Truax, Grants Pass; Ernest C. Dalton and Calvin S. White, Portland; George E. Darrow, Eugene.

To HOME, from Southern Department, Lieut. Leonard P. Bell, Ft. Stevens.

To FORT BENJAMIN HARRISON, Capt. Charles C. Osborn, Portland.

PENNSYLVANIA

To ALLENTOWN, PA., Medical Corps, Capt. Ward Brinton, Philadelphia.

To OFFICE OF SURGEON-GENERAL, WASHINGTON, Major Bert W. Caldwell, Pittsburgh.

To ARMY MEDICAL SCHOOL, WASHINGTON, Donald W. Cameron, George R. Harris, Jr., Lieut. Thomas P. Edmundson, Pittsburgh; Joseph G. Fernbach, William J. Martin, Abraham Strauss and C. H. Harvey, Philadelphia; John P. McComb, Bellevue; Philip J. Sheridan, Oil City.

So much of Par. 61, S. O. 124, May 29, as relates to Lieut. T. M. Armstrong, Philadelphia, is revoked.

To FORT BENJAMIN HARRISON, Major James F. Edwards, Pittsburgh; John H. G. Gallagher, Connellsville.

To FORT OGLETHORPE, GA., Lieut. David G. Harvey, Huntingdon Valley.

Par. 61, S. O. 124, May 29, War D., as relates to Lieuts. Frank C. Knowles and Thomas G. Miller, Philadelphia, is revoked.

To PHILADELPHIA, Lieut. George P. Pilling, Jr., Philadelphia.

Par. 52, S. O. 121, May 25, War D., as relates to Lieut. Walter E. Lee, Philadelphia, is revoked.

Par. 52, S. O. 121, May 25, War D., as relates to Lieut. John A. McKenna, Lansdowne, is revoked.

To HOME, from Fort Dade, Fla., Lieut. Reuben L. Robertson, Charlottesville.

Par. 61, S. O. 164, May 29, War D., as relates to Capt. James P. Austin, Philadelphia, is revoked.

Par. 61, S. O. 124, May 29, War D., as relates to Capt. Charles M. Montgomery and William D. Stroud, Philadelphia, is revoked.

Par. 52, S. O. 121, May 25, 1917, War D., as relates to Lieut. Donald Guthrie, Sayre, is revoked.

So much of Par. 61, S. O. 124, May 29, War D., as relates to Capt. Ward Brinton, Philadelphia, and Edward J. Gordon, Wyncote, is revoked.

RHODE ISLAND

To FORT BENJAMIN HARRISON, IND., Lieut. George W. Gardner, Providence.

SOUTH CAROLINA

To ALLENTOWN, PA., Medical Corps, Lieut. Marion H. Wyman, Columbia.

SOUTH DAKOTA

To FORT OMAHA, NEB., Capt. James A. Mattison, Hot Springs.

TENNESSEE

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. John W. Morris, Somerville.

To FORT OGLETHORPE, GA., Lieut. Howard L. Walker, Memphis.

TEXAS

To ARMY MEDICAL SCHOOL, WASHINGTON, Capt. Ernest W. Bertner, Houston; Lieut. Eugene V. Powell, Ft. Worth. Lieutenants William H. Lloyd, El Paso, is relieved from duty in the Southern Department and will proceed home.

So much of S. O. 123, May 28, War D., as relates to Major Charles C. Billingslea, M. C., Del Rio, is revoked.

Sick leave for four months to Major William P. Banta, Eagle Pass.

To FORT SAM HOUSTON, TEX., Capt. Frederick C. A. Kellam, Jr., Ft. Clark, to report to board for examination for promotion.

Leave for one month granted to Lieut. Joseph C. Breitling, San Antonio, about June 1.

To REPORT TO COMMANDING GENERAL, SOUTHERN DEPARTMENT, Lieut. James A. Simpson, Mission.

To PHILADELPHIA, Major John B. Huggins, Harlingen.

UTAH

To SAN FRANCISCO, and report to commanding general, Western Department, for assignment to duty, Capt. Thomas A. Flood, Salt Lake City.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Howard T. Wickert, Huntsville.

VERMONT

Capt. Herbert W. Taylor, Brattleboro, honorably discharged from the service.

To FORT WILLIAMS, ME., Lieut. Henry R. Weston, Windsor.

To FORT OGLETHORPE, GA., for instruction, Lieut. Henry R. Weston, Windsor.

VIRGINIA

To FORT SNELLING, duty with 36th Inf., Capt. Roderick W. Browne, Norfolk.

To RICHMOND, Major Alfred L. Gray, Richmond.

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., for instruction, Lieut. J. L. Hamner, Richmond.

Major William L. Little, Fortress Monroe, in addition to other duties, assigned as medical superintendent, Army Transport Service, Newport News.

To FORT MONROE, Lieuts. George E. Barksdale and Blanton Hillsman, Richmond.

To WASHINGTON BARRACKS, Capt. Wilbur M. Phelps. Stanton.

To ALLENTOWN, PA., Lieut. Edwin S. Potter, Montpelier.

WASHINGTON

To SAN FRANCISCO, and report to commanding general, Western Department, for assignment to duty, Capt. Everett O. Jones, Seattle; Lieut. Richard C. Hill, Irondale.

To BALTIMORE (JOHNS HOPKINS HOSPITAL), Major James D. Heysinger, Ft. Casey, for duty in command of Base Hospital No. 18.

To VANCOUVER BARRACKS, WASH., Lieuts. Pearl C. West, Seattle, and Isaac Sidwell Collins, Spokane.

WEST VIRGINIA

Resignation of Lieut. Irvin Hardy, Morgantown, accepted.

To FORT OGLETHORPE, GA., Lieut. William H. McLain, Wheeling.

WISCONSIN

To FORT RILEY, KANSAS, John M. Conley, Oshkosh; Frank R. Borden, Plainfield; and William W. Pretts, Plattsville.

To FORT LOGAN, Lieut. William C. Bennett, Rhinelander.

So much of Par. 43, S. O. 124, May 29, War D., as relates to Capt. Harry Greenberg, Milwaukee, is revoked.

CANAL ZONE

To WASHINGTON, D. C., ARMY MEDICAL SCHOOL, for instruction, Lieut. Deane C. Howard, Balboa Heights.

So much of S. O. 123, May 28, War D., as relates to Capt. James E. Baylis, Empire, is revoked.

Par. 51, S. O. 121, May 25, War D., as relates to Lieut. William C. Gibson, Pedro Miguel, is revoked.

FROM SOUTHERN DEPARTMENT TO HOME, Lieut. James C. Burdett, Ancon.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Physicians Organize to Serve in the War.—A meeting of the medical section of the State Committee of National Defense for the State of Alabama was held in the Senate Chamber of the State Capitol at Montgomery, June 14. There were over 200 physicians in attendance. Practically every county in the state was represented. In opening the meeting Dr. J. N. Baker, Montgomery, the chairman of the committee, stated that the registration returns of the state show there are 236 physicians in the state who are between the ages of 21 and 31 years. These younger men as well as those who are between 31 and 55 years of age were urged to offer their services to the government. Every member of the medical profession was urged to appreciate and respond to this privilege and obligation to serve in the present emergency.

ARIZONA

Protecting the Practice of the Absent Physician.—The Santa Crus County (Ariz.) Medical Society has pledged itself to conserve the practices of its members who are called into military service.

ARKANSAS

Arkansas Physicians and the War.—Baxter County (Ark.) Medical Society will care for the practice of its members who respond to the call to the colors. All the members of the society have expressed a willingness to do what they can.—— Five of the twenty-five members of the Phillips County (Ark.) Medical Society have volunteered their services and will report at once for examination for commissions in the M. R. C.

CALIFORNIA

New University Hospital.—The new Stanford University Hospital, which is being erected at a cost of approximately $500,000, will, it is expected, be ready for occupancy about October 1.

Personal.—Dr. Harry J. Pittock, Sacramento, has been appointed assistant physician at the Nebraska State Hospital, Ingleside.——Dr. Margaret Smyth has succeeded the late Dr. J. D. Young as first assistant physician at the Stockton State Hospital.——Dr. Louis Lee Seabright is reported to be critically ill in the Harbor Emergency Hospital, San Francisco, the result of a cerebral hemorrhage.

CONNECTICUT

Protecting the Practice of the Absent Physician.—The Windham County (Conn.) Medical Society has endorsed the Maryland plan for safeguarding the practices of members called into military service.

State Medical Society Meeting.—The one hundred and twenty-fifth annual meeting of the Connecticut State Medical Society was held in New Haven, May 23 and 24, under the presidency of Dr. Samuel M. Garlick, Bridgeport, and the following officers were elected: president, Dr. Edward K. Root, Hartford; vice presidents, Drs. Patrick Cassidy, Norwich, and Charles C. Godfrey, Bridgeport; secretary, Dr. John E. Lane, New Haven, and treasurer, Dr. Phineas H. Ingalls, Hartford.

Personal.—Dr. William C. Sandy, formerly medical instructor of the State Hospital for the Insane, Columbia, S. C., has assumed his duties as assistant superintendent of the Connecticut Hospital for the Insane at Middletown, succeeding Dr. William E. Fisher, resigned.——Dr. Thomas F. Erdman has been appointed superintendent of the Norwich State Hospital for the Insane, succeeding Dr. Henry M. Pollock, who has accepted the superintendency of the Massachusetts Homeopathic Hospital at Boston.

State Health Evolution.—Connecticut, like Maine, has joined the group of progressive states which have abandoned the plan of a state board of health in favor of a single commissioner. A new law passed this spring gives reasonably effective powers over the local health officer to the state commissioner of health, and provides a public health council

with authority to formulate a state-wide sanitary code, following in its main essentials the New York and Massachusetts plan.

Reorganization of New Haven Health Department.—The Public Health Department of Yale University, under the direction of Prof. Charles E. A. Winslow, has completed an exhaustive survey of health conditions in the city of New Haven on the basis of which a comprehensive plan for the reorganization of the department in bureaus, with the expansion of the activities of the department along the modern lines of infant welfare and tuberculosis work. The contemplated plan, which has been accepted by the board of health and has the backing of many leading citizens, involves an increase of the per capita expenditure for health work from 28 cents to about 45 cents.

Amendments to Pauper and Insane Law.—The last general assembly enacted certain amendments to the law concerning the commitment of pauper and indigent insane, which will improve conditions. After October 1, all sums for the support of pauper and indigent insane will be collected by the state, whether derived from friends and relatives of patients or from towns. The state will then forward a check to the state hospital treasurer for the total amount of their monthly expenses. This will remove from hospitals the burden of acting as collecting agencies and will enable the state, with its more efficient collection machinery, to investigate the financial status of the patients committed to public institutions, and to secure an adequate recompense. ——Other amendments are provisions whereby trained attendants and nurses may be sent to bring patients to the hospitals; the provision for uniform commitment blanks regardless of the authority by which patients may be committed, and the provision for both emergency and voluntary admissions under more flexible conditions than was formerly the case, as the former restrictions were such as to render such admissions very infrequent.

ILLINOIS

Illinois Physicians in the War.—The Madison County (Ill.) Medical Society reports that twenty-five physicians and nine dentists from that county have applied for commissions in the reserve corp of the army.

Smallpox in Chicago Heights.—During the last two weeks more than twenty cases of smallpox have occurred in Chicago Heights. Fifteen of the cases were in negroes. About 8,000 persons have been vaccinated. The patients are being cared for in the Chicago Hospital for Contagious Diseases, and in the Chicago Heights Isolation Hospital.

Bills Passed Which Interest Physicians.—Senate Bill No. 135 enacted by the last legislature provides for the license of persons practicing chiropody; House Bill No. 813 gives the health department the authority to abate any nuisance about the military camp. House Bill No. 657 revises the medical practice act, and provides that all who practice the art of healing shall take an examination and obtain a license. This includes osteopathy.

Personal.—Major Mathew A. Reasoner, M. C., U. S. Army, has been relieved from duty at the Army Medical School, Washington, D. C., and ordered to Chicago to establish a medical supply depot for the central department. The building for the depot has been leased at 3920 Federal Street.——Dr. Sadie Bay Adair, Chicago, has been appointed a member of the board of school trustees.——Lieut. J. G. Maxon, M. C., U. S. R., Harvard, was given a farewell reception in Harvard, May 26. Dr. Maxon sailed for his new post of duty in Hawaii, June 5.

Chicago

Chicago Medical Society Elects.—At the annual election of the Chicago Medical Society, the following were elected: president-elect, William A. Pusey; secretary, J. V. Fowler; councilors at large, John S. Nagel, Joseph L. Miller, Samuel C. Plummer, J. H. Walsh and Otto T. Freer; alternate councilors at large, W. T. Mefford, Henry G. Lampe, Fred G. Harris, Howard C. Ballenger and George Apfelbach.

Chicago Surgeons Elect Officers.—At the annual meeting of the Chicago Surgical Society, June 15, an address was made by Col. T. H. Goodwin, surgeon-general, R. A. M. C., and the following officers were elected: president, Dr. Carl Beck; vice president, Dr. Coleman G. Buford, and secretary-treasurer, Dr. Kellogg Speed.

Rush Alumni Elect Officers.—At the last annual meeting of the Rush Medical College Alumni Association, the following officers were elected: president, Dr. Oliver S. Ormsby, Chicago; secretary, Dr. Charles A. Parker, Chicago; treasurer, Dr. Elmer L. Kenyon, Chicago; directors, Drs. Asher Sippy and W. N. Duncan, Chicago.

Health Experts Organize.—The Chicago Health Association was organized, June 14. The meeting was called by Commissioner Robertson. Dr. Arthur I. Kendall was elected president, and a committee of thirty members, including workers in practically every subject which interests the uplift organization, was appointed. Among the members of this committee were Dr. William E. Quine, A. Augustus O'Neill and Charles P. Caldwell.

IOWA

Iowa Physicians in the War.—Council Bluffs reports that seventeen out of forty physicians have offered their services to the Medical Reserve Corps. Eighty physicians from the ninth and eleventh districts of Iowa have applied for appointments in the Medical Reserve Corps.

MARYLAND

Second Hospital Unit at St. Joseph's.—In addition to the hospital unit already organized at the St. Joseph's Hospital, under the direction of Drs. Yaeger and Frank Martin, another unit is being formed under the direction of Dr. Archibald C. Harrison of the hospital staff.

Personal.—Dr. David I. Macht, for some time assistant in medicine at the Johns Hopkins Hospital, has been appointed lecturer in pharmacology at the university.——Dr. Anna D. S. Abercrombie, president of the Maryland Women's War Relief Hospital, has announced that Ex-Gov. Edwin Warfield has turned over his country estate in Howard County, near Ellicott City, as a rest home and recuperating center for nurses returning from the battle fronts in Europe.

Commencements.—The Johns Hopkins University held its forty-first annual commencement on June 12, when diplomas were awarded to 224 graduates, eighty of whom were in the medical school. Many of the graduates are already in active military service and were unable to receive their diplomas in person. Secretary of war, Newton D. Baker, of the class of 1892, delivered the principal address.——The annual commencement of the Nurses' Training School at the Sheppard and Enoch Pratt Hospital, Dr. Edward N. Brush, superintendent, was held on June 13 at the hospital. Dr. Lewellys F. Barker addressed the graduates and Dr. Charles H. Riley of the board of trustees awarded the diplomas.——The annual commencement of the Nurses' Training School of the Eastern Shore State Hospital, Dr. Charles J. Carey, superintendent, was held at the hospital in Cambridge, June 13. There were three graduates from this new training school.

Care of Tuberculous.—A war measure of unusual importance is that of the proper care and treatment of tuberculous patients among the soldiers who have volunteered and will enlist in the various branches of national service. A committee of the Maryland Tuberculosis Association, consisting of Drs. Henry Barton Jacobs, C. Hampson Jones and J. Hall Pleasants and Mr. W. Wirt Steele has proposed to the general assembly several recommendations, one of the most important of which is that a special hospital for negro consumptives be created in connection with one of the existing institutions or as a separate unit, provided that for the period of the war, it be used exclusively for the care of invalided white soldiers and sailors by arrangement with the War and Navy Departments if the emergency should require. It is their plan that all the state's tuberculosis institutions be correlated, coordinated and controlled under a state tuberculosis commission which should be established by the legislature now in extraordinary session.

War Conference on Medical and Hospital Preparation.—A conference on medical and hospital preparation for returned soldiers was held in Baltimore, June 13, under the auspices of the Maryland Psychiatric Base Hospital Unit, Maryland Association for the Prevention and Relief of Tuberculosis, Maryland Women's War Relief Hospital, Maryland Red Cross Association, and Alliance of Social and Charitable Agencies. Mr. E. H. Scammell, executive secretary of the Military Hospitals Commissions of Canada, Ottawa, was the principal speaker; Dr. Thomas S. Cullen presided. Mr. Scammell has had charge of placing crippled and convalescent men in the various hospitals throughout Canada. All that has been done heretofore has been to pension the soldier and allow him to return to his home, usually a mental and physical wreck. The experience of Canada in this war will point the way to state and government agencies in this country in devising methods of taking care of our soldiers on their return. Canada has provided for over 25,000 crippled and canvales-

cent soldiers in various private and provincial hospitals. The vocational training of these injured men has developed in Canada to such an extent that practically every crippled soldier is now taught some occupation that will make him more or less self-supporting, so that his strength and earning capacity will be restored to the highest degree possible.

NEBRASKA

Medical Building Assured.—At the recent session of the Nebraska legislature $350,000 was appropriated for the College of Medicine of the University of Nebraska for the next biennium. This includes money sufficient to erect another laboratory building, which will be an exact duplicate of the building now occupied.

Hospital Completed.—The University Hospital, the teaching hospital of the University of Nebraska College of Medicine, has been completed, is being equipped and will open about Aug. 1, 1917. The total cost of the building and equipment will be approximately $210,000.——The Blair Hospital after complete renovation and redecoration was reopened, May 16.

Personal.—Dr. Harry J. Pittock, Towle, Calif., has been appointed assistant physician at the Hastings State Hospital. ——Dr. Warren M. Phillips, Bartley, has been appointed second assistant physician at the Norfolk Hospital.——Dr. Carl Oliver Reed, Carter, S. D.; Roy D. Bryson, Callaway, and Earl B. Erskine, Wayne, have been commissioned first lieutenants, M. C., Neb. N. G.——Dr. Leverett D. Bristol, Boston, has been appointed state health officer.——Dr. William F. Wild, Lincoln, state bacteriologist, has been appointed state epidemiologist.——Dr. Wilford H. Crutcher, assistant superintendent of the Ingleside State Hospital, has been appointed superintendent of the Orthopedic Hospital, Lincoln, which has been combined with the Home for Dependent Children.

NEW YORK

Former Surgeon-General Leases Property. — Dr. Charles Francis Stokes, Warwick, formerly surgeon-general of the United States Navy, has leased Onteora Villa at Chappaqua, for a long term of years.

Letchworth Tablet Unveiled.—The ninety-fourth anniversary of the birth of William Pryor Letchworth was celebrated at Letchworth Park, Warsaw, May 26, when the Boulder tablet was unveiled.

Tuberculosis Hospital Bill Signed.—Governor Whitman has signed a bill, passed at the recent session of the legislature which provides that every county in the state which has not now a tuberculosis hospital, must establish one before July, 1918.

Buffalo Alumni Elect New Officers.—At the annual meeting of the Alumni Association of the University of Buffalo, June 1, the following officers were elected: president, Dr. William G. Bissel, Buffalo; vice president, Drs. Jacob Frank, Chicago; George E. Blackham, Dunkirk, N. Y.; Homer J. Knickerbocker, Geneva, N. Y.; Edith R. Hatch, Buffalo, and John A. Conway, Hornell, N. Y.; secretary, Dr. Abraham H. Aaron, Buffalo; treasurer, Dr. James C. Sullivan, Buffalo.

Personal.—Dr. Frank Overton, Patchogue, had conferred on him a degree of Doctor of Public Health by the New York University, June 9.——Dr. Charles W. Farr, Ossining, is reported to be improving after a serious attack of septicemia due to an operation wound.——Dr. Edward J. Meyer, Buffalo, has been appointed chairman of the West Farms Hospital Commission for a term of five years.——Dr. Charles W. Pilgrim, Poughkeepsie, has declined to accept the appointment as medical superintendent of the Manhattan State Hospital, succeeding the late Dr. William Mabon, but will continue as president of the State Hospital Commission.——Drs. Montgomery E. Leary and John M. Lee have been elected directors of the Rochester Public Health Association.

New York City

Orphanage Open.—The Israel Orphan Asylum was formally opened by Mr. Nathan Straus June 10.

Straus Milk Stands Open. — The summer work of the Nathan Straus Pasteurized Milk Commission began June 16 with the opening of depots at the parks, where pasteurized milk was sold at one cent a glass. This is the twenty-fifth summer in which this philanthropic work of Mr. Straus has been carried on.

Hospitals Enlarged. — The Broad Street Hospital has increased its facilities by the purchase of a five-story building adjoining the present hospital building.——The Jewish Maternity Hospital is to be extended from East Broadway to Division Street, the trustees having purchased the property in the rear of the institution.

Glanders in New York City.—The supervision of stables by the Department of Health has made possible a more effective control of glanders, which decreased from 1,153 cases in 1914, to 704 in 1915, and to 399 in 1916. There are under supervision 10,584 stables in the city accommodating 108,036 horses, and 1,266 vacant stables with stalls for 6,842 horses.

Personal.—Dr. J. Ramsay Hunt has been appointed consulting neurologist to the Letchworth Village for Mental Defectives in New York State at Thiells, N. Y.——Dr. Thomas Addis Emmet, now past 90 years of age, was given the honorary degree of LL.D. by the Catholic University, Washington, D. C., May 29.——The degree of LL.D. was conferred on Dr. Carlos Frederick MacDonald by the New York University at the recent eighty-fifth annual commencement.

NORTH DAKOTA

Hospital News.—The Nurses Home of the Bismarck Evangelical Hospital, recently erected at the cost of $70,000, was formerly dedicated June 6.——The contract for the construction of St. Joseph's Hospital, Mino, has been awarded to a Fargo firm. The building completed will cost about $100,000.

Personal.—Dr. Arnt Thomas Floew has been appointed surgeon at Harvey for the Minneapolis, St. Paul, and Sault Sainte Marie Railway.——Dr. Eric P. Quain, chief surgeon of the Bismarck German Evangelical Hospital is equipping at the cost of $10,000, a section of the National Red Cross, the other medical members of the staff are Drs. Eric P. Quain, Julius O. Arnson and Frederick F. Griebenow, Bismarck, and Dr. Aloysius Nachtwey, Dickinson.

PENNSYLVANIA

Charter Asked for Hospital.—Application was made in Scranton, June 8, for a charter for the Emergency Hospital, formerly the Dr. Reed Burns Private Hospital.

Birth Control Bill Passed.—A bill forbidding the promulgation of birth control doctrines has passed the House of Representatives by a vote of 188 to 3.

Doctors for the Army.—As a result of a visit to Chester by a group of army surgeons, eight members of the Delaware County Medical Society have volunteered for service in the U. S. Medical Corps. The recruits are Drs. W. Knowles Evans, Chester; Edwin C. Bullock, Upland; Harry Gallager, Glen Olden; John O. Crist, Carrisburg; Louis S. Dunn, Chester, Thomas A. Booth, Boothwyn; Walter A. Landry, Chester, and Michael Freeman, Philadelphia. Nine members of the Chester Hospital staff are now enrolled, six having enrolled last month.

Personal.—Drs. W. W. Workman, Mt. Joy, and John D. Boger and Grant B. Weaver, Lancaster, have been commissioned First Lieutenants M. C. Pa., M. G., and assigned to duty with Field Hospital No. 3.——Dr. Leo C. Mundy, Wilkes-Barre, has been appointed division surgeon for the Delaware and Hudson Railroad Company, succeeding Dr. David H. Lake, Kingston, resigned.——Dr. C. J. Watson has been commissioned First Lieutenant M. C. N. G., Pa., and assigned to Field Hospital No. 2.——Dr. Virginia Percira Alvaraz, of Venezuela, was awarded the only prize in anatomy given by the Woman's Medical College at its commencement exercises, June 6.

Philadelphia

Dr. Marshall Retires.—Dr. Clara Marshall has retired as dean of the Woman's Medical College of Pennsylvania, after twenty-nine years of service. Dr. Martha Tracy, Philadelphia, professor of physiological chemistry and hygiene, has been appointed as acting dean.

Second Line of Medical Reserve.—Physicians of Philadelphia more than 55 years of age and consequently past the age for military services have organized under the auspices of the Philadelphia County Medical Society and will offer their services to the government for activities within their abilities, such as the examination of recruits for the army, the care of the injured, sick, disabled and convalescents, the care of defectives, the giving of lectures and demonstrations, and the like.

Personals. — Dr. Peter F. Moylan has been appointed a Knight of the Order of St. Gregory the Great, by the Pope in recognition of his services for Catholic hospital and other charities.——Dr. Wilmer Krusen, director of public health

and charities, addressed the class-day exercises of the Samaritan Hospital Training School for Nurses, June 14. ——Dr. Moses Behrend has been appointed surgeon to the Mt. Sinai Hospital.——Dr. Arthur J. Davidson has been made assistant professor of orthopedic surgery in Jefferson Medical College.

Medico-Chirurgical Buildings for Naval Hospital.—Negotiations are now under way by which the present buildings of the Medico-Chirurgical College and Hospital will pass under the management of the Red Cross and will be organized and maintained as a naval hospital. The city will allow the buildings to remain in their present location, and the hospital will be maintained for the duration of the war. The hospital will have capacity for about 250 patients, and Logan Square will be utilized largely for recuperation of convalescents.

Branch Naval Medical College.—Owing to the present overcrowded condition of the Naval Medical School at Washington, a branch has been organized and is now being conducted in this city. A six-weeks' intensive course in instruction has been arranged and will be given at the Jefferson, Naval, Medico-Chirurgical and Philadelphia hospitals. A group of forty physicians is now here for study, and more will be received as fast as arrangements can be completed. The staff of instructors comprises the following Philadelphia physicians: Surgery, J. C. Da Costa; operative surgery on the cadaver, M. B. Miller; medical and physical diagnosis, Judson Daland; laboratory, H. A. Hare; psychiatry, W. W. Hawke; ophthalmology, T. B. Holloway. Associates, A. C. Morgan, Guy Hinsdale, F. J. Dever, Wm. H. Robertson, Clarence N. Smith. Advisory staff, Dr. Diehl, medical director; Dr. Dunn, lieut. commander Naval Hospital; Dr. R. A. Bachman, military hygiene and tropical medicine.

SOUTH DAKOTA

Personal.—Dr. Harry J. Bartron, Watertown, has been appointed physician of Codington County.

Chiropractic Bill Defeated.—The South Dakota chiropractic bill was defeated by one vote in the last legislature. The chiropractors spent a great deal of time and money trying to lobby the bill through.

Ladies Day.—The meeting of the Lake Preston (third) District Medical Society held its June meeting at Lake Preston, June 6, and was ladies day. Mrs. Allison and Mrs. Bailey entertained the ladies during the afternoon, while the scientific program was being carried out at the offices of Dr. Nathan L. Bailey.

State Society Meeting.—The thirty-sixth annual meeting of the South Dakota State Medical Society was held in Yankton, May 20 to 30, under the presidency of Dr. Francis M. Crain, Redfield, and the following officers were elected: president, Dr. Herman J. G. Koobs, Scotland; vice presidents, Drs. Daniel L. Scanlan, Volga, and Harry T. Kenney, Pierre; secretary-treasurer, Robert D. Alway, Aberdeen (reelected). Mitchell was selected as the place of meeting for 1918.

Society will Render Patriotic Aid.—At a meeting of the Mitchell District Medical Society, May 15, the society pledged itself to care for and keep the families of the physicians who volunteer for war duty during the period of the war. This will be met by a popular subscription payable each month and will be disbursed by a committee of five men in the society. The resolution carried unanimously and is certainly a very patriotic and self-sacrificing act on the part of the society.

TEXAS

Roentgenologists Hold Meeting.—The Texas Roentgen-Ray Society held its fourth annual session in Dallas, May 7, and elected the following officers: president, Dr. Rabun T. Wilson, Temple; vice president, Dr. Robert H. Millwee, Dallas; secretary-treasurer, Dr. John W. Torbtt, Marlin (re-elected).

Former Presidents Elect.—The annual meeting of the Association of Former Presidents of the State Medical Society of Texas was held in Dallas, May 9, and the following officers were elected: president, Dr. Bacon Saunders, Ft. Worth; vice president, Dr. Samuel C. Red, Houston; secretary, Dr. James D. Osborn, Cleburne.

Railway Surgeons Re-elect Officers.—At the first annual meeting of the Texas Railway Surgeons Association, held in Dallas, May 7, the following officers were re-elected: president, Dr. Robert W. Knox, Houston; first vice president, Dr. Joseph H. Reuss, Cuero; secretary, Dr. Douglas Largen, San Antonio. Three new offices were created, and these were filled as follows: second vice president, Dr. Hugh D. Barnes, Childress; third vice president, Dr. Edmund B. Parsons, Palestine; treasurer, Dr. W. Burton Thornting, Houston.

Health Survey in Dallas County.—The Dallas County Commissioners have accepted the offer of the International Health Board and the Texas Board of Health to be one of five counties for a health demonstration, beginning June 19. They have appropriated $2,400 to meet a portion of the expense for Dallas County. The plan includes lectures in rural communities, a record of sickness from preventable diseases with time lost from work and expense for medicine and physicians' bills, the examination of sanitary conditions, hookworm, intestinal parasites and malaria, and the examination of children of school age for physical defects.

CANADA

Council Meeting.—The annual meeting of the New Brunswick Council of Physicians and Surgeons was held in April, and the following officers were elected: president, Dr. Levi M. Curren; treasurer, Dr. Allan F. Emery, and registrar, Dr. John S. Bentley, all of St. John.

Staff Moved to Camp.—The army medical authorities, Canada, are moving the staff of the Hamilton (Ont.) Hospital to Camp Borden, where they will be under the command of Capt. William L. C. MacBeth, Toronto. Accommodation for 400 additional beds is being provided at the camp.

New Details.—The appointment of the following officers to the Army Medical Corps Training Depot No. 2 has been approved provisionally: to be captain, Lieut. Alfred E. Morgan; to be lieutenants, Frank Roy Smith, Harold John Irvine, Nicholson William Furey, Charles R. McTavish and Charles Vincent Scott.

Hospital News.—The Holy Cross Hospital at Calgary, Alberta, is to be enlarged.——A new hospital is to be opened at Fort McMurray, Alberta.——The Canadian Military Hospitals Commission will build an amusement hall for returned soldiers on the grounds of the Ontario Hospital for the Insane at Whitby, Ontario.

Convocation.—The annual convocation of McGill University, Montreal, took place May 11, when the degree of M.D., C.M. was conferred on a class of sixteen. All the candidates had already seen military service abroad, and returned to Canada to complete their studies.——The annual convocation of Dalhousie University, Halifax, N. S., was held, May 10. Seven candidates received the degree of M.D., C.M. Several of them will join the C. A. M. C.

Personal.—Major D. A. Clark, Toronto, is now A.D.M.S., Bramshott, England.——Col. A. E. Ross, M.D., M.P.P., Kingston, Ontario, is director of medical services for Canadian Overseas forces in France.——Dr. M. F. E. Graham, assistant physician at the Brockville, Ontario, Hospital for the Insane, has been appointed resident physician of the Royal Jubilee Hospital, Victoria, B. C.——The French War Office has decorated for conspicuous bravery the following members of the C. A. M. C.: Lieut.-Col. Arthur Mignault, Montreal (Croix de Chevalier); Capt. Arthur Chester Armstrong, Alexander, Man. (Croix de Guerre).——Capt. G. Russell Reid, Toronto, has been appointed medical officer of the 253rd Battalion. —— Amongst Canadian physicians reported recently wounded are: Col. J. J. Fraser, Walkerton, Ont.; Capt. A. H. Wallace, Chilliwack, B. C.; Lieut. R. S. Stone, Chatham, Ont.

GENERAL

Otologists Elect Officers.—At the annual meeting of the American Otological Society in Atlantic City, N. J., May 30, Dr. Norval H. Pierce, Chicago, was elected president; Dr. Ewing W. Day, Pittsburgh, vice president, and Dr. George E. Shambaugh, Chicago, secretary.

Eye, Ear and Throat Men to Meet.—The twenty-second annual meeting of the American Academy of Ophthalmology, Oto-Laryngology will be held at the Hotel William Penn, Pittsburgh, October 29-31, under the presidency of Dr. William L. Dayton, Lincoln, Neb.

Milk Experts Hold Meeting.—The annual meeting of the American Medical Milk Commissioners was held in Brooklyn, May 31-June 1 and 2, and the following officers were elected: president, Dr. Otto P. Geier, Cincinnati; secretary, Dr. Alfred Bell, Brooklyn, and treasurer, Dr. L. R. De Buys, New Orleans.

Gynecologists Hold Meeting.—At the forty-second annual meeting of the American Gynecological Society, held in Pitts-

burgh, June 1, the following officers were elected: president, Dr. John G. Clark, Philadelphia; vice presidents, Dr. Henry T. Byford, Chicago, and Brooks H. Wells, New York City; secretary, Dr. George G. Ward, Jr., New York City; treasurer, Dr. Brooke M. Anspach, Philadelphia.

Car for Medical Staff.—A medical car fitted up with a special reference to the examination of the railway employees has been built by the Baltimore and Ohio Railway. The car is to be used as an office for the chief medical examiner of the company, and his staff, and is equipped with all apparatus necessary for making the examination of employees, and for giving instruction in first aid to the injured.

Tri-State Hospital.—The State Hospital for Cripples has asked Arkansas and Mississippi to share in the first cost of the Tri-State Hospital for Crippled Children, which is to be located in or near Memphis. Memphis has promised to give $25,000 for the institution. In the three states there are said to be nearly 10,000 crippled children, most of whom are dependents.

Railway Surgeons Elect Officers.—The sixteenth annual meeting of the Frisco Medical Association was held in Springfield, May 28, and the following officers were elected: president, Dr. James A. Foltz, Ft. Smith, Ark.; vice president, Dr. Elmer E. Liggett, Oswega, Kan.; secretary-treasurer, Dr. Ross A. Woolsey, St. Louis. St. Louis was selected as the place of meeting for 1918.

New Officers for Surgical Association.—The annual meeting of the American Surgical Association was held in Boston, June 2, and the following officers were elected: president, Dr. Thomas W. Huntington, San Francisco; vice presidents, Drs. Albert J. Ochsner, Chicago, and John B. Deaver, Philadelphia; secretary, Dr. John H. Gibbon, Philadelphia. Cincinnati was selected as the meeting place for next year.

Sanitarians Meet in Greenville.—The annual meeting of the Southeastern Sanitary Association was held in Greenville, S. C., May 11 and 12, and the following officers were elected: president, Dr. Mather M. McCord, Rome, Ga.; vice presidents, Drs. A. V. Wood, Brunswick, Ga.; Francis A. Coward, Columbia, S. C.; Carl V. Reynolds, Asheville, N. C., and J. O. Smith, Nashville, Tenn., and secretary-treasurer, Dr. Clarence E. Smith, Greenville, S. C.

New Officers for Laryngological Society.—At the annual meeting of the American Laryngological Society, held in Atlantic City, May 30, it was voted to make the next congress a jubilee in celebration of the fortieth anniversary of its foundation. Dr. J. Solis Cohen, Philadelphia, one of the founders, was chosen to preside. The following officers were elected: president, Dr. Thomas H. Halsted, Syracuse, N. Y.; vice presidents, Dr. John E. Rhodes, Chicago, and Dr. D. Crosby Greene, Boston; secretary, Dr. Harmon Smith, New York City; treasurer, Dr. J. Payson Clark, Boston, and librarian, Dr. Joseph H. Bryan, Washington, D. C.

Throat, Nose and Ear Specialists Hold Meeting.—At the twenty-second annual meeting of the American Laryngological, Rhinological and Otological Society, held in Atlantic City, June 1, Dr. George L. Richards, Fall River, Mass., was elected president; Dr. D. Crosby Greene, Jr., Boston, vice president for the eastern section; Dr. Daniel W. Layman, Indianapolis, vice president for the middle section; Dr. Thomas W. Moore, Huntington, W. Va., vice president for the southern section; Dr. Frank R. Spencer, Boulder, Colo., vice president for the mid-western section; Dr. Harrington B. Graham, San Francisco, vice president for the Western Section; Dr. William H. Haskin, New York City, secretary, and Dr. Ewing W. Day, Pittsburgh, treasurer.

Southern Railway Surgeons Meet.—The annual meeting of the Southern Railway Surgeons' Association was held in Jacksonville, Fla., May 15-17, and the following officers were elected: president, Dr. Aurelius R. Shands, Washington, D. C.; vice presidents, Drs. Joseph A. Goodwin, Jasper, Ala.; Daniel V. McClary, Dale, Ind.; Edgar C. Doyle, Seneca, S. C., and Oliver G. Falls, Kings Mountain, N. C., and secretary-treasurer, Dr. William A. Applegate, Washington, D. C. The prizes for the best papers read at the convention were awarded as follows: first prize, Dr. Hugh R. Black, Spartanburg, S. C.; second prize, Dr. Daniel V. McClary, Dale; third prize, Dr. Aurelius R. Shands, Washington, D. C., and fourth prize, Dr. George P. Neel, Greenwood, S. C.

Civil Service Examinations.—The United States Civil Service Commission announces an open competitive examination for anatomists, both men and women, to be held, July 11, at various places throughout the United States, to fill vacancy in the Army Medical Museum Office of the Surgeon-General, Washington, D. C., at $1,600 a year, and future vacancies requiring similar qualifications will be filled from this examination. The candidate must have at least a collegiate degree, must have a thorough knowledge of the anatomy and be experienced in the dissection of disease-bearing mosquitoes and of the relation of mosquitoes to transmission of the disease. Applicants should apply to the Civil Service Commission, Washington, D. C., or the secretary of the local civil service board for Form 1312, which gives the particulars of this examination.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Mary's Free Hospital for Children, New York City, $15,000; St. Luke's Hospital, New York City, $25,000 by the will of Miss Susan Mount.

German Hospital, Philadelphia, $20,000; Polyclinic and Philadelphia Lying-in hospitals, each $10,000 by the will of William P. Baltz.

Harriman fund for Orthopedics in Yale University to provide for the salary of a professor of orthopedics, who shall divide his time between the Medical School and the University Board of Health, and whose duties in the latter part will be the care of physical deformities in students of the University, a gift of bonds, which will yield an income of $4,600 annually, by Mrs. Edward H. Harriman.

Long Island College Hospital, Brooklyn, more than $45,000, and Dr. John A. Longmore, the medical library and cash valued in all at $89,892.01, by the will of Dr. John A. McCorkle.

Long Island College Hospital, Brooklyn, a donation of $50,000 to the McCorkle Memorial Fund, by friends of the late Dr. McCorkle.

Columbia War Hospital, New York City, a donation of $175,000 by Mr. Daniel G. Reid.

Gaylord Farm Sanitarium, Hartford, Conn., a donation of $100,000 to the endowment fund by Mr. Henry H. McHarg, Stamford, Conn.

Hospitals in Vermont, Massachusetts, and Rhode Island, donations of $600,000 by Ira D. Calef, who died recently in Washington, Vt.

FOREIGN

Bárány Goes to Uppsala.—The University of Uppsala has appointed Robert Bárány of Vienna, instructor in otology, rhinology and laryngology. It will be remembered that he was awarded the Nobel prize in medicine corresponding to the year 1914.

Another Martyr to the Roentgen Rays.—Dr. J. Pujol of Barcelona was the first in that part of Spain to apply therapeutically the Roentgen rays. His Roentgen cabinet was opened in 1897, before science had learned to protect the operator. In time he developed gangrene in both feet, and one leg had to be amputated.

Recent Casualties in the British Army Medical Corps.—Lieut.-Col. W. B. Grandage, in command of a combatant unit, aged 37; Capt. J. F. S. Annesley, aged 52; Capt. P. H. Burton, aged 49; Lieut. J. Rae; Col. J. H. E. Austin, member of the Royal Army Medical Corps since 1887, serving in India, Egypt, South Africa and France; Col. F. A. Symons; Lieut. J. A. Gregory, aged 26; Capt. W. G. Cummings; Capt. H. H. Robinson; Capt. R. F. Russell; Capt. C. A. W. Pope; Capt. R. H. Wilson; Capt. J. E. Black, and Lieut. J. Marshall.

Smallpox at Berlin.—The *Hospitalstidende* of Copenhagen quotes from the *Berliner klinische Wochenschrift,* No. 14, 1917, to the effect that there had been 181 cases of smallpox at Berlin this year, to March 21, and 900 cases in all throughout Prussia. The mortality was about 10 per cent. Physicians were advised to vaccinate anew at once when the first vaccination did not take. They were warned further that, instead of the ordinary scarification, it would be better to make a deeper incision on account of the frequently observed modification of the skin in consequence of the restricted diet. A scratch with a comparatively blunt instrument is better for the purpose than a cut with a sharp knife.

Deaths in the Profession Abroad.—G. Rummo, professor of clinical medicine at the University of Naples, and founder and editor of the Italian medical weekly, *Riforma Medica,* now in its thirty-third year. Rummo defined several clinical pictures before him only vaguely surmised, such as cardioptosis—which is listed in the Surgeon-General's Catalogue as "Rummo's disease"—also diseases of the blood-producing apparatus, certain forms of cirrhosis of the liver, etc.——**O. von Schrön,** professor of pathologic anatomy at the University of Naples since 1864. Besides works on pathologic anatomy he has published others on what he called the "phthisiogenous microbe," on the serous, gaseous and crystalline secretions of bacteria, and on crystallization in general. ——**E. Bejarano** of Madrid, inspector general of the national public health service of the interior.——**U. Fournié,** dean of the physicians of Bordeaux, aged 95.——**Major Greenwood,** an eminent practitioner of London, an authority on medico-

legal matters, novelist and poet, aged 63.——**W. Findlay** of Glasgow, author of "Robert Burns and the Medical Profession," and "Poems of a Physician," aged 71.——**C. Mellinger,** professor of ophthalmology and chief of the eye clinic of the University of Basel, died suddenly, May 21.——**F. Boselli,** assistant at the maternity at Milan, aged 27.——**L. M. Cowley,** professor of hygiene, legal medicine and toxicology at the University of Havana.——**H. Krabbe,** professor emeritus of anatomy and physiology at the Copenhagen Agricultural College, aged 87. His medical training rendered his comparative research on tenia in animals and man particularly important. ——Major **Blandeau** of Paris, in charge of a base military hospital.

LONDON LETTER

London, June 4, 1917.

The War

THE AMERICAN BASE HOSPITALS IN THE BRITISH SERVICE

The arrival of two American hospital units in England has already been announced. The arrival of others in the near future, making six in all, is expected. Some of the units have already left for France. Each unit will take over a British base hospital and furnish a complete staff. Another unit consists of twenty orthopedic surgeons from various parts of the United States under the command of Major Joel E. Goldthwaite. They have come over at the request of Col. Robert Jones, under whom they will work in the British Isles.

ANOTHER HOSPITAL SHIP TORPEDOED

The hospital ship *Dover Castle* was torpedoed in the Mediterranean at 6 o'clock and again at 8:30 on the same evening. The whole of the patients and hospital staff were safely transferred to other ships, but of the crew six are missing and are believed to have been killed by the explosions. This makes the fifth British hospital ship to have been torpedoed without warning since March 20, when the *Asturias* was attacked and thirty-one of the medical service and crew were killed; twelve, including a woman staff nurse and a stewardness were missing, and thirty-nine were injured.

Death from Eating Rhubarb Leaves

The curtailment of food supplies due to the war has led to a number of suggestions as to the use of various articles which do not usually enter into the diet of our people. Some of these suggestions, of which a number were given in a previous letter (The Journal, May 12, 1917, p. 1421) are excellent, but one has had unfortunate results. Several persons became seriously ill as a consequence of following the advice to cook and eat rhubarb leaves, which were declared to be an excellent substitute for spinach, and some died. One case occurred in a clergyman whose death was the subject of a coroner's inquest. According to the evidence of Mr. J. Webster, pathologic chemist at St. Mary's Hospital, traces of oxalic acid were found in the internal organs. Oxalic acid was present in the rhubarb leaves in the form of oxalate potassium and calcium oxalate, there being approximately 10 grains of each to the pound. Dr. B. H. Spilsbury, the pathologist, who made the necropsy, said that death was due to coma consequent on poisoning from the oxalic acid contained in the leaves. In reply to the coroner, who asked whether the quantity present in the leaves was injurious, he said that in the ordinary way it might not be sufficient, but it was a borderline amount and might affect some persons more than others. Asked whether the public should be in any way alarmed about using rhubarb stalks, he said that he did not think so, as there would have been many cases of poisoning if there was any harm in the stalks. But he gave the warning that soda should not be used in cooking them. This had been advised as an economy for sugar. As an article in *Nature* shows, poisoning by rhubarb leaves is not new. Seventy years ago a woman in Chelsea boiled rhubarb leaves as a substitute for spinach, and three persons who ate of the dish became ill. In the *Transactions* of the Horticultural Society for 1848, Solly showed that nearly twice the amount of organic and inorganic matter is present in rhubarb leaves as in the stalks. For more than 100 years the stalks have been extensively used in this country as a substitute for fruit, and only in rare cases of idiosyncrasy have any ill effects been observed.

Bubonic Plague in England

The steamship *Sardinia,* from Eastern ports, arrived at Gravesend, May 2. Between April 27 and May 2, five cases of bubonic plague with three deaths had occurred among the crew. Two further cases occurred after arrival at Gravesend. The patients were removed to a hospital. The cases were limited to the crew of the vessel. The ship was ordered to a mooring station where the cargo was discharged into barges under careful supervision, and precautions were taken to prevent access of rats from the ship to the shore. Complete fumigation was carried out and the ship has since sailed.

A Ministry of Health

The desirability of creating a ministry of public health, which would coordinate the various health services now in existence under a cabinet minister, is being discussed. The Association of Municipal Corporations has passed the following resolution:

> Inasmuch as the conservation and improvement of the public health call for the exercise of wide powers of local government touching the lives of the people at many points and involving questions not only of public medicine but also of engineering, economics and finance, and as these powers have for many years been entrusted to publicly elected bodies under the supervision and regulation of the Local Government Board, and under this system there has been a steady improvement in the health of the people, this council is of opinion that if any further consolidation of public health or extension is desired it should be attained by development of the present organization and the recognition of the Local Government Board as the central public health department.

The Women's Cooperative Guild, in a memorandum on the national care of maternity, has put forward the following demands: 1. The immediate creation of a ministry of health. 2. The provision of adequate government grants to stimulate the work of local authorities and provide a maternity allowance of $2.50 per week for two weeks before and four weeks after confinement for all women whose resources are below the income tax limit of $800 per year. This would amount to making the care of maternity a function of the state. A deputation from the Panel Medico-Political Union (the official organization of the panel physicians) has been received by the president of the Local Government Board in regard to the proposed ministry of health. The chief point emphasized by the union was the necessity of guaranteeing free choice of physician, and it was pointed out that general practitioners were determined in their opposition to a whole-time service. The president in his reply applauded the desire to maintain individualism in practice and to give free choice of physician, and did not favor a whole-time service.

PARIS LETTER

Paris, May 24, 1917.

The War

THE CARE TO BE ACCORDED PATIENTS SUFFERING FROM LEG WOUNDS

At one of the recent meetings of the Surgical Society of Paris, Chevrier, hospital surgeon, gave an interesting talk on the special care to be given patients with leg wounds. These patients must not stand on their feet until their wounds have entirely scarred over, for this position, on account of the unfavorable conditions it imposes on the venous circulation, hinders the process of granulation and thus retards cicatrization. However, this prolonged confinement to the bed must not be simply a passive and negative treatment. The time should be actively employed in preparing the patient to get up. This preparation consists in: (1) the correction of the posture of the injured member; (2) the exercising of the muscles, and (3) the strengthening of the joints. It is important from the standpoint of posture not to allow the patients to assume faulty positions of the thigh, lower leg or foot which it would be necessary to correct later, and which sometimes could be corrected only with great difficulty.

Chevrier proposed a series of efficacious measures to counteract these faulty postures. These measures were: raising the foot higher than the head, putting a sack of sand on the knee, keeping the foot at a right angle, elastic traction, etc. While the patient is confined to the bed, the muscles and the joints should be strengthened by systematic and judicious exercise. The patient's wounds having scarred over, his muscles having been strengthened and his joints having been made supple, he is ready to leave the bed, but before he is allowed to walk freely he must be prepared for it. This preparation, which is for the purpose of aiding the patient to find again his sense of equilibrium, sometimes consists simply of assuring the examiner that this sense has not been

lost, and sometimes it takes on a therapeutic aspect and covers a variable period, which is, however, usually short. The verification comprises two tests: the test of the suppleness and the test of the strength of the injured member. The test of suppleness consists in having the patient assume the position of "attention," with heels together and feet outspread. He is then given the order to crouch, keeping his feet flat on the floor. If he does not crouch at least half way, he should not walk yet. The test of his strength consists in having him raise alternately one leg, then the other, as in marking time. If the patient cannot balance himself on one leg, he cannot walk normally without his knees giving way, since each step in the act of walking requires unilateral support for a fraction of a second. If the tests for ascertaining the suppleness and the strength of the leg do not result satisfactorily, Chevrier changes the method of preparation and gives the exercises a more therapeutic character. This consists in the use, as a form of gymnastics, of the two exercises just mentioned—crouching repeated several times a day in series of thirty or forty movements; and marking time, which should gradually change to a flexion of the thigh on the pelvis until it forms a right angle, with the lower leg pendent.

Owing to this practice of not getting up too soon after the cicatrization of the wound, and the care taken to exercise the muscles and strengthen the joints, there is no necessity for canes and crutches unless there is such noticeable shortening of the leg as not to permit the direct or normal support. One avoids thus numerous troublesome consequences, which arise from the use of crutches and from patients getting up too early, such as: permanent demiflexions of the knee, stiffness, ankyloses and clubfoot.

As for the treatment of rebellious musculotendinous clubfoot by means of elastic traction, etc., Chevrier performs tenotomy of the Achilles tendon under local anesthesia. This is a strictly subcutaneous and not an open tenotomy. After a tenotomy is performed, the foot is immobilized in a plaster cast, being allowed to bend comfortably beyond the right angle. The cast does not extend beyond the knee. The patient should walk with this apparatus and keep it on for three or four weeks. Following this period, after the apparatus is removed, the patient will remain in bed for a time while the foot is massaged and the joints are strengthened by exercising. Only at the end of two weeks will the patient be permitted to walk freely.

Dr. Broca, hospital surgeon and associate professor of the Faculty of Medicine at Paris, after having expressed his approval of Chevrier's advice in regard to patients suffering from leg wounds remaining in bed, remarked that with respect to the treatment of clubfoot by tenotomy the lengthening of the Achilles tendon by a Z incision is much preferable to the transversal tenotomy. As the result of the latter operation, one often observes a wabbling foot, owing to lack of proper cicatrization. This opinion is shared by Delbet, Walther and Mauclaire. Chaput, however, who has performed a large number of subcutaneous transversal tenotomies, has never observed wabbling feet as the result of this operation. He thinks that this infirmity is caused by the fact that the patients are not kept sufficiently quiet. They should be kept quiet for three weeks at least.

LARGE WOUNDS OF THE FOOT

Quénu has made a report to the Surgical Society of Paris containing observations of thirty foot wounds treated in the hospitals by Chalier of Lyons. In one of these cases, the soft parts alone were concerned. In the twenty-nine others, osteo-articular wounds were treated. Quénu insists particularly on the distinction being made between the wounds of the anterior tarsus and of the posterior tarsus. The former are much less grave than the second. The thirty wounds of the foot or instep observed by Chalier resulted in three deaths (one from tetanus, two from gas gangrene), ten total mutilations (amputations of the lower leg), four partial mutilations (partial amputations of the foot), and thirteen recoveries without mutilation. These statistics emphasize the seriousness of wounds of the foot and instep, as observed at the front in contrast with those which are observed in the interior. These were selected cases, for those patients suffering from total or partial crushing of the foot had been eliminated. Nevertheless, Quénu calls attention to the fact that, owing to circumstances, Chalier was not able to operate on these patients, except at the secondary infectious period; whereas, in the case of the foot, as much, if not more than elsewhere, prompt intervention is the prerequisite of success.

Delbet, professor of the surgical clinic of the Faculty of Medicine at Paris, has observed that cases of shattering of the posterior tarsus with crushing of the calcaneum are exceptionally serious. In such cases one must not carry to extremes the principle of conservation. It is sometimes better to amputate than have the patient run grave risks in order to preserve a foot which will be of no use. When should one amputate? That is a question which is not yet quite settled and which, it would seem, deserves discussion. Quénu has tried to rehabilitate Chopart's operation, but Delbet has seen this operation as performed by other surgeons when it yielded deplorable results.

Sebileau, hospital surgeon and associate professor of the Faculty of Medicine of Paris, has had an opportunity of observing thirty cases of foot wounds, and from this experience he has gained the impression that these wounds are not so serious as Quénu maintains. Without performing an operation immediately, but just waiting, not mutilating, but only watching the indications of the present hour, allowing the restoration process to operate in the large warm baths of serum and phenol solution, he obtained the remarkable result that not one of his patients lost a foot or the use of a foot.

Chaput, hospital surgeon of Paris, obtained, on the whole, very good results in the treatment of gunshot wounds of the foot. He had to amputate in only two or three cases, and these patients were inveterate alcoholics who came to him with gangrene of the foot and even of the leg.

Potherat, hospital surgeon of Paris, thinks that, in order to appreciate the seriousness of foot wounds caused by war projectiles, there is no use of making a comparison between what one sees at the front and what one sees at the rear. At the rear, foot wounds, often multiple foot wounds, appear less grave, and conservation carried to the utmost limits produces the most encouraging results. At the front, foot wounds from the outset are serious. The reasons for this are chiefly the anatomic disposition of the foot, and the fact that synovial tendinous or articular sheaths abound which are particularly favorable to infection. The fact that foot wounds become serious at the outset leads to early partial or total amputations at the front. When the patients reach the rear they no longer have foot wounds: these have been amputated. It goes without saying that those who succumb before or after having the foot amputated are also excepted. As for the operations in which these wounds constitute an indication, Potherat recommends highly in cases in which total amputation of the foot is necessary that Syme's amputation be used, which, according to him, offers great advantages. It is an easy operation for a surgeon, rapid, requiring the removal of little of the soft skin of the foot. It can be carried out even after infection has set in. It is easy to adjust an apparatus after recovery; in fact, it can be adapted to the requirements of any apparatus. It produces only a slight shortening of the leg. This operation is therefore much superior to amputation of the lower leg. J.-L. Faure, hospital surgeon and associate professor of the Faculty of Medicine at Paris, has stated that, even as viewed in the territorial hospitals, wounds of the posterior tarsus are serious wounds. They are especially serious when the astragalus is affected. When the superior and inferior astragaloid joints have been opened, particularly the superior astragaloid joint which is the tibiotarsal joint, almost always the evolution of the wounds leads to astragalectomy, sometimes followed by amputation of the lower leg after months of suffering and fruitless attempts at conservation. Faure thinks, moreover, that one must not go to extremes in the matter of conservation, and that often a good amputation of the lower leg is preferable to certain irregular operations which one is induced to perform on the foot, after which the patients walk only poorly.

Kirmisson, hospital surgeon and professor of the surgical clinic for children's diseases of the Faculty of Medicine at Paris, thinks also that an important distinction should be made between wounds of the anterior and the posterior tarsus. The latter are much more serious in connection with the crushing of the calcaneum and the astragalus and the opening of the large joints of the posterior tarsus. As for the partial amputations of the foot, Kirmisson is a strong advocate of the Chopart operation, which he has seen give good results. Of the other partial amputations of the foot, the tibiotarsal and inferior artragaloid disarticulations, and the Pirogoff amputations are also capable of producing excellent results, provided one has supple cicatrices and there is sufficient flesh around the wound. This opinion is shared by Broca.

Marriages

WILLIAM BRADFORD BLANCHARD, M.D., Framingham, Mass., to Miss Bertha Hazel Barker of Meriden, Conn., June 4.

BERNARD LOUIS PLOUFFE, M.D., Webster, Mass., to Miss Cecilia Clare Delhanty of Southbridge, Mass., June 4.

ROY WOODHAMS, M.D., San Francisco, to Miss Beryl Dewey of Healdsburg, Calif., at Santa Rosa, Calif., May 18.

FRANK ROY STEWART MISSNER, M.D., San Francisco, to EVA LILLIAN DURGIN, M.D., Cupertino, Calif., June 3.

PHILIP HASKELL SYLVESTER, M.D., Newton Center, Mass., to Miss Dorothy Young of Haverhill, Mass., June 2.

NICHOLAS AMBROSE GALLAGHER, M.D., Malden, Mass., to Miss Anna B. Bonzagni of Brookline, Mass., June 5.

ARTHUR ACQUILLA BRINDLEY, M.D., Swanton, Ohio, to Miss Katherine Marie Thomas of Lansing, Mich., June 1.

EDMUND JOSEPH BURKE, M.D., LaSalle, Ill., to Miss Millie Christianson of Ettrick, Wis., at Chicago, May 28.

WILLIAM CRAWFORD WHITE, M.D., New York, to Miss Caroline Ruth Taylor of Montclair, N. J., June 1.

CLYDE BYRON TERWILLEGAR, M.D., to Miss Olive Taul, both of Milford, Ohio, at Maysville, Ky., May 19.

CHARLES BARNARD JACKMAN, M.D., Ottumwa, Iowa, to Miss Fawn C. Reed of Delta, Iowa, April 25.

GEORGE NATHANIEL PRATT, M.D., to Mrs. Catherine Margaret Sawyer, both of Chicago, June 9.

HARRY ADKINS GREENWALD, M.D., to Miss Verna Smith, both of Kettle Falls, Wash., May 29.

STEWART J. NIBLICK, M.D., to Miss Elizabeth Janet McLuckie, both of Chicago, June 6.

NED DAVID MILLER, M.D., Wichita, Kan., to Miss Amy Ferguson of Topeka, Kan., June 4.

WILLIAM JOHN KERR, M.D., to Miss Dorothy Campbell Fish, at Los Angeles, June 19.

JAMES WALTER LEVERING, M.D., to Miss Alma G. M. Bains, both of Philadelphia, June 5.

JOHN B. FLICK, M.D., to Miss Ardis Marie Tanguay, both of Philadelphia, May 3.

JOHN B. FRISBEE, M.D., to Miss Marie Gatzmeyer, both of Butte, Mont., May 19.

HERMAN H. FARKAS, M.D., to Miss Pauline Silverman, both of York, Pa., June 3.

LEONARD W. BROWN, M.D., to Miss Grace E. King, both of Cleveland, June 6.

RAYMOND FESER, M.D., Chicago, to Miss Anita Choeco, May 23.

Deaths

Major James Bourke, M. C., U. S. Army, Washington, D. C.; Rush Medical College, 1897; a Fellow of the American Medical Association; aged 47; a graduate of the Army Medical School in 1893, and prior to that time an acting assistant surgeon in the army, whose most recent duty was that of lecturer on military medicine in the medical schools of Wisconsin and Michigan; who had been ill for the last three months and under treatment for nervous breakdown in the Walter Reed General Hospital and later at the Government Hospital for the Insane, Washington, D. C.; died at the Garfield Hospital, Washington, D. C., June 17, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Edward Franklin Smith, M.D., Richmond Hill, N. Y.; Bellevue Hospital Medical College, 1889; aged 49; a Fellow of the American Medical Association, and since April, 1901, the New York correspondent of THE JOURNAL; professor of physiology and hygiene in the Medical Department of Fordham University, New York; visiting and attending physician to the Manhattan Eye and Ear Hospital, and the Northwestern Dispensary; instructor in surgery in the New York Polyclinic; died at his home in Richmond Hill, June 15, after a prolonged illness.

Albert Harris Hoy, M.D., Chicago; Medical College of Ohio, Cincinnati, 1864; Rush Medical College, 1866; aged 74; for many years a practitioner of Chicago but latterly a resident of England; a medical cadet and later acting assistant surgeon, U. S. Army, during the Civil War; formerly a member of the State Medical Society of Wisconsin; who had been in ill health for a long time and whose condition had been rendered more grave by the shock due to the death of his wife and daughter in the sinking of the Cunard steamer *Laconia* in February last by a German submarine; died in London, June 9, from heart disease.

Burnside Foster, M.D., St. Paul; Harvard Medical School, 1886; aged 55; a Fellow of the American Medical Association and a member of the American Dermatological Association; clinical professor of diseases of the skin in the University of Minnesota, and formerly lecturer on the history of medicine in the institution; for many years editor of the *St. Paul Medical Journal;* a member of the staff of the City and County, St. Luke's and St. Joseph's hospitals, St. Paul; died at his home, June 13.

Samuel Benton McGlumphy, M.D., Vermilion, S. D.; Rush Medical College, 1864; aged 79; for seven years assistant superintendent of the Nebraska State Hospital for the Insane; and later superintendent of the Dakota State Hospital; one of the founders, and for two years president of the South Dakota Territorial Medical Association; for ten years a member of the board of health and for one term coroner of Yankton County, and later coroner of Clay County; died at his home, May 25, from pneumonia.

Rollin H. Barnes, M.D., St. Louis; Marion Sims Medical College, St. Louis, 1897; aged 44; a Fellow of the American Medical Association; professor of proctology in the St. Louis College of Physicians and Surgeons; editor and publisher of *The Proctologist*; died in the Polyclinic Hospital, New York, June 3, four days after an operation for appendicitis.

Abraham Maas, M.D., Neosho, Mo.; Jefferson Medical College, 1862; aged 83; formerly a member of the Missouri State Medical Association; regimental surgeon of the One Hundredth Pennsylvania Volunteer Infantry during the Civil War; for one term mayor of Neosho; died in St. John's Hospital, Joplin, Mo., May 26.

Samuel McKee Crowell, M.D., Charlotte, N. C.; University of Maryland, Baltimore, 1895; aged 63; a member of the Medical Society of the State of North Carolina; superintendent and medical director of the Crowell Sanitarium, Charlotte; died suddenly at his home, May 29.

James Madison Duncan, M.D., Calumet, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1870; Missouri Medical College, 1876; aged 63; for more than forty years a practitioner; died at his home, May 16, from cerebral hemorrhage.

Thomas C. McCleery, M.D., Exeter, Neb.; Rush Medical College, 1875; aged 65; a Fellow of the American Medical Association; local surgeon for the Chicago & Northwestern Railway; died in his office, May 1, from cerebral hemorrhage.

Peter Hugh Smith, M.D., Racine, Wis.; Detroit College of Medicine and Surgery, 1895; aged 50; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died at his home, May 29.

Robert Neilson, M.D., Whistler, Ala.; Medical College of Georgia, Augusta, 1854; aged 93; for more than seventy years a practitioner of Tuscaloosa County, Ala.; died at the home of his daughter, near Eight Mile Station, May 17.

Walter J. B. Tusson, M.D., Covington, La.; Tulane University, New Orleans, 1899; aged 44; formerly a Fellow of the American Medical Association; and an inspector for the state board of health; died in New Orleans, June 1.

Franklin J. Evans, M.D., Iowa Falls, Iowa; University of Pennsylvania, Philadelphia, 1884; aged 71; a Fellow of the American Medical Association; died at the home of his daughter in Friday Harbor, Wash., about May 24.

Daniel Lawrence Meehan, M.D., Battle Creek, Mich.; Lincoln Medical College, Lincoln, Neb., 1895; aged 49; formerly a member of the Nebraska State Medical Association; died at his home, May 22, from heart diesae.

Francis Lavelle Smith, M.D., Detroit, Mich.; University of Michigan, Ann Arbor, 1902; aged 36; a Fellow of the American Medical Association; died in Grace Hospital, Detroit, May 22, from septicemia.

James A. Fergus, M.D., Elm Springs, Ark.; St. Louis College of Physicians and Surgeons, 1905; aged 34; a member of the Arkansas Medical Society; died at the home of his mother in Elm Springs, May 7.

Albert A. Nicholls, M.D., Edmonton, Alta.; Manitoba Medical College, Winnipeg, 1902; aged 44; a member of the Canadian Medical Association; died at his home, February 16, from angina pectoris.

Oliver N. Ainsworth, M.D., Spearfish, S. D.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 65; formerly a Fellow of the American Medical Association; died at his home, May 21.

Forest G. Cosby, M.D., Columbus, Ga.; University of Louisville, Kentucky, 1894; aged 52; for many years a practitioner of Dixon, Ky.; died at his home in that city, April 24, from organic heart disease.

Daniel Goodenow, M.D., Maynard, Mass.; Dartmouth Medical School, Hanover, N. H., 1889; aged 54; while on his way from Florida to New York, died at sea, March 14, from cerebral hemorrhage.

George Mattocks Frost, M.D., Hudson, Ohio; Western Reserve University, Cleveland, 1894; aged 45; a Fellow of the American Medical Association; died at his home, April 14, from pneumonia.

Dallas M. Taylor, M.D., Amsterdam, N. Y.; Long Island College Hospital, Brooklyn, 1874; formerly a member of the Medical Society of the State of New York; died at his home, about May 30.

Charles V. B. Poole, M.D., Broadview, Mont.; Northwestern University Medical School, Chicago, 1903; aged 39; died in St. Vincent's Hospital, Billings, Mont., May 31, from abscess of the brain.

Walter Clark Haupt, M.D., New York; Johns Hopkins University, Baltimore, 1914; aged 30; a member of the staff of the Neurological Institute, New York; died at his home, June 4.

Gilbert Edward Wallace, M.D., Forked River, N. J.; Hahnemann Medical College, Philadelphia, 1896; aged 43; died at his home, March 15, two and half hours after an accidental injury.

Jonathan L. Plummer, M.D., Peoria, Ill.; St. Louis College of Physicians and Surgeons, 1898; aged 69; a resident of Peoria for forty-six years; died in McLean, Texas, May 16.

Charles Emerson Philoon, M.D., Auburn, Me.; Medical School of Maine, Brunswick, 1867; aged 76; a Fellow of the American Medical Association; died at his home, May 18.

James W. Crowley, M.D., Newport, Ky.; Cincinnati College of Medicine and Surgery, 1896; aged 64; a Fellow of the American Medical Association; died at his home, May 9.

Benjamin Hopkins Reed, M.D., Marshalltown, Iowa; American Medical College, St. Louis, 1903; aged 46; died at Flat River, Mo.; May 26, from cerebral hemorrhage.

Johnson W. Gordon, M.D., Bowerston, O.; Columbus, Ohio, Medical College, 1881; aged 64; visiting surgeon to St. Luke's Hospital, Niles, Mich.; died at his home, May 9.

David C. Gore, M.D., Marshall, Mo.; Missouri Medical College, 1876; aged 64; a Fellow of the American Medical Association; died suddenly at his home, May 5.

Myron Douglas Green, M.D., Cincinnati; Miami Medical College, Cincinnati, 1875; aged 65; a Fellow of the American Medical Association; died at his home, May 15.

Frederick Wilhelm, M.D., Akron, Ohio; University of Vienna, Austria, 1892; aged 50; died in the People's Hospital, Akron, June 5, from cerebral hemorrhage.

S. M. Davis, Warren, Ark. (license, Arkansas, 1903); aged 77; a Confederate veteran; for many years a druggist of Warren; died in that place, about May 8.

Robert Scott Stewart, M.D., Ironton, Ohio; Kentucky School of Medicine, Louisville, 1897; aged 54; died at his home in South Webster, Ohio, May 19.

Sylvester L. Ellis, M.D., La Plata, Mo.; College of Physicians and Surgeons; Keokuk, Iowa, 1880; aged 82; died at his home, May 23, from nephritis.

Joseph Bedard, M.D., Muskegon, Mich.; University of Victoria College, Coburg, Ont., 1874; aged 64; also a druggist; died at his home, May 25.

John Bailey Sullivan, M.D., Pittsburgh; Pulte Medical College, Cincinnati, 1888; aged 66; died in the Homeopathic Hospital, Pittsburgh, May 20.

Gustav E. Hanzig, M.D., Ellendale, Okla.; Hahnemann Medical College, Philadelphia, 1888; aged 65; died at his home, May 22.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE RUSSELL EMULSION AND THE RUSSELL PREPARED GREEN BONE

Report of the Council on Pharmacy and Chemistry

The following report on "The Russell Emulsion" and "The Russell Prepared Green Bone," marketed by the Standard Emulsion Company, was submitted to the Council by a referee. The Council endorsed the report and authorized its publication.

W. A. PUCKNER, Secretary.

The Russell Emulsion is put up in a neat package and advertised in an attractive pamphlet, on the cover of which we are told: "Truth Always Justifies The Superlative Degree." As what follows in the booklet and in the printed circulars certainly does not lack superlatives this is doubtless a warning.

In addition to the pamphlet and circular advertising, the product seems to be systematically boomed by a lecture scheme in which one Dr. Hague talks before medical societies and distributes advertising matter. The lecture is succeeded by a follow-up letter scheme through which matter is sent to members of the society. Hague ostensibly discusses "lime starvation in tuberculosis," but medical societies soon learned to estimate his work as essentially to advertise the Russell products. Last April the Medical Society of the State of Pennsylvania sent out a circular letter to its county organizations on the subject of the Russell-Hague propaganda which opens in this way:

> "You have doubtless received a letter from Dr. William Grant Hague of New York, offering to address your county society on Tuberculosis. After due investigation it is respectfully suggested that it may not be desirable to ask him to address your society. . . ."

The statements in the pamphlet and circular published are typical of the whole method of exploitation. For example, can such claims as these be surpassed by the veriest quack?

"SCIENCE cannot improve the means employed in producing THE RUSSELL EMULSION."

"GENIUS has not devised better methods than are used in manufacturing THE RUSSELL EMULSION."

"MONEY cannot buy better products than are used in THE RUSSELL EMULSION."

"EXPERIENCE cannot suggest a more nutritious combination of fats than we use in THE RUSSELL EMULSION."

The emulsion is said to be made of equal parts of beef-fat, coconut, peanut and cottonseed oils, held in suspension by albumin. The latter we are told is applied to each globule of the emulsion by an "elaborate technical process" devised by Dr. Russell. The mixture is everywhere spoken of as a "physiological" emulsion but the word is always in quotation marks. Why it is called "physiological" is not clear, but the term may be counted on to impress the unthinking or the unscientific.

Numerous false and exaggerated statements are made about this "physiological" emulsion with reference to food value. For instance:

"The nutritional value of fats differ; the nutritional value of these fats and their increased efficiency by combination over all others have been determined by extensive clinical observation."

And also:

"The Russell Emulsion is approximated in food value by no other emulsion or food product in existence."

"A 'physiological' emulsion is a predigested food. It is absorbed with little assistance from the digestive juices, and with no waste of energy. It is, therefore, the ideal food . . ."

These are sample statements found in the pamphlet and accompanying circular. A dozen or more pathologic conditions are mentioned in which this "ideal food" is specifically indicated, but we find, also, this curious statement: "Patients

can rarely take this dose [speaking of the maximum dose of 2 ounces night and morning] for more than three or four weeks without showing symptoms of over-feeding." This unguarded remark about an ingestion of 48 grams of fat daily prompts one to ask what is wrong with the "ideal predigested food."

Russell is wedded to the idea that "lime starvation" is the main factor in tuberculosis, and insists on the importance of large amounts of fat for the "lime starved."

"Dr. Russell was the original interpreter of the Lime Starved State and originated The Lime Starvation Treatment in tuberculosis. He also first pointed out and emphasized the therapeutic importance of regarding the combination of lime phosphate and casein, as brought down by the rennet enzyme, as a chemical union."

This overworked lime-starvation theory certainly lacks any tangible confirmation (see in this connection a recent paper by Halverson, Mohler and Bergeim, in THE JOURNAL, May 5, 1917), and to urge it to promote the sale of a fat preparation is preposterous. On the uninitiated the exaggerated pseudo-scientific language of the pamphlet and circular advertisement will probably make some impression. Unfortunately such things count not only with the layman who, having no technical knowledge of physiology, cannot be expected to weigh the evidence, but also with those medical men who, while scientifically educated, are influenced by unscientific claims when plausibly presented. The pamphlet is a striking example of a style which is dangerous because it smacks of science.

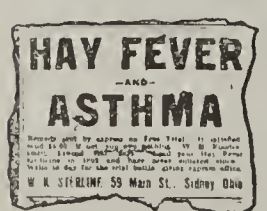
The Russell Company sells also a mixture called "Prepared Green Bone," said to be made by partially digesting ground chicken bones with hydrochloric acid and pepsin and adding glycerin at the end of the digestion. The product is a sticky, unappetizing looking mass put up in little earthenware boxes and advertised as a lime food, apparently to go along with the fat emulsion. The greater value of a few glasses of milk daily is evidently overlooked.

"The Russell Emulsion" and "The Prepared Green Bone" were declared inadmissible to New and Nonofficial Remedies.

[EDITORIAL COMMENT.—There are always those who are ready to exploit the unfortunate tuberculous. It is, unfortunately, a fact that many physicians accept as true, statements clothed with obscure and voluminous quasi-scientific verbiage. Such men would laugh at the bald claim that the moon is made of green cheese. When, however, one plausibly and with due solemnity, affirms that the nocturnal luminous earthly satellite is composed of an infinite aggregation of molecules of bewildering and awe-compelling complexity, built up from the recently discovered polypeptids, the whole being of a verdant tint, the person addressed looks impressed and opines that it sounds reasonable! The advertising for The Russell Emulsion and The Russell Prepared Green Bone is dangerous because it appeals to the thoughtless—layman and physician, alike.]

SOME MISBRANDED NOSTRUMS

"Sterline's Asthma and Hay Fever Remedy" and "Sterline's Bronchial Elixir."—The National Chemical Co., Sidney, Ohio, was a trade name under which Webster K. Sterline conducted the business of selling his "Asthma and Hay Fever Remedy" and his "Bronchial Elixir." The first product was analyzed by the federal chemists who reported that it was a water-alcohol solution containing potassium and sodium iodids, bromids and acetates, as well as some extractive matter from some laxative plant drug. It was sold under the claims that it would cure asthma and hay fever. These claims the federal authorities declared false and fraudulent and made knowingly, recklessly and wantonly. "Sterline's Bronchial Elixir" was reported by the government chemists to be a solution of morphin, potassium citrate and aromatics in alcohol and water. The claims that it would cure bronchitis and was a remedy for all affections of the mucous membrane were declared knowingly, recklessly and wantonly false and fraudulent. Sterline would neither admit nor deny the charges but entered a plea of *nolo contendere* and was fined $75 and costs.—[*Notice of Judgment No. 4478.*]



Lung-Vita.—The government seized 16 dozen bottles of "Lung-Vita" that had been shipped from Tennessee to Wisconsin charging that the stuff was misbranded under the Food and Drugs Act. The federal chemists reported that "Lung-Vita" consisted essentially of a petroleum oil, saponifiable oil and a solution containing sugar and glycerin, with a small quantity of benzoic acid. The government authorities



claimed that it contained no ingredients or combination of ingredients that would cure consumption or asthma or destroy tubercle bacilli, although these and many other claims were made for it. The claims were declared false and fraudulent and applied knowingly, recklessly and wantonly. The Nashville Medicine Company, Nashville, Tenn., appeared and made claim to the property and consented to a decree of judgment of condemnation and forfeiture. The court ordered the United States marshal to destroy the product.—[*Notice of Judgment No. 4511.*]

"Arch Brand Nerve Tonic" and "Arch Brand Blood Remedy."—This, according to the label was made for and sold by the Arch Pharmacal Company, San Francisco, and the National Pharmacy Company of Oakland, Cal., which were charged by the government with misbranding and shipping the products in interstate commerce. The federal chemists declared that the "Nerve Tonic" was a watery solution of sugar, hypophosphorous acid, salts of sodium, potassium, calcium and magnesium with indications of quinin and strychnin. The claims that it was an effective remedy for nervous prostration and for nerve and brain diseases generally were declared false and fraudulent. The "Blood Remedy" was found by the federal chemists to contain over 18 per cent. alcohol, more than 31 per cent. of sugar, with small amounts of potassium iodid, sarsaparilla and emodin-bearing drugs. The claims that it was a cure for piles, scrofula, acute skin affections, and an effective remedy for rheumatism and blood diseases generally were declared false and fraudulent. The company pleaded guilty and was fined $50.—[*Notice of Judgment No. 4477.*]

Dust and Smoke.—A dusty atmosphere is objectionable and unpleasant. It irritates the nose and throat. Smoke may be considered as a combination of the gases of combustion and of dust in the shape of carbon particles. The air is sufficiently free from impurities, such as dust and smoke, practically everywhere except in manufacturing cities and in arid regions during windy periods.—Asst. Surg.-Gen. J. W. Trask, *Public Health Reports.*

Correspondence

POTENCY OF MENINGITIS SERUM

To the Editor:—I desire to call attention to the statement appearing in your editorial, "Epidemic Meningitis" (THE JOURNAL, June 2, 1917), in which you state that, according to experiments in England, some of the meningitis serum as obtained under market conditions seems to be without sufficient virtue to have any curative effect, and in this respect we are "still at the mercy of the manufacturers unless fortunate enough to be able to secure the serum from institutions for research, such as the Rockefeller Institution for Medical Research or the Research Laboratory of the Board of Health, New York City."

In a recent issue of THE JOURNAL, it was also stated that much of the serum manufactured by commercial laboratories was of doubtful potency. I am quite sure that you will agree that such sweeping statements as these are without sound basis.

As a matter of fact, based on the experience of many years in the Public Health Service in the inspection of establishments manufacturing biologic products, I unhesitatingly can state that the manufacture of biologic products in the well established commercial establishments is conducted by men of as high scientific training in their particular field as those supervising the manufacture of the same products in either the Rockefeller Institute or the New York City Laboratory, or any other institution.

I think that neither in your statement, nor in the statements made by others, as to the inefficacy, in certain instances, of antimeningitis serum, has recognition been given to the factors most probably responsible for the unsatisfactory results.

Moreover, I know that a number of the commercial establishments not only use cultures obtained from the Rockefeller Institute and from the New York City Laboratory for the immunization of their horses, but also follow absolutely the methods used in those institutions for the standardization of their serums, and if the methods used in those institutions are satisfactory, it therefore follows that the methods used in the commercial establishments using the same are also satisfactory.

When I was in England about eighteen months ago, I was informed by the medical officers that in those instances in which unsatisfactory results had been obtained with the serum, some of which, by the way, was furnished by a noncommercial laboratory in the United States, the unsatisfactory results were attributed, in part, to the use of serum from horses which had not been immunized with the particular strains of meningococci responsible for the infection. It is my opinion that the unsatisfactory results that are sometimes obtained with antimeningitis serum can be attributed to several factors, among these factors being late administration of the serum, administration of an insufficient amount of the serum, faulty technic in administration, and, what is probably of very great importance, serum prepared from horses immunized with a few strains of meningococci not including the so-called meta—and para—strains.

Finally, it should be borne in mind that the manufacture of antimeningitis serum in commercial laboratories is carried out under the supervision of the United States Public Health Service, and that such statements as have recently appeared in THE JOURNAL at least imply that this supervision is not adequately performed which, I am sure, you will agree is not the case.

JOHN F. ANDERSON, M.D., New Brunswick, N. J.
Director, Research and Biological Laboratories, E. R. Squibb & Sons.

[COMMENT.—It would have been better if we had said simply this, that according to reports in the medical journals it has been found that commercial meningitis serum may be of doubtful potency. On several occasions, statements have been made to the effect that the results expected were not obtained with the serum used (see particularly the discussion by Osler, Robb, Rolleston, Foster and Gaskell in the Royal Society of Medicine, Oct. 19, 1915, as reported in the *British Medical Journal,* Oct. 23, 1915, p. 604; also the editorial statement in the same journal, May 27, 1916, p. 753). Osler states directly that the main cause for want of success was inert serum. In a discussion of the medical problems of the war, based on personal observations in England and France, Welch (*Bull. Johns Hopkins Hosp.,* 1917, **28,** 154) states that at first the results in cerebrospinal fever were very unsatisfactory, and that it was found that practically inert serum had been used both in Great Britain and in France; that serum was examined by Dr. Simon Flexner and found to be worthless, and that with really good serum the results became extremely satisfactory. While the factors enumerated by Dr. Anderson may have been, and are, of great importance, there seems to be no doubt whatever that in some way worthless serum had found its way into the British army and navy, and that some at least of this serum came from America. We are quite prepared to agree that the supervision of the U. S. Public Health Service of the manufacture of antimeningitis serum is performed as adequately and conscientiously as possible under the circumstances; but in view of the lack of definite standards for a polyvalent serum, as antimeningitis serum at present is, there necessarily is left a very considerable latitude for the manufacturer.—ED.]

AN OUTLINE FOR CASE REPORTS

To the Editor:—In the name of economy let us have some editorial regulation as to the form and manner of reporting cases and clinical statistics. System, uniformity, conciseness and graphic contrasts make for saving of comprehension, of patience, of time, of space, of printing, of white paper, and, above all, for the securing of attention to invaluable data which, under the most favorable circumstances, are tedious reading.

The symptoms of a case, I would urge, should be uniformily contrasted thus: (*a*) positive findings; (*b*) negative findings, and (*c*) dubious, uncertain or debatable points which an author finds it necessary to mention.

There should be no difficulty and no objection in adopting a uniform method of recording, such as the following: (1) positive data, which the reader needs to note and bear in mind: (2) negative data for purposes of knowing what might have been expected but did not appear, and (3) discussion of phenomena or observations on which the mind remains suspended.

Groups of cases or symptoms or other objects, phenomena or occurrences should be reported in percentages. A busy reader, however amiable, should never be compelled to keep in mind the number of cases being discussed and how many of the number reported showed this or that feature. It is most exasperating to hold the attention suspended while one hastily endeavors to calculate the percentages for oneself.

J. MADISON TAYLOR, M.D., Philadelphia.

JUNIOR EMERGENCY MEDICAL OFFICERS FOR THE WAR

To the Editor:—The need for physicians in the allied armies is so great and the mortality so high, that the medical schools will be unable to turn out medical men fast enough to replace those that are being wounded or killed. If the war lasts for a considerable length of time we may be as depleted as the European countries are now. The high mortality is proof that physicians are being used for work that does not require fundamental and extensive medical training: work in which the product of the modern medical school is largely wasted. The recognition of these facts has been too long delayed, so that it is now time for action.

What is needed is a large number of "emergency surgeons." When one considers the class of work done on the battlefield, where the fatality is greatest, one will realize that this requires physique and nerves; a technical knowledge of the relatively simple operative surgery and asepsis; of sanitation; of bookkeeping. And very little else. If the medical schools were ordered to direct their energies to the particular training needed for these purposes, in an intensive fashion, they could prepare inside of two years or less a large number of

men who for this purpose would be practically as good as the men whose education now takes five years. This would leave those of complete training and special skill for the more complicated work of staff positions, base hospitals, etc.

The proposition would be for the government to enroll an adequate number of drafted men who have the right kind of preparation, for special courses as "junior surgeons" or "minor surgeons," to be commissioned at the completion of their course as junior lieutenants or ensigns for the war. This would not entitle them to the right to practice outside of this special service in the war; but at the end of the war or when invalided, they would be given an opportunity to complete their medical education along the regular lines, and presumably at the expense of the government.

The medical schools would be running two parallel courses: one for the men enrolled for this special service, and the ordinary courses for those who are for any reason disqualified from service at the front.

I hesitate to develop the details of this special education, which would require very careful study; but merely as a concrete illustration, I suggest tentatively that the ordinary subjects be treated thus:

Subjects	Treatment
Gross, and especially regional anatomy	Fairly complete
Histology	Elementary
Embryology	None
Biochemistry	Elementary
Physiology	Elementary
Bacteriology	Fairly complete
Pathology	Fairly complete, with emphasis on surgery
Hygiene	Complete
Pharmacology	Selective
Surgery	Intensive
Medicine	Elementary
Specialties	Sui generis

The present plans are inadequate, not only quantitatively, but also in principle. The situation is a new and an original one, and has to be met by new and original measures—or not at all.

TORALD SOLLMANN, M.D., Cleveland.

JUSTICE TO THE PHARMACIST

To the Editor:—I must express my pleasure and gratification at the excellent and timely editorial entitled "Justice to the Pharmacist," THE JOURNAL, June 16, p. 1822.

As you already know from Mr. England's letter occurring in the same issue of THE JOURNAL, page 1864, American pharmacy feels that it is deprived of the fullest opportunity to render that competent and specialized pharmaceutic service of which it is capable. No group of men can realize more thoroughly than the medical men how valuable the service of pharmacists could be made under a proper status. You have shown a most commendable and just insight into the situation, and your advocacy of the movement to give pharmacists a rank commensurate with the importance of the service they render and can render is greatly appreciated not only by me personally, but by the American Pharmaceutical Association.

FREDERICK J. WULLING, Minneapolis,
President, American Pharmaceutical Association.

To the Editor:—The letter of Mr. J. W. England, secretary of the council of the American Pharmaceutical Association (THE JOURNAL, June 16, 1917, p. 1864) to which your clear and forcible editorial comment gives a just endorsement, calls attention to a matter in which physicians should actively interest themselves, not only as medical men, but also as patriotic American citizens.

The war into which our country—after all possible delay and every effort to preserve an honorable peace—has been forced, is going to be, as the President so well says, "a grim business." Back of it must be sentiment and enthusiasm; but in its conduct cold, practical common sense is demanded. The necessity of the best attainable medical and hygienic aid to the fighting arm, both in training camps and on the field of battle, is no longer at issue. The importance of the pharmacist as first aid to physician and surgeon ought not to require emphasis. Not only is the technical skill and knowledge of the trained pharmacist required in the procurement and preparation of medicines, antiseptic solutions and the like, but also, with but slight intensive preparation, it could be made highly useful in the hospital wards and in the clinical and research laboratories.

In order that this varied usefulness may be developed to the highest point, and thus contribute to the most efficient conduct of the war and to the best possible care of the sick and wounded, the type of men attracted to the pharmaceutic service of the army and navy should be high, and their merit should be adequately recognized by their commissioning as officers. It might be well if physicians would write to the Medical Department of the United States Army in support of the movement which has been initiated by the American Pharmaceutical Association.

SOLOMON SOLIS COHEN, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ERCOLANI'S SUPRARENAL TREATMENT IN NEPHRITIS

To the Editor:—In THE JOURNAL, June 2, 1917, p. 1670, there was an abstract of an article on "Suprarenal Treatment in Nephritis," by P. Ercolani, from the *Gazetta degli Ospedali e delle Cliniche.* This journal is not in the library here, and I should like to know the method of administration of the epinephrin and in what quantities it is given. Can you give me this information?

THOMAS H. KELLY, M.D., Cincinnati.

To the Editor:—I am interested in the article "Suprarenal Treatment in Nephritis," abstracted recently in THE JOURNAL. I should like to have full particulars in reference to size of dose, how often and how administered, and any special preparation. Should I expect increased blood pressure while giving epinephrin?

W. C. RAMSEY, M.D., Kent, Ohio.

ANSWER.—Ercolani does not describe his technic, referring for this to his previous works on the subject in the *Rivista medica.* His first works date from 1910, since which time he has published reports nearly every year. He mentions parenthetically in the article reviewed in THE JOURNAL, June 2, speaking of the objection that epinephrin might induce arteriosclerosis, that he has treated elderly persons of 80 with uremia with 60 drops a day of the solution of epinephrin, without interruption over long periods and without the slightest inconvenience. The pulse seemed to be more elastic and softer while the epinephrin was being taken. He also cites a writer who reported the case of an asthmatic woman who could take up to 120 drops of the 1:1,000 solution at a time, and who took forty-four bottles in the course of three years (ounce bottles), one hypodermically. Necropsy showed no more changes in the walls of the arteries than would be expected at her age. Ercolani cites Paoloantonio's report of the use of epinephrin in thirty cases of scarlatinal glomerular nephritis, published in the *Policlinico,* 1913, **20,** 751. He says that he followed Ercolani's suggestions and mentions giving 2 or 3 drops of the 1:1,000 solution of epinephrin for each year of the child's age. He stated that the administration can be by the subcutaneous route, or by the mouth, in doses of from 10 to 20 drops a day for a child between 5 and 10, according to the severity of the symptoms.

Increase in Industrial Accident Mortality in 1916.—The recently compiled statistics of the Metropolitan Life Insurance Company during the year 1916 on 9,000,000 white lives insured in its industrial departments, concludes that the accident rate for the working classes of the United States increased five per hundred thousand living over the mortality showing for 1915. This condition is contrary to the more recent tendency, and may be the result of the increased activity in industry and in the speeding-up processes incident to war conditions. The mortality from automobile accidents and injuries shows far the largest increase in the rate for any of the specified cause of accidental mortality.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, Montgomery.

ALASKA: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.

CALIFORNIA: San Francisco, July 10. Sec., Dr. Charles B. Pinkham, 529 Forum Bldg., Sacramento.

COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular: New Haven, July 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Eclectic: New Haven, July 10. Chairman, Dr. John W. Fyfe, Saugatuck.

CONNECTICUT: Homeopathic: New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

INDIANA: Indianapolis, July 10-12. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 10-12. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, July 2. Sec., Dr. E. Arthur Carr, 516 Bankers Life Bldg., Lincoln.

NEW HAMPSHIRE: Concord, June 25-26. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

NEW MEXICO: Santa Fe, July 9. Sec., Dr. R. K. McClanahan, U. S. Naval Hospital, Las Animas, Colorado.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 26-29. Sec., Dr. Willard J. Denno, Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. R. V. Smith, Tulsa.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-12. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. Park B. Jenkins, Waubay.

UTAH: Salt Lake City, July 2-3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 10-12. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 3-5. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 10. Sec., Dr. S. L. Jepson, Capitol Bldg., Charleston.

WISCONSIN: Milwaukee, June 26. Sec., Dr. J. M. Dodd, 220 E. 2nd St., Ashland.

WYOMING: Laramie, June 27-29. Sec., Dr. H. E. McCollum, Laramie.

Higher Requirements in Montana

At a meeting held April 3, 1917, the Montana State Board of Medical Examiners adopted a resolution which requires that all applicants who graduate after July 1, 1917, and who seek a license to practice medicine in that state, must present a diploma issued by a medical school rated in Class A by the American Medical Association. This action establishes a minimum standard of preliminary education as follows: For applicants graduating prior to Jan. 1, 1918, a four-year high school education; for those graduating in 1918 to 1921 inclusive, one year of premedical college work, including courses in physics, chemistry and biology; and for all candidates graduating in 1922 and thereafter two years of premedical college work, including the sciences named.

The board also adopted a resolution requiring that, after April 3, 1917, all applicants who have graduated from a medical school outside the United States shall be required to present evidence of having attended at least one full course of study in a medical school in the United States rated in Class A by the Council on Medical Education of the American Medical Association.

Alaska's New Medical Practice Act

At the recent session of the territorial legislature of Alaska the medical practice law heretofore in effect was repealed and a new law enacted. The new law provides that examinations be held in March and September each year. Members of the board are appointed for a term of four years. The definition of the practice of medicine has been made more comprehensive. The clause exempting osteopaths from the provisions of the act was cut out. The board was given authority to revoke licenses for unprofessional conduct. The requirements of preliminary education are to be those held by the Association of American Medical Colleges at the time the candidate graduated. This means that at present a four-year high school education is required. After Jan. 1, 1918, applicants must show that before beginning the study of medicine they completed, in addition, one year of college work, including courses in physics, chemistry and biology. After Jan. 1, 1922, in addition to the high school education the applicant must have completed two years of college work before entering on the study of medicine. The new law gives the board authority also to require applicants to have completed a year's internship in an approved hospital before being eligible for the license. In grading the papers of applicants, the law provides that one per cent. may be allowed for each year of practice after the first two years.

Colorado April Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 3, 1917. The examination covered 8 subjects and included 80 questions. The percentage required to pass was 75. Thirty-nine candidates were examined, of whom 35 passed, including 30 osteopaths, and 4 failed, including 2 osteopaths and 1 drugless practitioner. Ten candidates were licensed through reciprocity. The following colleges were repesented:

College	PASSED	Year Grad.	Per Cent.
Hering Medical College		(1906)	*
Kansas Medical College		(1900)	80.2
Tulane University of Louisiana		(1916)	85
Woman's Medical College of Pennsylvania		(1914)	85.3
Vanderbilt University		(1916)	83.5
	FAILED		
St. Louis College of Physicians and Surgeons		(1915)	65.5

* No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
American Medical Missionary College		(1906)	Michigan
Rush Medical College		(1914)	Illinois
Tulane University of Louisiana		(1906)	Arkansas; (1908) Alabama
University of Maryland		(1906)	Maryland
Boston University		(1905)	Mass.
Harvard University		(1910)	Maine
Barnes Medical College		(1899)	Texas
Ensworth Medical College		(1905)	Missouri
Kansas City Hahnemann Medical College		(1903)	Kansas

District of Columbia April Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, April 10-12, 1917. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. Ten candidates were examined, of whom 6 passed, and 4 failed. The following colleges were represented:

George Washington University	(1910) 82; (1916) 79.7, 80.5, 86.1.	
Baltimore Medical College	(1909)	76.1
University of Maryland	(1915)	83.5
FAILED		
Baltimore Medical College	(1905)	68.6
College of Phys. and Surgs., Boston*	(1916)	69.9
Jefferson Medical College	(1912)	68.1
Meharry Medical College	(1916)	71.7

* This college has been reported not recognized by the Massachusetts Medical Society.

Nevada May Examination

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 7-9, 1917. The examination covered thirteen subjects including 100 questions. The percentage required to pass was 75. Six candidates were examined, all of whom passed, and 11 candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Phys. and Surgs., San Francisco		(1904)	83.5
Cooper Medical College		(1894)	87.4
University of Louisville		(1916)	91.3

College			
Baltimore University		(1896)	83.3
Long Island College Hospital		(1899)	87.4
Western Reserve University		(1887)	83.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1915)	Iowa
Rush Medical College	(1896) (1898) Utah;	(1914)	Illinois
University of Illinois		(1915)	Illinois
University of Louisville		(1904)	W. Virginia
University of Michigan Medical School		(1909)	Utah
Missouri Medical College		(1876)	Missouri
St. Louis College of Physicians and Surgeons		(1892)	Illinois
Jefferson Medical College of Philadelphia		(1905)	Penna.
Western Pennsylvania Medical College		(1899)	Penna.

Utah October and January Examinations

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 6, 1916. The examination covered 19 subjects, and 100 questions were asked. The percentage required to pass was 75. Seven candidates were examined, of whom 6 passed, and 1 osteopath failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
Rush Medical College	(1915)	(1916)	2
Western Reserve University	(1915)	(1916, 2)	3
Medico-Chirurgical College of Philadelphia	(1916)		1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1912)	Illinois

THE JANUARY EXAMINATION

At the examination held in Salt Lake City, Jan. 2-3, 1917, three candidates were examined, all of whom passed, and two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University		(1917)	82
Harvard University		(1917)	84
Baylor University		(1916)	78

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1908)	Idaho
Northwestern University		(1915)	Illinois

Book Notices

Care of Patients Undergoing Gynecologic and Abdominal Procedures Before, During and After Operation. By E. E. Montgomery, A.M., M.D., LL.D., Professor of Gynecology in Jefferson Medical College. Cloth. Price, $1.25 net. Pp. 149, with 61 illustrations. Philadelphia: W. B. Saunders Company, 1916.

This book contains brief though well worded descriptions of the usual methods of preparing gynecologic patients for operation, and of the after-treatment of the first few days, for the guidance mainly of the nurse. Following these is a description of operations, much of which is intended for the hospital intern and the assistant to the operator. Eighty-five of the 140 pages deal entirely with the technic of operations, and considerably more than a fourth of these are devoted to the description of operations not related to gynecology, for instance, operations on the gallbladder, stomach, intestine, kidney and spleen. With the description of each operation is an illustration showing all the instruments used for that operation. As a result, the same instruments are shown over and over again.

The Diagnosis and Treatment of Abnormalities of Myocardial Function. With Special Reference to the Use of Graphic Methods. By T. Stuart Hart, A.M., M.D., Assistant Professor of Clinical Medicine in the College of Physicians and Surgeons, Columbia University. Cloth. Price, $4.50. Pp. 320, with 248 illustrations. New York: Rebman Company, 1917.

This book treats of the irregularities of the heart—bradycardia, block, extrasystole, tachycardia, flutter, auricular fibrillation, pulsus alternans, etc. The investigator or student who desires to specialize in heart disease will not find in it the help that is needed, for the author does not go deeply into fundamentals. Nor will it enable the practitioner to understand or use either the polygraph or the electrocardiograph. But it will aid the practitioner to read and correctly interpret the tracing made by either one of these instruments, and this is its purpose. The chief emphasis is laid on the graphic methods of studying heart disease. Furthermore, while theoretical and pathologic considerations are not ignored, the clinical side is constantly kept in the foreground. The illustrations are good, the explanations clear. The subject of treatment is given a prominent place and is well handled. The bibliography is well selected; there is a helpful index. Some of the sentences are not written in as scholarly or even as correct English as one might wish. But, taken as a whole, the book should prove helpful to the practitioner.

La névrose d'angoisse et les états d'émotivité anxieuse clinique —pathogénie—traitement. Par le Dr. Francis Heckel. Paper. Price, 10 francs. Pp. 535. Paris: Masson et Cie, 1917.

This is a luxuriantly verbose presentation of the author's ideas on Freud's old anxiety neurosis, which in its most intense form with distinct physical symptoms may reach the point of agony. The author calls himself "a specialist in diseases of nutrition," in which domain he may be a bright and constant light. Of the psychoneuroses he writes like a fluent amateur, and one gains the impression that the book was written for the instruction of no one but to impress laymen and ignorant general practitioners with the desirability of consulting the author. Some of the descriptions of symptoms are good, and some of the items of treatment are excellent; but the book is neither a scientific exposition nor a reasonable guide to treatment.

Text Book of Surgical Operations Illustrated by Clinical Observations, for Physicians and Students. By Fedor Krause, Directing Physician, Augusta Hospital, Berlin, and Emil Heymann, M.D., Chief Physician, Augusta Hospital. Translated into English and Edited by Albert Ehrenfried, A.B., M.D., F.A.C.S., First Assistant Visiting Surgeon, Boston City Hospital. In Six Volumes, Volume 2. Cloth. Price, $7. New York: Rebman Company, 1917.

This volume deals with operations on the upper and lower jaws, surgical affections of the oral cavity, pharynx and salivary glands, surgery of the facial and cervical nerves, and surgery of the brain. There is the same general clinical character which was described in the review of the first volume of this work (The Journal, Feb. 5, 1916, p. 451), and this volume is also profusely illustrated with excellent colored plates. The chapter on the surgical treatment of epilepsy is interesting, and the author is conservative in his views as to the operative results in this condition.

Practical Uranalyses. By B. G. R. Williams, M.D., Director of Wabash Valley Research Laboratory. Cloth. Price, $1.25 net. Pp.142, with 11 illustrations. St. Louis: C. V. Mosby Company, 1916.

"This manual is not to be regarded as anything aiming at completeness, but as a guide for the student and practitioner, in those diagnostic methods likely to be encountered from day to day. Much emphasis has been placed on findings often considered minor, and but little attention given to questions which might interest the specialist or research worker." The text is clear and concise. The selection of tests is excellent, while the discussion of their fallacies and significance is especially commendatory. The book should prove an acceptable addition to the library of every practitioner.

Clinical and Laboratory Technic. By H. L. McNeil, A.B., M.D., Adjunct Professor of Medicine, University of Texas Medical School. Cloth. Price, $1. Pp. 88, with 25 illustrations. St. Louis: C. V. Mosby Company, 1916.

This is intended to furnish a description of the methods in common use in the routine work of the John Sealy Hospital, Galveston, Texas. The laboratory tests outlined are the usual daily methods, and cover the field in a sufficiently comprehensive manner for the general practitioner or internist who may wish to perform the common laboratory technic for himself. The text is limited to the practical details, all theoretical considerations being omitted. The book should prove a useful one for daily use.

Social Medicine, Medical Economics and Miscellany

DEFECTS IN ENFORCING THE PRELIMINARY REQUIREMENTS IN ENGLISH

ROGER S. MORRIS, M.D.
Professor of Medicine, University of Cincinnati, College of Medicine
CINCINNATI

Tremendous advances have been made in medical education in the United States in the last fifteen years. The elimination of a large number of very weak schools has been accomplished, and laboratory and clinical teaching has been generally improved. Probably the greatest single gain is the more thorough preliminary education required of the medical student. At least one or two years of college work in specified subjects are now required, and within a few years the two years' requirement for entrance to medical schools will, no doubt, become general.

In adopting the higher requirements, it is well that we should check ourselves occasionally, to determine whether or not we are enforcing our demands in a manner to produce the desired results.

In an examination of nearly a hundred papers written recently by fourth year students from ten Class A plus medical schools, I have been struck by the frequency, and often by the horrors, of errors in spelling and in the simplest rules of grammar. Of ninety-four papers, there were forty-seven in which inexcusable mistakes were found. The student may feel that ability to write English correctly is a mere nonessential; that a knowledge of medical facts and theories is what he needs. And this may possibly be true if he is looking forward to practice among a clientele limited to the uneducated, and, therefore, to those least able to pay adequately for his professional services. Surely, no student is fired with such an ambition. If, on the contrary, the prospective practitioner aspires to have among his patients the educated, well-to-do classes in the community, then it should be evident to him that to be able to speak and write his native tongue with a fair degree of accuracy is absolutely necessary.

Mistakes in spelling, when few in number and trivial, may often be excused in the hurry and tension of a written examination. But no such excuse can account for spelling pectoriloquy "pectorilliquity," "pectoriliquoy" and "pectorleque." Likewise, when one finds empyema spelled "empyemia" consistently in nine papers, it is evidence of mental carelessness on the part of the writers, and causes one to wonder whether empyema and pyemia are looked on, perhaps, as synonyms. Fancy the impression on a medical editor of referring to the *Diplococcus pneumoniae* as the "diplococcus pneumonii," "the pneumonococcus diplococci organism," "pneumococcus lancelotus," "bacilus of Frankle," "pneumococcus Bacillus of pneumonae of Fraenkel," "pneumococcus of Friedlander" or "Pneumococcus or B. Lancillatus." A paper containing such errors would receive, and deserve, a place in the waste basket. Even more damning would it be for the young physician to read such matter before an audience of his colleagues.

The mental obtuseness which leads to such weird spellings of scientific terms as those cited finds its source in the earlier training of the student who, for a much longer period, has been making such mistakes as "verulence," "disappitation," "gasses," "shalow," "comming," "voise," "rarrer," "tenatious," "paler" (for pallor), "receeds," or in using phrases such as, "once and awhile." It is only natural that, later, such an individual should write "procussion," "precussion," "staphlococcus," "staphlacoccus," "coccae," "spleenic," "rals," "rauls," "rähls, "rahls," "choriza," "myochorditis," "endochordits," "perichordite," "serosangenaies," "malies" and "cynosis," to cite only a few examples.

That the student too frequently does not comprehend the exact meaning of the terms he employs is seen when vocal and tactile fremitus are described as two separate and distinct phenomena—a frequent mistake in the papers. That his eyes have not seen the written page one would suppose, in reading of "undissolved pneumonia" or of "very tenacious and rustic sputum."

By a considerable number, capitals are inserted where they have no place. Only one of the writers showed signs of a distinct aversion to them. As an example of his customs, two consecutive sentences, descriptive of a patient with lobar pneumonia, may be quoted. "he is very restless. they are sometimes delirious." The cerebral side track which resulted in the change from singular to plural is not elucidated by the context.

Failure in distinction of meaning of such simple words as "affected" and "effected" is surprisingly common; a large percentage of the writers referred to the "effected part of the lung" in discussing pneumonia. "Mucus" and "mucous" are not infrequently confused, as "mucus rales," "a plug of mucous."

A total disregard for punctuation is often encountered, though one of the offenders did hint at having heard of such a thing when he said, "As the toxaemia increases may have stupor, delirium and pass to comma and death." The author of the following, doubtless subscribing to similar views, is plainly not toying with fate: "Symptoms are those of chill followed by a fever which arises very high, 104-5-7° F. and sweats dyspnea vomiting cough and pain in the chest."

A mental training, or a lack of it, which results in blunders such as those I have described inevitably leads to faulty expression and to confusion of ideas. "The symptoms is sudden in onset. There may be noticed restleness and other signs of extreme uncomfortness. The pneumococci is the principle primary cause. There is exceptional cases at sometimes" is not an example of perfect diction, whatever merit the statements may otherwise possess. Nor are the following sentences examples of lucid English: (*a*) "Predisposing causes are age occurring in children 5-20 years and in the old debilated," or (*b*) "The Etiology of Lobar Pneumonia contains of Predisposing Causes of age—debility and lower resistence, and Exciting Cause of the Pneumococcus." Again, what can be meant by the statement, "The chinese race is particularly immune from the disease, although the disease is fairly common among them." One is startled to learn that "as the disease progresses the appearance on inspection progresses or diminishes," and one is actually puzzled at the information that abscess of the lung "may lead to gangrene of the lung which does not occur." An example of a mistake which may have been one of haste is, "The patient develops a dry cough which later becomes tinged with blood"; when we are told that the "patient lays on the affected side," the natural assumption is that, if turned, he will become less prolific.

It is humiliating to think that men and women who can be guilty of such offenses are to be admitted to the medical profession, and particularly so when one realizes that all of them have spent four years in a preparatory school and one or two years in a college—one is almost tempted to say, in a "college of illiterate arts."

Remedies are patent. The medical schools can accomplish much, provided they have the will. Students who show such gross ignorance of English as those from whom I have quoted above should not be allowed to pass the first term of the freshman year in medicine. To borrow a baseball phrase, they should be "farmed out—sent to the bushes—for further seasoning" in English. It is unfair to allow such a student to proceed, for it is perfectly plain that he or she has failed to meet the entrance requirements, and is, therefore, not entitled to enrolment in the medical school.

The primary source of the trouble rests, of course, with the teachers of English (and of other subjects) in the preparatory schools and colleges. Unless greater proficiency in English is required by them, the medical schools will continue to receive from these teachers approved illiterates among their matriculants. A concerted stand on the part of all the medical schools, which would result in a uniform exclusion of students found to be deficient in English, would remedy the present deplorable conditions within two or three years, in my opinion. The students affected would have a fancied—and real—grievance, but the good which would result from such action to medical, collegiate and preparatory education would make the suffering of the few negligible.

Medicolegal

Not Entitled to Artificial Arm as "Apparatus"

(Kunasek vs. New York Consolidated Card Co. (N. Y.), 162 N. Y. Supp. 361)

The Supreme Court of New York, Appellate Division, Third Department, answers in the negative a question submitted by the state industrial commission as to whether claimant Kunasek, who had lost his right arm in an accident and had been awarded full compensation under the workmen's compensation law, was entitled in addition thereto to an artificial arm, which he demanded during the first sixty days after his injury. The court says that this brought to it the question whether an artificial arm is an "apparatus," within the meaning of the provisions of Section 13 of the law. That a natural arm is not to be considered as an "apparatus" must be clear to any one who stops to consider the matter for a moment. It seems clear that the statute in this case does not contemplate anything more than the apparatus necessary or proper for the first sixty days of intelligent and practical treatment of the injured employee, and there can be no justification for holding that an artificial arm is an apparatus any more than the natural arm would be an apparatus. An implement would certainly not be defined so as to include an artificial arm, and there is no occasion for construing apparatus in a broader scope, the two words being practically synonymous as generally used. No doubt the claimant could have called for any apparatus which was necessary or proper in the treatment of his health or strength during the sixty days following his injury, and it would have been the duty of the employer to supply them, under the conditions prescribed by the statute; but to contend that the claimant could by a mere arbitrary demand impose the duty of supplying a new arm, when he had been fully compensated for the old one, was wholly without warrant in law. It was not necessary to consider the question of whether the artificial arm could have been used within sixty days of the injury.

Improper Basis for an Opinion

(Switzer vs. Baker et al. (Ia.), 160 N. W. R. 372)

The Supreme Court of Iowa, in reversing a judgment obtained by the plaintiff for alleged personal injuries from having been struck by an automobile, says that on the subject of the plaintiff's physical condition at the time of the trial a physician was examined as an expert in her behalf. The physician appeared never to have treated the plaintiff professionally, and made no examination of any kind, except what he spoke of as a "mental examination," consisting of a series of questions concerning the history of her case, and the differences, if any, between her physical and nervous condition before and after her injury. This interview was held but one or two days before the trial, and its evident purpose was to qualify the physician to testify as a witness in the plaintiff's behalf. Such purpose was entirely legitimate, and reflected no discredit on the plaintiff or the witness, and, had the latter found such symptoms of such observable abnormal conditions as led him to the conclusion that the plaintiff was afflicted with nervous prostration, then unquestionably his testimony to that effect would be entirely competent. But he expressly stated that he made no examination except to get from the plaintiff her version of the history of the case, and on this information, supplemented by other statements from another physician and a named woman, his opinion was formed. The witness did not state what facts he ascertained from the plaintiff or from the other physician or from the woman. That an opinion so expressed is not competent evidence is the view approved by many authorities. It was not necessary in this case to hold, and the court must not be understood as holding, that a physician called to treat a patient may not in making his diagnosis properly consider such patient's statement of her case and her condition together with the statements of other attending physicians concerning the case, or that an opinion based on his own observation and judgment as thus enlightened is not competent evidence in a proper case. On the record here made, the court need go no farther than to hold that, where a party alleged to have been injured calls in an expert for the purpose of enabling him to testify in her behalf, such expert being a stranger who has never treated her professionally and makes no examination of the patient except to question her in regard to her past and present condition, and to obtain the reports or statements made by others concerning such conditions, his opinion, based wholly or in part on such information, is not competent evidence and should be excluded from the jury. It should be added that some members of the court are of the opinion that a medical expert may properly testify to his diagnosis based on the history of the case as made to him by the patient, but may not found his opinion on statements to him by third persons. However, for the purposes of this case it was not necessary that the court decide on the admissibility in evidence of a diagnosis of the kind first mentioned, because the expert witness admittedly drew his conclusion in part from information derived from persons other than the plaintiff.

Liability for Roentgenographic Burn—"Res Ipsa Loquitur" —Care Required

(Holt vs. Ten Broeck (Minn.), 159 N. W. R. 1073)

The Supreme Court of Minnesota affirms a judgment for $2,500 damages in favor of the plaintiff for injury from a burn alleged to have been caused by the negligence of the defendant in taking a roentgenogram. The court says that, in February, 1915, the plaintiff was under treatment for some trouble in her hip supposed to be a fracture or a dislocation. Her attending physician desired a roentgenogram. The defendant, a regularly licensed physician, took it. A few weeks afterward a sore developed on the plaintiff's hip which it was claimed was the result of a roentgenographic burn. The evidence was sufficient to sustain a finding that the Roentgen ray caused the sore. The testimony of the plaintiff was that there was none before. It was at the point of the exposure. There was medical testimony having a tendency to prove that it came from a roentgenographic burn. The question was for the jury. To recover damages it was necessary that the plaintiff prove negligence in the defendant. There was little direct evidence of negligence. The plaintiff claimed that during the progress of the taking the defendant made some exclamation to the effect that the machine was not working right. Her claim was that the exposure was unduly long, but her testimony did not strongly support it. A physician sufficiently qualified to give an opinion as an expert stated that a proper application of the rays would not produce the result which he found. The evidence was that with a proper machine and with a proper use of it a burn is unusual. There was evidence that the machine was a proper one. The machine and its operation were wholly under the control of the defendant. Under such circumstances the rule of *res ipsa loquitur* (the matter speaks for itself) applies. It did not follow from this, as the plaintiff's counsel argued, that the burden shifted to the defendant of proving freedom from negligence. *"Res ipsa loquitur,* where it applies, does not convert the defendant's general issue into an affirmative defense." The language quoted was approved in a case in which this court held that the *res ipsa loquitur* rule merely permits the jury to draw an inference of negligence, and "the jury is to consider and weigh the inference. in the light of all the facts and circumstances, and give it such weight as tending to prove negligence as they deem it entitled to." It does not follow from what is here said that the *res ipsa loquitur* doctrine applies to a bad result or mishap coming from a physician's treatment. The rule does not apply in such cases. In determining negligence it can make no difference whether the one operating the roentgenographic appliance is a physician or a lay expert. The care required is ordinary care. It is the care exercised by and to be expected from one reasonably skilled in the use of the appliance. The rays were not applied for curative purposes, but to obtain information. This is the logical if not the necessary result of the holding in *Henslin* vs. *Wheaton,* 91 Minn. 219, 97 N. W. R. 882, that in an action against a physician for negli-

gence in the use of a roentgenographic machine he was not entitled to have the question of his skill determined by physicians of his own school. A physician who qualified himself as an expert in the application of the Roentgen ray was permitted to give his opinion, based on the result of the operation, that the application was improper. This was not error. The verdict was for $2,500. The defendant claimed that it was excessive. The trial occurred a year after the injury. After the injury developed the plaintiff wandered from doctor to doctor for several months. Finally she went to the hospital. She was there six months. The pain had been considerable. At the time of the trial, so her claim was, she was unable to work. The sore was still open and of considerable extent. One physician said it was uncertain whether it would be permanent. The verdict was not excessive.

Neither Surgeons nor Charitable Hospitals Liable for Negligence of Nurses

(Morrison vs. Henke et al. (Wis.), 160 N. W. R. 173)

The Supreme Court of Wisconsin affirms a judgment dismissing this action against two surgeons and a charitable hospital association to recover damages for alleged negligent treatment of the plaintiff following an operation for appendicitis while a patient at the hospital. The court says that the case was tried to a jury, which found: (1) that certain sores on the plaintiff's leg were caused by a burn from a hot-water bottle placed in his bed at the hospital; (2) that the nurses placed in charge of the plaintiff were incompetent; (3) that the defendant surgeons were wanting in the exercise of ordinary care in permitting such nurses to attend the plaintiff after the operation; (4) that such want of ordinary care was the proximate cause of the plaintiff's injury; (5) that the nurses who had charge of the plaintiff were wanting in the exercise of ordinary care in their care and attendance on him; (6) that such want of ordinary care was a proximate cause of the plaintiff's injury, and (7) damages in the sum of $700. But, having examined the evidence relative to the alleged negligence of the surgeons, the court is satisfied that the finding that they were wanting in the exercise of ordinary care in permitting the nurses to attend the plaintiff after the operation was properly set aside. There was no evidence to show that if the nurses were incompetent—a fact by no means clearly established—the surgeons knew or were chargeable with knowledge of such incompetence. They were not hired by the surgeons, but by the hospital, and no fact was shown coming to the knowledge of the surgeons sufficient to put them on inquiry as to the nurses' competency. In the absence of such fact, they had a right to assume that the nurses were competent. The action was also properly dismissed as to the defendant hospital association. The evidence showed that it was an eleemosynary institution paying no dividends and was largely supported by charitable donations; that the fees charged from patients able to pay did not support it, and that the weekly charge to the plaintiff was not enough to cover the cost of the services rendered to him. The authorities in this country almost uniformly hold that, in the absence of negligence in their selection, charitable hospitals are not liable to their patients for the torts or wrongful acts of their employees. But while our courts disclose great unanimity in declaring charitable hospitals immune against claims of their patients based on the negligence of their servants, they are by no means agreed as to the grounds of immunity. This court prefers to rest its decision on the principle that, since these charitable hospitals perform a quasi or sort of public function in ministering to the poor and sick without any pecuniary profit to themselves, the doctrine of respondeat superior, let the superior or master answer, should not be applied to them in favor of those receiving their charitable services. Since the hospital derives no profit from its work, and since it is founded for the sole purpose of conserving the health and life of all who may need its aid, and since it ministers to those who cannot pay as well as to those who can, thus acting as a good Samaritan, justice and sound public policy alike dictate that it should be exempt from the liability attaching to masters whose only aim is to engage in enterprises of profit or of self-interest. The patient who accepts the services of such an institution, if injured therein by the negligence of an employee, must be content to look for redress to such employee alone. And all the cases holding charitable hospitals immune that have spoken on the subject agree that the exemption from liability applies to pay as well as to free patients.

Death From Eating Poisonous Mushrooms Accounted Accidental

(United States Casualty Company vs. Griffis (Ind.), 114 N. E. R. 83)

The Supreme Court of Indiana affirms a judgment for $6,645 in favor of Mrs. Griffis, plaintiff, for the death, from eating mushrooms tainted with ptomain poison, of her husband, who was insured under an accident policy by the defendant company "against loss resulting directly and independently of any and all other causes from bodily injury effected solely through external, violent and accidental means," though the policy expressly exempted the company from liability for injury "resulting from or contributed to, directly or indirectly, wholly or partially, by disease." The court says that it quite agrees with the contention that the means must be accidental, and that a mere accidental result would not suffice under the language of this policy; but the court is of the opinion that the unintentional taking of the poisonous substance contained in what the insured supposed to be edible mushrooms constituted an accidental means which caused the death. The court is also of the opinion that, under the facts disclosed here, the ptomain poison did not constitute a disease within the meaning of the language of the policy exempting the company from liability for injuries caused by disease.

Society Proceedings

COMING MEETINGS

Idaho State Medical Association, Sandpoint, June 25-26.
Montana Medical Association, Kalispell, July 11-12.
Oregon State Medical Association, Portland, June 28-30.
Western Roentgen Society, Kansas City, Mo., July 20-21.

ASSOCIATION OF AMERICAN PHYSICIANS

Meeting held in Atlantic City, May 2-3, 1917

(Continued from page 1872)

Calcium and Magnesium in the Blood in Rickets and Tetany

DRS. JOHN HOWLAND and WILLIAM MCKIM MARRIOTT, Baltimore: In both classes of cases there is a tendency toward a low calcium content, lower in the severe cases than in the mild, the lowest being 7.5 mg., the normal is about 10 mg. There is a diminution of the calcium content in rickets. The relationship between tetany and rickets is close. In fourteen out of fifteen cases of tetany there were repeated convulsions, and when the convulsions occurred there were 6 mg. of calcium in the serum. It would seem, therefore, that calcium is therapeutically indicated in tetany, but it cannot be stated whether or not it is of real value. However, in six cases in which it was used it seemed to be of great value; no child had convulsions after its use.

DISCUSSION

DR. SAMUEL J. MELTZER, New York: It has been shown that in animals a reduction of calcium can be brought about by the use of oxalates; if magnesium is added, the animal becomes completely paralyzed. When calcium is given, the animal awakens quickly.

Case of "Wilson's Disease" with Postmortem Findings

DRS. C. P. HOWARD and C. E. ROYCE, Iowa City, Iowa: This patient denied that he used alcohol, and said that he had never had any infectious disease, but that he was liable to attacks of diarrhea. In 1916 he complained of pain in his

legs and some difficulty in walking. He had edema of the legs. For three or four weeks this symptom persisted. Four weeks after the onset, he had cramps in the legs, hands and feet, especially in the toes of the right foot. He became more ataxic and quite emotional. The fingers were flexed on the hands, the wrist flexed on the forearm, and the arms extended and held closely to the side. The thighs were flexed on the abdomen, the feet were extended, and the toes were flexed. There was no mechanical or electrical irritability at this or at subsequent examinations. The skin was harsh and dry. The hair was scanty. The abdomen was tympanitic. The urine and blood were normal. Careful and repeated examinations of the central nervous system revealed nothing unusual in the motor or sensory tracts. The spinal fluid was examined; no cells were found, and the Noguchi and Wassermann tests were negative. The calcium content was unusually high, being 13 mg. per hundred c.c. There was no dysphasia nor dysarthria. No organism could be found in the blood. The patient died apparently of a terminal infection, basal in character. When the abdomen was opened the liver was found to be nodular, studded with large white nodules, suggestive of adenocarcinoma or a tumor similar in nature. The case was similar to those described by Wilson in 1912. Since then there have been nine such cases reported in this country. The symptoms of a condition called pseudocirrhosis are identical with Wilson's syndrome. The pigment has been tested for silver and manganese, but no one has been able to determine the cause of the discoloration of the skin.

DISCUSSION

DR. J. RAMSEY HUNT, New York: I have some lesions in mind that are circumscribed and confined to the caudate, the lenticular nucleus and to the corpus striatum. The tremor resembles that of paralysis agitans, but there is also a tendency to clonic spasm and choreiform movements. Wilson emphasized the importance of this tremor. One week ago, in a study of juvenile paralysis agitans, I found that the lesion was situated in the corpora striata and limited to the larger motor cells. Paralysis agitans is a type of disease due to atrophic disturbances in the large motor cells; Huntington's chorea is a type of destruction of the smaller cells. The massive lesion in Wilson's disease is a combination of the destruction of the two systems.

DR. C. E. ROYCE, Iowa City, Iowa: The hilum at the base of the brain was not at all pathognomonic of Wilson's disease. So far as I know there has been no patient with pseudocirrhosis or Wilson's disease ever exposed to manganese. There are some evidences of a syndrome in which the manganese marked a somewhat similar type as the disease under consideration.

Use of Foreign Proteins

DR. J. L. MILLER, Chicago: The foreign proteins were given intravenously, except milk, which was given intramuscularly. In addition to the protein, we used collargol in the cases of iritis. During March and April we discharged fourteen patients who had had acute arthritis; the patients received one injection each day until three had been given. There was only one recurrence. We used typhoid vaccines. No beneficial results were obtained from the use of gonorrheal vaccines. In the subacute or chronic cases the results were less marked than in the acute cases. In eight or nine cases of pneumonia in which these injections were given, the reactions were quite violent. In a series of 200 cases in which over 500 injections were given, there has been no fatality. We have had more remarkable results with this treatment than with any other.

DISCUSSION

DR. E. E. IRONS, Chicago: In a discussion of the effects of foreign protein in disease, interest centers on two main topics: (1) the relation of the phenomena observed to those which occur in the natural recovery from disease, and (2) the clinical results which follow the use of foreign protein in disease.

1. While the reactions which we speak of as specific differ from those called nonspecific, we may conceive of both classes as dependent on physicochemical principles, differing only in the degree of the fineness of their adjustment. The findings of Hektoen indicate that in carefully controlled animals the introduction of one antigenic substance may cause the appearance not only of antibodies specific to the recently injected antigen, but also antibodies specific to another different antigen, in an animal previously sensitized to the latter antigen. The recognition of this interrelation of specific and nonspecific reactions is an important step in understanding the problems of the effects of foreign protein in infections, and of the effect of one infection on another in the human body.

2. To what extent do the results of our observations warrant the use of intravenous injections of foreign protein in infections, especially typhoid fever and arthritis? Published reports have led to a widespread employment of this procedure, especially in arthritis, often by those untrained and uncritical in judgment. In typhoid fever a number of favorable reports have appeared. On the basis of our observation and those of others, we have not felt justified in extending the use of this procedure in typhoid fever. In patients suffering from arthritis, striking amelioration of pain and swelling in the joints has followed the intravenous injection of bacterial and other foreign protein. There is always the danger that the routine use of a nonspecific remedy may lead to an incomplete and careless study of the patient. We must also take into consideration the other effects of the injection on the patient. There have been three deaths in one hospital within six months following the intravenous injection of bacterial protein. From the therapeutic point of view I believe we should warn against the indiscriminate use of these methods until they have been studied more thoroughly, and the dangers as well as the reputed advantages better defined.

DR. S. SOLIS COHEN, Philadelphia: I have used colloidal silver and gold and obtained satisfactory results in cases of profound sepsis and in toxemias of various origin, especially in streptococcus infections. In regard to the treatment of arthritis by intravenous injections, I should like to refer to the use of liquor formaldehydi; after the use of this agent there has been in almost every instance an immediate disappearance of pain. When the patient recovered, the recovery was prompt and continuous, and there were no relapses or violent reactions.

DR. MILTON H. FUSSELL, Philadelphia: I know of at least two deaths that have occurred in cases of typhoid fever treated in this way.

DR. J. L. MILLER, Chicago: We refuse to give the injections to patients when we think they cannot stand them. We first test the patient out with very small doses. I believe, however, that with proper precautions we are secure against bad results, but we should be careful in the selection of cases.

Renal Function in Acute Infections

DR. CHANNING FROTHINGHAM, JR., Boston: During the course of acute infections there is no serious injury to the kidneys, and it is better to use a high caloric diet.

DISCUSSION

DR. THEODORE C. JANEWAY, Baltimore: It is interesting to note the high index of urea in febrile and other acute diseases. I recall an instance of hyperthyroidism which showed quite regularly an extremely marked increase in the output of urea.

A Case of Primary Thrombophlebitis of the Hepatic Vein and a Case of Primary Sarcoma of the Epicardium

DR. NATHAN E. BRILL, New York: A woman was carried into the ward, December 4, moaning with pain. She stated that she had never been sick before. She was 24 years of age, married four months, and pregnant two. She had been suffering for four or five days with pain in the epigastrium and down the lateral aspects of the abdomen. The liver was enlarged 2 cm. below the free border of the ribs. The pain was intense, and the woman was unable to lie down. The blood count showed 21,000 white cells, with 80 per cent.

polymorphonuclears. On the following day the liver was found to be 4 cm. below the free border of the ribs. On the next day the liver was still larger, being 7 cm. below the free border of the ribs, and for the first time the spleen was felt. On the day following, the spleen was found to be 3 finger-breadths below the free border of the ribs, and the liver was at the crest of the ilium. The abdomen was enormously distended. An exploratory operation was finally decided on. About a liter of clear fluid was evacuated and the uterus was also evacuated. The liver was found to be down to the iliac crest. The spleen was 4 cm. below the free border of the ribs. The patient lived for three weeks after this time. The necropsy showed a liver considerably shrunken in size and a similar condition of the spleen. The abdominal viscera showed no infectious process. At the entrance of the hepatic vein into the vena cava for a distance of 0.5 cm. was a blood clot. This was traced along the hepatic vein, and showed soft clots connected with the periphery by a little tissue. The clot extended all over the branches of the hepatic vein. There was a primary thrombosis in the hepatic vein terminating at the vena cava. Only three cases of this kind have been reported. The woman died because of complete suppression of hepatic function.

The second case, primary sarcoma of the pericardium, occurred in a woman, aged 22, who came into the hospital in June with a frank attack of lobar pneumonia. There was an associated endocarditis with effusion. The patient left the hospital in July and returned in September, when a diagnosis of pericardial effusion was made. On the second day after admission, the pericardial sac was tapped and a small amount of blood-stained fluid obtained. This patient developed an adherent pericardium, dilatation of the heart and a large amount of effusion in the left sac. She lived until about the middle of January. At the necropsy, when the sternum was removed, the pericardial sac was found to be 20 by 24 by 14 cm. When the pericardium was incised, a large tumor mass was found and a small amount of brown-colored fluid. The mass enveloped the entire heart, but the entrance of the veins was not occluded at all. On section the tumor showed a large number of spindle and round cells. The pathologist's report stated that the tumor was a sarcoma of the epicardium. There were no metastases. Only eight cases of sarcoma of the epicardium have been reported in the literature.

Localization of Syphilis on the Aorta

DR. OSCAR KLOTZ, Pittsburgh: In the majority of instances in which infection localizes on the tissues of the aorta, it is found to begin in the outermost layers and from here to attack the adventitia and media. The localization has been ascribed to distribution by the vasa vasorum. On the basis of the hematogenous distribution, it is not possible to account for the more frequent localization of infection on the ascending and transverse portions of the aorta. A study of the aorta and its lymphatic distribution demonstrated a greater number of lymph channels in given regions. This is particularly true for the first portion of the aorta. The prominence of these lymphatics and evidence as serving for routes of infection was seen in several cases of pneumonia. A similar correlation of the lymphatic system to the distribution of the infectious agent was seen in syphilis. The lymphatics in the aorta will follow the course of the vasa vasorum thus giving rise to a perivascular infiltration which is so prominent in syphilitic aortitis. The lymphatics appear to be more important structures than the small nutrient vessels for the distribution and localization of syphilis.

Pneumonia in Relation to Types of Pneumococcus and the Serum Treatment of Type 1 Cases

DRS. HENRY A. CHRISTIAN and H. L. ALEXANDER, Boston: This study includes 187 cases of typical bronchopneumonia, eleven of which were treated by means of serum. As a rule, there was a critical fall of the temperature within a few hours after the serum was given; frequently more than one dose was needed to reduce the temperature. Sometimes there was rise in temperature and a chill following the first dose. Serum sickness occurred in most cases one week after the treatment, but was never severe. There was no distrubance as a result of the serum treatment during convalescence beyond some itching and urticarial lesions. Of the treated patients, one died during the pneumonia, one died during convalescence, and two developed empyema. There was a reduction in the mortality from 42 per cent. in the untreated cases to 18 per cent. in the treated cases.

DISCUSSION

DR. THEODORE C. JANEWAY, Baltimore: I have made a comparison of the results in the white and colored races. Altogether there were of the white race, twelve cases with seven deaths; of the colored race, forty-six cases with eleven deaths. This shows a definitely lower mortality among the negroes. The reactions seem to have a definite relation to the amount of serum administered.

DR. M. H. FUSSELL, Philadelphia: Seven patients have been treated in my ward with no deaths. One patient had a very severe reaction after being given 60 c.c. of the serum, but recovered.

A Case of Ventricular Fibrillation with Recovery

DR. GEORGE CANBY ROBINSON, New York: It has been generally accepted that when the human ventricles pass into a state of fibrillation, death is an almost immediate and an invariable consequence. In the case reported, three attacks of syncope occurred. These lasted about four minutes each. During one of these attacks, when the patient ceased to breathe, and when no heart sounds were audible, an electrocardiogram characteristic of ventricular fibrillation was obtained. The patient lived thirty hours after this attack, during which time numerous electrocardiograms were obtained. The case is the first example of recovery from a well-established ventricular fibrillation that has been observed.

Atrophy of the Large Motor Cells of the Corpus Striatum in the Presenile Type of Paralysis Agitans

DR. J. RAMSEY HUNT, New York: The clinical types of paralysis agitans are the presenile and senile types and a rare juvenile form; also a paralysis agitans without tremor, and a rare tremor type of the disease in which rigidity is absent. In addition, various irregular and symptomatic forms are recognized. In the juvenile type there are certain pathologic changes consisting of atrophy and diminution in the number of the motor cells of the corpus striatum. The suggestion is made that paralysis agitans beginning in early life belongs to the group of motor system diseases and is dependent on a primary atrophy of the efferent projection system of the corpus striatum. The atrophic changes are limited to the motor cells of the globus pallidus, and is especially marked in the large cells of similar type in the caudate nucleus and putamen. The cells of the globus pallidus type, therefore, represent a well defined cellular system, the globus pallidus mechanism, which in my opinion is the essential motor system of the corpus striatum. According to this conception, paralysis agitans is a primary systemic disease, occurring in the course of the striospinal mechanism, while spastic paralysis (primary lateral sclerosis) is a systemic disease of the corticospinal mechanism. The smaller ganglion cells of the caudate nucleus and putamen are not affected. The motor cells of the globus pallidus proper show only slight alterations. Some of these cells appeared slightly reduced in size and presented a somewhat rounded or angular appearance, but these changes are not well defined and the essential lesion is atrophy of the giant motor cells of the caudate and putamen. According to this conception, the corpus striatum is a motor mechanism for the control of automatic and associated movements operating through the extrapyramidal motor tracts. The pallidal system is the motor system proper and terminates in relation to important ganglions in the hypothalmic region, and through these exerts a controlling influence by way of the extrapyramidal system on automatic and associated movements. The peculiar rigidity of paralysis agitans is dependent on a hypertonicity of the musculature which most authorities agree is of central origin.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, LXXV, No. 6

1 Metabolism of Mother and Offspring Before and After Parturition. J. R. Murlin, New York.—p. 913.
2 Antenatal Pathology. E. A. Schumann, Philadelphia.—p 953.
3 *Hydatidiform Mole; Analysis of Five Hundred Cases. P. Findley, Omaha.—p. 968.
4 Treatment of Septic Incomplete Abortion. H. N. Vineberg and S. Wiener, New York.—p. 975.
5 Nitrous Oxid Gas as Analgesic in One Hundred and Thirty-Five Cases of Labor. G. H. Ryder, New York.—p. 981.
6 *Case of Puerperal Gangrene of Leg. W. H. W. Knipe, New York. —p. 988.
7 Report of Very Large Fetus. (15 11/16 Pounds). G. L. Brodhead, New York.—p. 993.
8 Hyperplasia of Endometrium. E. Novak, Baltimore.—p. 996.
9 Resident Physician in His Relation to Operative Gynecology. J. M. Fisher, Philadelphia.—p. 1001.

3. **Hydatidiform Mole.**—An analysis made by Findley of 500 reported cases shows that there is nothing significant in age, the condition having occurred at all ages from 13 to 55. In the 500 cases there were: twin pregnancies in five; repeated molar pregnancies in seven; normal pregnancies following moles in twenty-five; partial moles with fetus in three; partial mole with living normal child in three. Repeated molar pregnancy has occurred from two to eighteen times. The birth of one or more moles does not preclude subsequent normal pregnancies. The birth of moles occurs with about equal frequency in the second and third trimesters of pregnancy, and has been known to occur as late as the seventeenth month of gestation. Chorio-epithelioma malignum developed in 157 cases, or 31.4 per cent. of the 500 cases of mole formation. Of the 265 benign moles there were recoveries in 237 and deaths in twenty-eight, a mortality of 10.5 per cent., while of ninety-nine moles, which later became malignant, there were forty-five recoveries and fifty-four deaths, a mortality of 54.5 per cent. The following symptoms are tabulated: Bleeding in 290 (66 per cent.); pain in 42 (9.5 per cent.); albuminuria in 13 (38 per cent.); vomiting in 60 (13.5 per cent.); fever not given; dyspnea in 5; hemophysis in 3; toxemia in 1; headache in 5; eclampsia in 9. Among the malignant cases there were vaginal metastases in 25; pulmonary metastases in 21; cerebral metastases in 4. In 386 cases there was spontaneous delivery in 167 (43.2 per cent.) and operative delivery in 219.

6. **Puerperal Gangrene of Leg.**—This was a case of gangrene of the right foot and leg following a septic abortion due to a mixed infection of *B. aerogenes-capsulatus,* streptococcus and a diplococcus, starting as a thrombophlebitis of the right broad ligament and involving the inferior vena cava, both common iliac veins, both external iliac veins and the femoral vein on the right side, while the arteries are in no way involved. Associated with this condition was a pyemia, bronchopneumonia, abscess of the lung and general peritonitis. Death terminated the case.

Boston Medical and Surgical Journal

May 31, CLXXVI, No. 22

10 Drug Users in Court. V. V. Anderson, Boston.—p. 755.
11 Shiftling, Charlatan and Vagabond; Who They Are and How They Arise. J. V. Haberman, New York.—p. 757.
12 End Results of Treatment of Fracture of Elbow. H. Neuhof and H. F. Wolf, New York.—p. 759.
13 Mucosa of Rectum and Sigmoid Colon as Focus of Infection. H. W. Soper, St. Louis.—p. 766.
14 Case of Melanotic Sarcoma Arising in Eye, with Metastases. L. Adams, Bangor, Me.—p. 768.
15 Case of Systemic Oidiomycosis with Manifestations in Central Nervous System. F. J. Farnell and S. Starr, Providence, R. I. —p. 771.
16 Comparative Statistics on Physical Examinations of Pupils of Boston Public Schools from Dec. 1, 1915, to April 1, 1917. W. H. Devine, Boston.—p. 773.
17 Radium in Treatment of Cutaneous Epithelioma and Keratosis Senilis. F. S. Burns and J. H. Blaisdell, Boston.—p. 774.

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18 Three Types of Tuberculosis. M. E. Lapham, Highlands, N. C. —p. 795.
19 Defectives in Our Prisons. A. W. Stearns, Boston.—p. 801.
20 Treatment of Some of Postural Defects and Habit Motions Common Among Blind. L. D. Swinerton, Watertown.—p. 803.
21 Case of Iritis and Optic Neuritis Following Tonsillitis. I. Sobotky, Boston.—p. 806.
22 *Nature's Drainage of Pelvic Abscess. Evolution of Adventitious Drainage Tube. H. Packard, Boston.—p. 807.
23 Case of Tubal Pregnancy. E. H. Mackay, Clinton.—p. 808.
24 Case of Amebic Abscess of Liver in Guardsman Recently Returned from Mexican Border. L. Adams, Bangor.—p. 808.

22. **Nature's Drainage of Pelvic Abscess.**—A patient recently operated on by Packard for the radical cure of chronic pelvic abscess presented a surprising and wholly unique mechanism for drainage. Briefly, a distinct and perfectly formed tube standing out clearly, and practically free from adhesion with any of the adjacent viscera, extended from the depths of the pelvis up along the left side to an opening in the abdominal wall, a little to the left of the median line and about 2 inches below the umbilicus. It had a slight mesenteric like attachment to the pelvic parietes, easily separated by finger dissection and snipping scissors, and was covered with a smooth peritoneum like covering.

Bulletin of Johns Hopkins Hospital, Baltimore

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25 *The D:N Ratio in Diabetes Mellitus. H. O. Mosenthal and D. S. Lewis, Baltimore.—p. 187.
26 Nature of Resistance to Tuberculosis. A. K. Krause, Baltimore. —p. 191.
27 *Amino-Acid Nitrogen of Blood in Normal and Complicated Pregnancy and in New-Born Infant. A. Morse, New Haven, Conn. —p. 199.
28 Etymology, Popular and Scientific, of Terms for Kidney, in Various Languages. D. I. Macht, Baltimore.—p. 204.

25. **D: N Ratio in Diabetes Mellitus.**—The data of a case of diabetes mellitus demonstrating a maximal dextrose-nitrogen ratio of 3.65: 1 are presented by Mosenthal and Lewis. They state that among the principal causes for apparently spontaneous changes in the D: N ratios present in some cases of diabetes mellitus are: (1) the inconstant renal threshold to the blood sugar, and (2) the variable heights to which the blood sugar rises after meals, even though these are not appreciably modified from day to day.

27. **Amino-Acid Nitrogen of Blood in Pregnancy and in New-Born Infant.**—In normal women examined by Morse the amino-acid nitrogen varied between 8 and 14 mg. per 100 c.c. of blood; and the same range of variations was encountered during pregnancy. In other words, the requirements of the fetus cause no increase of the substances in the maternal blood out of which protein is constructed. Generally, normal values were found in preeclamptic toxemia and eclampsia, though exceptionally an increase in the amino-acids occurred during convalescence. Nephritic toxemia was accompanied by a normal quantity of amino-acid nitrogen in the blood. An excessive quantity of amino-acids occurred in cases of obscure toxemia, possibly related to acute yellow atrophy of the liver. During labor normal values were found: at its conclusion the extremes encountered were 8.1 and 13.9 mg. In fetal blood the amino-acid nitrogen varied between 10 and 15.8 mg. per 100 c.c. of blood. The passage of amino-acids from mother to fetus requires the assumption of "absorption" properties on the part of the placenta; for, though the difference between the concentration of amino-acids in the two circulations is small, it is in favor of the fetus in 70 per cent. of the cases; and the higher level in that organism prevents the acceptance of simple diffusion as the explanation for the placental exchange. Morse believes that the "absorption" property of the placenta probably protects the fetus against loss of material intended for the construction of protein.

Georgia Medical Association Journal, Augusta

May, VII, No. 1

29 Vital Statistics. E. R. Park, LaGrange.—p. 1.
30 Public Health Work in First Sanitary District and Some Pathologic Conditions among Children. C. C. Whittle, Tifton.—p. 4.
31 Education Cornerstone of Sanitation. M. M. McCord, Rome. —p. 7.

32 Laboratory as Aid to Public Health Work. L. T. Patillo, Atlanta. —p. 9.
33 What Local Health Officer Should Know About Water Supply. R. C. Werner, Atlanta.—p. 11.

Iowa State Medical Society Journal, Des Moines

May, VII, No. 5

34 Remote and Systemic Effects of Focal Infections. E. T. Edgerly, Ottumwa.—p. 165.
35 Sacro-Iliac Articulation. J. N. Warren, Sioux City.—p. 168.
36 Id. H. J. Prentiss, Iowa City.—p. 172.
37 Syphilis of Central Nervous System. J. F. Auner, Des Moines. —p. 174.
38 Amyotrophic Lateral Sclerosis. T. B. Throckmorton, Des Moines. —p. 177.
39 Reed's Bacillus Epilepticus. J. B. Rogers, Independence.—p. 180.
40 Standardization, Preparation of Patient, Operation and Postoperative Treatment for Lessening Sepsis and Shock in Tonsillectomy. H. G. Langworthy, Dubuque.—p. 181.
41 Acute Abdominal Crisis. K. L. Johnston and E. D. McClean, Oskaloosa.—p. 184.

Journal of Experimental Medicine, Baltimore

June, XXV, No. 6

42 Immunologic Studies on Pure Cultures of Various Spirochetes. H. Noguchi and S. Akatsu, New York.—p. 765.
43 *Bacteriology of Acute Anterior Poliomyelitis. J. A. Kolmer, C. P. Brown and A. M. Freese, Philadelphia.—p. 789.
44 *Henle's Reaction of Chromaffin Cells in Suprarenals and Microscopic Test for Epinephrin. T. Ogata and A. Ogata, Tokyo, Japan.—p. 807.
45 *Studies on Bacillus Welchii with Special Reference to Gas Gangrene. J. P. Simonds, Belgium.—p. 819.
46 Equilibria in Precipitin Reactions. Coexistence of Single Free Antigen and Its Antibody in Same Serum. S. Bayne-Jones. New York.—p. 837.
47 *Focal Pulmonary Tuberculosis of Children and Adults. E. L. Opie, St. Louis.—p. 855.
48 Classification of Nonhemolytic Streptococci. R. A. Kinsella and H. F. Swift, New York.—p. 877.

43. **Bacteriology of Poliomyelitis.**—Four different varieties of easily cultivated micro-organisms have been cultured by the authors from the cerebrospinal fluid and tissues of cases of acute anterior poliomyelitis, namely, a streptoeoccus, a diplococcus, diphtheroids and gram-negative bacilli. It is not contended that they were all inherent in the tissues. The streptococci grew both aerobically and anaerobically; under anaerobic conditions growth was slow. They were not found in the anaerobic cultures of 106 cerebrospinal fluids; they were found in one of twenty anaerobic blood cultures and frequently in the cerebrum, cerebellum, pons and medulla, eord, tonsils, lungs, liver, kidneys, spleen, pancreas, thymus gland, suprarenal glands and mesenterie glands of fatal cases. The diplococci are gram-positive and, transplanted to solid media, yield luxuriant growths and a staphylococcus grouping. They grew aerobically and anaerobically, but more slowly under the latter eondition, and the cocci became smaller and more rounded. Diplococci were found in the anaerobic cultures of forty-eight of 106 cerebrospinal fluids; also in the cerebrum, cerebellum, pons and medulla, cord, tonsils, lungs, liver, kidneys, spleen, pancreas and mesenteric glands of fatal cases. The filtrates of emulsions of tissues containing streptococci and diplococci passed through fine Kitasato and Pasteur-Chamberland filters were sterile unless large amounts of filtrates were collected. Intracranial, intravenous and intraperitoneal injection of these easily cultivated streptococci, diplococci, diphtheroids and gram-negative bacilli failed to produce paralysis in rabbits or monkeys. With two exceptions all the cultures were transplants from the original anaerobic ascites-broth-kidney cultures of cerebrospinal fluid and various tissues. Arthritis and meningitis were produced by the streptococci, but there were neither clinical nor histologic evidences of true poliomyelitis.

44. **Henle's Reaction of Suprarenal Chromaffin Cells.**—The Ogatas believe that they have established the fact that the chrome reaction as well as the silver and osmiun reactions are merely reductions by epinephrin. In their opinion the naming of the cells giving a positive reaction should not be based on the reaction (that is, chromaffin cells), but on the presence of epinephrin itself. Biedl's terms, suprarenal cell, suprarenal organ, suprarenal body, suprarenal system and also Bonnamour's term, epinephrin producing cells, are appropriate in this respect. The authors propose the names epinephrin cell, epinephrin tissue, epinephrin system, thereby indicating the presence of epinephrin.

45. **Bacillus Welchii and Gas Gangrene.**—Spores of the *Bacillus welchii* group of bacteria were found on 100 per eent. of the uniforms of Belgian soldiers who had come directly from the trenches, and in the meshes of all the samples examined of the new cloth from which the uniforms were made. In fifteen out of twenty fresh war wounds, members of this group of bacteria were found. Of the fifteen patients, only three later developed gas gangrene. Once the spores of *Bacillus welchii* have been carried into a wound the deep lying lacerated muscle tissue appears to be the most important factor in the onset of gas gangrene. *Bacillus welchii* is able to grow and produce gas in broth containing up to 40 per cent. saccharose; some strains in 50 per cent.; but none of those examined were able to grow when the coneentration of the sugar reached 60 per cent.

47. **Focal Pulmonary Tuberculosis.**—Evidence of tuberculous infection was found by Opie in the lungs of fifty adults. He says that approximately one-half of all adults have encapsulated lesions of the lungs or bronchial lymphatic nodes, whereas in one-third pulmonary and lymphatie lesions are firmly calcified and eompletely healed. Tuberculous pulmonary lesions of adults who have died of diseases other than tuberculosis are of two types: (1) apical tubereulosis similar to the usual type of fatal phthisis and unaccompanied by caseation of the regional lymphatic nodes; (2) focal tuberculosis not more commonly situated in the apices of the lungs than elsewhere and accompanied by caseation (or calcification) of the adjacent lymphatic nodes. Focal pulmonary tuberculosis of adults is identical with the tuberculosis of childhood. It occurs in at least 92 per cent. of all adults. It may be acquired between the ages of 2 and 10 years but in more than half of all individuals (in this city) makes its appearance between the ages of 10 and 18 years. Tuberculosis of children does not select the apices of the lungs, is accompanied by massive tuberculosis of regional lymphatic nodes, and exhibits the characters of tuberculosis in a freshly infected animal, whereas tuberculosis which occurs in the pulmonary apices of adults has the characters of a second infection. Almost all human beings are spontaneously "vaccinated" with tuberculosis before they reach adult life.

Journal of Infectious Diseases, Chicago

June XX, No. 6

49 Anaphylatoxin and Anaphylaxis. Peptone Anaphylatoxin. F. G. Novy, P. H. DeKruif and F. O. Novy, Ann Arbor, Mich.—p. 657.
50 Primary Toxicity of Normal Serum. P. H. DeKruif, Ann Arbor, Mich.—p. 717.
51 Specific Anaphylactic Shock. F. G. Novy and P. H. DeKruif, Ann Arbor, Mich.—p. 776.
52 Anaphylatoxin and Amino Nitrogen. P. H. DeKruif and W. M. German, Ann Arbor, Mich.—p. 833.

Journal of Medical Research, Boston

May, XXXVI, No. 2

53 *Arthritis Deformans as Infectious Disease. P. W. Nathan, New York.—p. 187.
54 *Formation of Giant Cells in Tuberculosis. J. H. Warren, Cleveland.—p. 225.
55 *Sensitization of Patients with Bronchial Asthma to Proteins in Animal, Fruit, and Vegetable Foods. I. C. Walker, Boston.—p. 231.
56 *Sensitization of Patients with Bronchial Asthma to Various Pollens. I. C. Walker, Boston.—p. 237.
57 *Complement Fixation and Precipitin Reactions with Serum of Bronchial Asthmatics Who Are Sensitive to Proteins of Wheat, Horse Dandruff, Cat Hair and Bacteria. I. C. Walker, Boston. —p. 243.
58 Progressive Muscular Ossification (Progressive Ossifying Myositis; —Progressive Anomaly of Osteogenesis. E. L. Opie, St. Louis. —p. 267.
59 Hypertrophic Chondrodystrophy in Infancy and Adolescence—Progressive Anomaly of Osteogenesis. E. L. Opie and N. Allison, St. Louis.—p. 277.
60 *Part Staphylococcus Pyogenes Aureus and Albus May Play in Cause of Bronchial Asthma. I. C. Walker and J. Adkinson, Boston.—p. 295.
61 Neuroblastoma; Report of Case. E. P. Lehman, St. Louis.—p. 309.

53. **Arthritis Deformans as Infectious Disease.**—Evidence is submitted by Nathan to prove that all the various forms

of polyarthritis may be caused by infections. The pathologic lesions correspond exactly with those of known infections and the clinical phenomena can all be ascribed to differences in the location and virulence of the bacteria, the mechanical conditions and the presence or absence of central or peripheral nerve involvement. In at least the majority of cases the cause of the chronic, nonsuppurative joint diseases is an infection. The presence or absence of symptoms of general infection, the metastases in other organs besides the joints, the recurrences and the location of the primary focus must be considered as a problem separate from the articular disease. Though it is not unlikely that a focus in a tooth is sometimes, and one in the throat is often, the point of entry for bacteria, it should be remembered that once the microorganism has entered the blood its connection with the portal of entry ceases. For this reason, though the removal of the affected teeth or tonsils will, if these are really the site of the original focus (which is not by any means always certain even when they are abnormal) prevent reinfection or recurrences, such procedures have absolutely no influence on the joint condition as it already exists. Moreover, it must be remembered that a focus in the joint structures, like a focus anywhere else, besides causing local changes, may be and no doubt often is a source of general infection and metastases.

54. **Formation of Giant Cells in Tuberculosis.**—Warren's findings confirm those of other workers, viz., that the so-called epithelioid and endothelioid cells are really of reticular tissue origin and also that the giant cells in tuberculosis are a result of the fusion of these cells. Since reticular tissue is found throughout the body, it would seem entirely possible that the cellular reaction in tuberculosis is entirely local, and due to a stimulation of these reticular cells.

55. **Sensitization of Asthma Patients.**—In one series of patients with bronchial asthma studied by Walker only an occasional case was found to be sensitized to the proteins derived from the staple foods of animal, fruit and vegetable kingdoms.

56. **Sensitization of Patients with Asthma to Various Pollens.**—In determining the cause of seasonal asthma, Walker advises that the patient be tested with the pollen of all of the common plants rather than with one plant from each family; the whole pollen should be used in these tests rather than a dilution of the pollen. Occasionally it is advisable to test with the leaves of trees and other plants since patients may give a positive reaction with the leaves and not with the pollen of that same plant.

57. **Complement Fixation and Precipitin Reactions in Asthma.**—In this study of bronchial asthma by Walker complement fixation and precipitin reactions, using the protein to which the patient is sensitive as an antigen, have been of no value in diagnosis, prognosis or treatment. The cutaneous reaction, however, has proved to be of great value in prognosis and treatment and it seems the only practical and safe method at the present time for the diagnosis of the cause of bronchial asthma.

60. **Rôle of Staphylococcus in Bronchial Asthma.**—In the experience of Walker and Adkinson the cutaneous reaction has proved to be the safest and best test for determining the bacterial cause of bronchial asthma. When cutaneous reactions have failed, serum agglutination tests have been of value in a few cases in determining *S. pyogenes-aureus* as the cause of bronchial asthma. This test is of no value with *S. pyogenes-albus,* since no serum agglutinated this organism. There is no fixed relationship between the cutaneous reaction, serum agglutination tests and the isolation of *S. pyogenes-aureus* and albus from the sputum and nasal secretions of patients with bronchial asthma. Vaccine treatments with *S. pyogenes-aureus* and albus do not increase the titer of a serum which agglutinates these organisms; in fact, agglutination tests become negative during treatment with vaccines from them.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, IX, No. 8

62 *Pharmacology of Ureter. Action of Nitrates and Nitrites. D. I. Macht, Baltimore.—p. 427.
63 Action of Epinephrin and Ergotoxin on Single, Physiologically Isolated Cells. R. A. Spaeth and H. G. Barbour, New Haven, Conn.—p. 431.
64 *Effect of Alcohol on Respiration and Gaseous Metabolism in Man. H. L. Higgins, Boston.—p. 441.
65 *Comparative Effects of Opium Alkaloids Individually and in Combination with Each Other on Gallbladder. D. I. Macht, Baltimore.—p. 473.
66 Vascular Reactions in Experimental Acute Tartrate Nephritis. H. T. Karsner, Cleveland.—p. 483.

62. **Action of Nitrates and Nitrites on Ureter.**—Experiments made by Macht show that the effects of the nitrate and the nitrite ions on the ureter are very different. The nitrate effect is slightly stimulating and is not toxic; the nitrite effect, on the other hand, is rapidly toxic and paralyzes the ureteral preparations without completely relaxing them. The ureter is killed and remains in a moderately contracted condition. Such an effect is obviously not a desirable one, and if the same conditions hold good clinically the value of nitrites in counteracting ureteral spasms is nil. A search through clinical literature by the author has failed to reveal any cases of renal colic successfully treated by the use of nitrites.

64. **Effect of Alcohol on Respiration.**—Experiments were made by Higgins on men, reclining and breakfastless, as to the effect of 30 and 45 c.c. of ethyl alcohol (suitably diluted but not as alcoholic beverages) on the respiration and the gaseous metabolism. Alcohol sometimes acted to increase the sensitivity of the respiratory center, as shown by a drop in the alveolar carbon dioxid tension; sometimes alcohol was without action on the respiratory center. Alcohol did not have any bronchoconstrictor action and seldom any bronchodilator action, as shown from determination of the dead space of breathing. The respiration rate was not appreciably affected by alcohol nor was the type of respiration changed, unless there was restlessness. The heat production, as indicated by the oxygen consumption, was ordinarily unchanged by alcohol; in about one fifth of the experiments there was a rise in heat production of from 5 to 7 per cent. There are indications in about 45 per cent. of Higgins' experiments of a relative acceleration in the pulse rate after taking alcohol as compared to taking the control solution. In 55 per cent. of the experiments this relative acceleration did not occur. Study of respiratory quotients obtained indicate (1) that 45 c.c. of alcohol is not burned at a faster rate than 30 c.c.; (2) that probably 20 to 40 per cent. of the total metabolism is due to alcohol; and (3) that if the rate of combustion continues at the same rate as in the first two or three hours, it requires eight hours before all of the 30 c.c. alcohol and twelve hours before all of the 45 c.c. alcohol is completely burned. Alcohol diminished the volume of air breathed per minute in a majority of the cases; this was due to diminished carbon dioxid production.

65. **Effects of Opium Alkaloids on Gallbladder.**—Macht summarizes his findings as follows: Morphin, codein and thebain have either no appreciable effect on the tonus and contractions of the gallbladder, or tend to stimulate them. Papaverin, narcotin and narcein tend to inhibit the contractions of the gallbladder and to decrease its tonus. In a combination of total opium alkaloids the benzylisoquinolin effect on the smooth muscle predominates. Atropin, in small or therapeutic doses, does not relax the tonus of the gallbladder. These observations having been made, on the one hand, on the isolated gallbladder, and on the other, having been corroborated on the gallbladder in situ, seem to point to the superiority of papaverin or a combination of total opium alkaloids over morphin in the treatment of biliary spasm or colic.

Medical Record, New York

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67 Diagnostic and Prognostic Significance of Spinal Fluid Findings in Syphilis. J. A. Fordyce, New York.—p. 927.
68 Place of Radium in Treatment of Cancer. R. Abbe, New York.—p. 931.
69 Therapy of Pellagra. G. M. Niles, Atlanta, Ga.—p. 932.
70 Physician According to Francois Rabelais. D. W. Montgomery, San Francisco.—p. 936.
71 Practical Consideration and Treatment of Poor Man's Acute Gonorrhea. W. R. Jones, Seattle.—p. 939.

72 Dementia Praecox. J. R. Ernst, Peoria, Ill.—p. 942.
73 Chronic Dacryocystitis and Its Treatment. E. A. Pond, Brooklyn. —p. 944.

Michigan State Medical Society Journal, Grand Rapids

June, XVI, No. 6

74 Circumscribed Cystic Meningitis; Report of Three Cases. H. N. Torrey and L. N. Fleming, Detroit.—p. 259.
75 *Incidence of Goiter Among Four Hundred and Twenty-Five Women at Newberry State Hospital. M. P. Kemp, Newberry. —p. 262.
76 *Epididymotomy. H. W. Plaggemeyer, Detroit.—p. 266.
77 Use of Sulphids in Treatment of Mercury Poisoning. M. L. Holm, Lansing.—p. 270.
78 Gastric Ulcer Associated with Gastric Crises of Tabes Dorsalis. C. W. Hitchcock, Detroit.—p. 271.
79 Two Patients Showing Abnormalities of Conduct Associated with Psychoneurotic Disorders. A. M. Barrett, Ann Arbor.—p. 273.
80 Case of Sarcoma of Spinal Cord. C. L. Washburne, Ann Arbor. —p. 276.
81 *Difficulty of Demonstrating Spirochetes in Syphilitic Placentae. R. A. Bartholomew, Ann Arbor.—p. 279.
82 Cataract Deliriums. Report of Cases Occurring in Ophthalmologic Clinic of University of Michigan Between Years 1904 and 1917. M. E. Brownell, Ann Arbor.—p. 282.
83 Case of Balance Ptosis. W. S. Gonne, Ann Arbor.—p. 286.
84 Uterine Fibromyomas Complicating Pregnancy; Report of Case. L. L. Bottsford, Ann Arbor.—p. 288.

75. **Goiter Among Insane.**—The patients examined by Kemp were all resident at the Newberry State Hospital at the time, but came from various parts of the Upper Peninsula, therefore, all the cases were of the endemic type. Twenty-eight per cent. of 425 women patients had goiter. At least 5.8 per cent. developed goiter since coming to the hospital. Twenty-one per cent. of women admitted during a six year period had goiter. Enlargement of the gland was not always symmetrical. The right lobe more frequently showed enlargement and was often the first part affected. Many cases reach a stationary point from which no further development takes place. All cases were of the cystic variety, and there was no transition to the exophthalmic type in any instance. No physical discomfort was apparent which was due to enlarged thyroid gland. Radical cure was affected in a few cases by surgical treatment.

76. **Epididymotomy.**—Plaggemeyer suggests the following technic: (1) incision on the ventral surface of the scrotum down to the vaginalis; (2) eversion of sac in toto as for a Willys-Andrews operation; (3) longitudinal incision the whole length of the tunica, with a right and left oblique deflection at the lower end an inch long to form a Y. This permits an eversion of the sac without incarcerating a pus sac if present at the lower end, and in cases in which pus is present the small triangle of vaginalis left at the lower end is always plastically bound down, and will not remain as a superfluous flap; (4) incision of abscess or abscesses, if present in the glonus minor or body, with a single longitudinal incision along the line of the epididymis to relieve tension; (5) anchorage of the everted vaginalis with a mattress suture of No. 2 chromic gut, placed loosely behind the cord, high up, to prevent recurrence of hydrocele, which it will do in a very large majority of cases; (6) counter puncture through the most dependent portion of scrotal sac and drainage of cavity through a small rubber tube for forty-eight hours; (7) irrigation with hot normal saline; (8) replacement of testicle, and complete closure of upper wound with interrupted sutures of silkworm gut. This technic is said to prevent the recurrence of hydrocele, free tension, and at the same time takes care of the gross pus formation. It has been practiced by Plaggemeyer in twenty-two cases with entirely satisfactory results in each case, and with no untoward sequellae of any sort.

81. **Spirochetes in Syphilitic Placentae.**—Bartholomew examined the placenta for spirochetes in fifteen cases in which syphilis was diagnosed either by the histologic appearance of the placenta or by the clinical evidences. Although the spirochetes were readily demonstrated in the controls, in no case could they be found in suspected cord or placental tissue on repeated examinations. In two of the cases the fetal liver was found to contain numerous organisms, easily demonstrated. In view of these results it would seem to be futile to attempt to diagnose syphilis by the demonstration of spirochetes in the placenta by the Levaditi method. The examination of the fetal liver in a suspected case, coming to necropsy, offers a much greater chance of success, and should be made use of as a practical method.

Military Surgeon, Washington, D. C.

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85 Carrel's Method of Wound Sterilization. W. H. Arthur.—p. 489.
86 Recent Developments in Camp Sanitation. W. F. Lewis and R. B. Miller.—p. 499.
87 Surgeon and Military Preparedness. L. A. LaGarde.—p. 511.
88 Standardization of Food Inspection. W. M. Garton.—p. 514.
89 Rations for Boys' Military Training Camps. W. E. Fitch.—p 518.
90 Organization of French Sanitary Service. J. R. Church.—p. 531.

Missouri State Medical Association Journal, St. Louis

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91 Army as Life Vocation for Medical Men. T. U. Raymond, St. Louis.—p. 189.
92 Intestinal Stasis; Anatomy. A. G. Pohlman, St. Louis.—p. 192.
93 Roentgen Ray in Intestinal Stasis. E. C. Ernst, St. Louis.—p. 194.
94 Influence of Intestinal Stasis on Nervous System. M. W. Hoge, St. Louis.—p. 199.
95 Drugs in Treatment of Intestinal Stasis. E. P. Buddy, St. Louis. —p. 200.
96 Intestinal Stasis; Surgery. F. Reder, St. Louis.—p. 202.
97 Proctosigmoidoscope in Diagnosis and Treatment of Intestinal Stasis. H. W. Soper, St. Louis.—p. 205.
98 Treatment of Intestinal Stasis by Means of Physical Therapy. F. W. Ewerhardt, St. Louis.—p. 205.

Modern Hospital, St. Louis

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99 Urban Community Plan for Health and Medical Service. D. B. Armstrong and J. H. Berkowitz, New York.—p. 309.
100 New Children's Building of Tuberculosis League of Pittsburgh. W. C. White, A. E. Stewart and P. F. Shuey, Pittsburgh.—p. 312.
101 Ice Cream; Its Composition, Manufacture and Value. J. P. Street, New Haven, Conn.—p. 317.
102 Roentgen Ray Department of Cook County Hospital. E. S. Blaine, Chicago.—p. 321.
103 German Red Cross Hospital Train. C. E. Wright, New York.—p. 328.
104 Tent Hospital for Paralyzed Children. S. W. Boorstein, New York.—p. 330.
105 Oklahoma Hospital, Tulsa, Okla. F. S. Clinton, Tulsa, Okla.—p. 333.
106 Immanuel Deaconess Surgical Hospital, Omaha. O. Z. Cervin, Rock Island, Ill.—p. 336.
107 Standardization of Hospitals. J. A. Hornsby, Chicago.—p. 338.

New Jersey Medical Society Journal, Orange

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108 Cholecystectomy vs. Cholecystostomy (Technic and Complications); Treatment of Gastric and Duodenal Ulcers; Relationship of Thyroid to Exophthalmic Goiter. G. W. Crile, Cleveland.—p. 177.
109 Renal Infection. J. B. Squier, New York.—p. 182.
110 Antero-Poliomyelitis; Review of Epidemic in Trenton. W. W. Stevenson, Trenton.—p. 186.
111 Plea for More Careful Practice of Dermatology. W. S. De Vausney, Newark.—p. 191.
112 Jejunostomy. E. Z. Hawkes, Newark.—p. 193.

New York Medical Journal

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113 Systematized Boarding Out vs. Institutional Care for Infants and Young Children. H. D. Chapin, New York.—p. 1009,
114 Gonorrheal Salpingitis. P. B. Bland, Philadelphia.—p. 1012.
115 Reduction of Blood Pressure by Removal of Suprarenal Gland. A. MacFarlane, Albany.—p. 1016.
116 Allergy and Vaccines in Prophylaxis and Treatment. A. K. Detwiler, Omaha.—p. 1020.
117 Clinical Survey of Acute Pulmonary Affections of 1916. S. Neuhof and B. Davidson, New York.—p. 1022.
118 Analysis of Series of Typhoid Cases. S. Steiner and J. W. Brandeis, New York.—p. 1027.
119 Technical Skill vs. Force in Management of Morphinism. C. B. Pearson, Arlington, Md.—p. 1029.
120 Two Cases of Late Congenital Syphilis. H. Apfel, New York.—p. 1032.
121 Diseases of Gallbladder and Biliary Tracts. M. E. Blahd, Cleveland.—p. 1033.

Oklahoma State Medical Association Journal, Muskogee

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122 Mucous Colitis. E. J. Reichley, Helena.—p. 183.
123 The Nurse. O. C. Klass, Muskogee.—p. 186.
124 Thrombophlebitis. P. P. Nesbitt, Muskogee.—p. 191.

125 Fallacy of Fumigation. Abuse of Tincture of Iodin. Alcohol Not an Antidote to Phenol. C. W. Heitzman, Muskogee.—p. 194.
126 Stricture of Bowel. A. A. Will, Oklahoma City.—p. 197.
127 Bone Work Under Local Anesthesia. W. W. Jackson, Vinita.—p. 198.

Ophthalmic Record, Chicago

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128 Conjunctivitis Tularensis (Squirrel-Plague Conjunctivitis); Report of Case. F. W. Lamb, Cincinnati.—p. 221.
129 Eye Signs and Symptoms of Mongolian Idiocy. C. A. Wood, Chicago.—p. 226.
130 Relation of Ophthalmologist to Military Surgery. S. Walker, Jr., —p. 229.
131 Report of Two Clinical Cases of Sympathetic Ophthalmia Shown Before Chicago Ophthalmologic Society. C. G. Darling, Chicago. —p. 233.
132 Ocular Therapeutic Lamp. E. J. George and J. A. Toren, Chicago. —p. 235.
133 New Incision and Crushing Operation for Advanced Cases of Trachoma, where Operation of Combined Excision of Conjunctiva and Tarsus Cartilage is Refused. D. W. White and P. C. White, Tulsa, Okla.—p. 239.
134 Simple Rapid Perimeter. N. W. Price, Niagara Falls, N. Y.—p. 244.

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135 Case of Suspected Tumor of Pituitary Body. H. F. Hansell, Philadelphia.—p. 275.
136 Optic Neuritis (Unilateral) Resulting from Tonsil Infection. G. F. Suker, Chicago.—p. 278.
137 *An Eye Muscle Anomaly. F. C. Todd, Minneapolis —p. 280.
138 Primary Progressive Atrophy of Iris. L. A. Lane, Faribault, Minn.—p. 285.

137. **Eye Muscle Anomaly.**—The case cited by Todd was one of deviation upward of the one eye, due to overaction of the inferior oblique, consecutive to congenital paresis (or insufficiency) of the superior rectus of the other eye.

Rhode Island Medical Journal, Providence

June, I, No. 6

139 Function of Liver. C. F. Peckham, Providence.—p. 131.
140 Study of Cardiorenal Types. H. P. Lovewell, Providence.—p. 137.

Southwestern Medicine, El Paso, Texas

May, I, No. 5

141 Roentgenotherapy. W. W. Wilkinson, Phoenix, Ariz.—p. 9.
142 *Extension of Tuberculosis of Lungs as Shown by Roentgen Ray. G. E. Bushnell, Fort Bayard, N. M.—p. 15.
143 Radium; Its Properties, Action and Local Application as Therapeutic Agent. R. Duncan, Los Angeles.—p. 22.
144 Typhus. F. H. Redewell, Phoenix, Ariz.—p. 31.
145 Three Cases of Brain Tumor. E. B. Rogers, El Paso.—p. 40.
146 Industrial Insurance. R. Ferguson, Bisbee, Ariz.—p. 48.

142. **Tuberculosis of Lungs as Shown by Roentgen Ray.**—Among 984 roentgenograms of different patients at Fort Bayard, 394 showed paravertebral tuberculosis as a marked feature. Only two cases of strictly apical tuberculosis were found. Eighty-two patients showed paravertebral tuberculosis alone (thickened lines with studding extending toward or to the apices). Thirty-nine of the latter had not reached the apex. Forty-five of the eighty-two cases of paravertebral tuberculosis gave no definite physical signs. All of the eighty-two patients had at some time shown symptoms of tuberculosis, such as cough, expectoration, pleurisy pains, bleeding, loss of weight, fever, night sweats, malaise, etc. All of the eighty-two, with two exceptions, had at some time or other had a positive sputum. Of sixty-two patients in the incipient stage admitted since Jan. 1, 1915, thirty-seven had no physical signs; all had or had had symptoms; all except one had or had had a positive sputum; plates of all except two showed paravertebral tuberculosis above hiluses; of these two one had a basal pleurisy, the other a few scattered foci, some of which were in the outer part of the lung.

Bushnell is of the opinion that these figures give evidence conclusively of the importance of tuberculosis of the deep lung in the early history of pulmonary tuberculosis. The so-called incipient cases are not truly incipient, they are, as a rule, detected when the deep tuberculosis has begun to invade the superficial lung, when on tuberculous lymphangitis or peribronchial bronchopneumonia there has been engrafted a larger focus of bronchopneumonia involving the cortical lung, the so-called primary lesion. Truly incipient tubercle gives no symptoms. Loss of weight, malaise, fever, cough and expectoration, hemoptysis, night sweats, are not symptoms of incipient but of advanced tuberculosis. Their development marks in a general way the progression of the disease from the benign lymphangitic stage to that of tuberculous bronchopneumonia, whether this disease manifests itself in the form of numerous minute foci immediately surrounding the larger bronchi or of single or few larger foci in the superficial lung. Physical signs of the deep tuberculosis are absent or indefinite. The diagnosis depends almost entirely on roentgenographic examination.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 12, I, No. 2941

1 Restricted Supply of Food; Its Relation to Health and Efficiency. M. S. Pembrey.—p. 605.
2 Three Common Intestinal Entamebae of Man, and Their Differential Diagnosis. C. Dobell and M. W. Jepps.—p. 607.
3 *Postoperative Tympanites. J. D. Malcolm.—p. 612.
4 Two Cases of Pregnancy Complicated by Myoma Uteri. J. B. Hellier.—p. 614.
5 Technic of Cesarean Section. E. F. Neve.—p. 615.
6 Gonorrhea Treated by Electrolysis; New Electrolyte. C. Russ.—p. 616.
7 Therapeutic Effects of Colloidal Preparations. M. Morris.—p. 617.

May 19, No. 2942

8 *Punctiform Hemorrhages of Brain in Gas Poisoning. F. W. Mott. —p. 637.
9 *Pathology of Cardiac Dropsy. C. Bolton.—p. 642.
10 Apparatus for Treatment of Fractures of Femur and of Leg. V. Soubbotitch.—p. 646.
11 Glycerin and Antiseptics. H. P. Goodrich.—p. 647.
12 Colloids in Syphilis. J. E. R. McDonagh.—p. 648.
13 *Hypertrophy of Nipple in Leprosy. A. Powell.—p. 649.
14 Primary Carcinoma of Stomach in Boy. W. B. Cosens.—p. 649.

3. **Postoperative Tympanites.**—In eleven cases, occurring in 1,000 consecutive operations involving the peritoneal cavity, Malcolm endeavored to prevent or cure postoperative tympanites by making a fistula. In that series he obtained a death rate of 3.8 per cent. During the most satisfactory recoveries from operations on the abdomen, patients frequently complain of slight, it may be very slight discomfort, nausea, or crampy pains until gases pass freely from the anus. If gases do not escape downward postoperative tympanites develops, which may be removable after more or less difficulty in clearing the bowels, or may persist and be followed by death. When a case of persistent tympanites is cured by making a fistula, the distention rapidly diminishes with the escape of gases and feces through the artificial opening, and the bowels act naturally after a few days, although an evacuation could not be brought about by any means before the fistula was made. There is in such cases no obstruction and no paralysis of any part of the intestine. All that is necessary to effect a cure is a free escape for the contents of the upper bowel and a short rest for the colon. Malcolm submits that by draining the alimentary canal in suitable circumstances the mortality from abdominal operations may be reduced by a case here and there, and that patients whose lives may be saved in this way are generally suffering from an intestinal obstruction brought about by a disturbance of coordination between the muscular activity of the different parts of the alimentary canal, aggravated perhaps by mechanical, physiologic or therapeutic hindrances to the flow of the intestinal contents, the colon being the part in which difficulty most frequently arises.

8. **Punctiform Hemorrhages of Brain in Gas Poisoning.**—The brains in two cases of gas poisoning, in which gas was employed in an offensive by the enemy, were examined by Mott. The whole of the white matter was peppered over with small dark spots about the size of a pinhead. These were due to hemorrhages, but microscopic examination showed conditions which Mott has not found in carbon monoxid poisoning, or in other forms of gas poisoning; in fact, he says, he has never seen any condition like this. The red blood corpuscles have been in large measure broken up, and the hemoglobin converted into dark chocolate colored pigment granules, which fill the capillaries, arterioles and venules of the white matter of the brain. This is possibly methemo-

globin. Mott says that the reason why these punctiform hemorrhages occur in the white matter of the brain in gas poisoning is primarily due to the anatomic condition of the vessels in the white matter of the cerebrum, where the arteries are terminal; each small artery having a separate capillary system; likewise the emerging veins. A tendency to stasis may be brought about in these separate vascular systems by the failure of the heart as a force pump and suction pump, also by those respiratory conditions which lead to right heart dilatation and interference with the return of blood from the skull. In most cases the two factors are combined. It seems probable, however, that either factor may act independently in causing inflammatory stasis and thrombosis, resulting in multiple punctiform hemorrhages. In the gas case, in which the hemoglobin has been converted into pigment granules, it seems probable that the hemorrhage may be accounted for by embolic occlusion of the capillaries and arteries.

9. **Pathology of Cardiac Dropsy.**—The increased output of lymph giving rise to cardiac dropsy, Bolton says, is one of a very definite series of events following the occurrence of failure of the heart in its capacity as a pump. These events may be grouped into the following stages: Stage 1, accumulation of blood in the veins, with a moderate rise of venous and capillary pressure in all parts. Abstraction of blood from the arterial system with a fall of arterial blood pressure. Stage 2, dilatation of the veins and capillaries of the central parts of the body, with a fall of venous and capillary pressure to normal or thereabouts. This leads to increased congestion of the central parts and anemia of the peripheral parts of the body, in which the venous and capillary pressures fall below normal. Increased output of lymph in the congested area giving rise to dropsy. Increased absorption of water in the anemic areas, which balances the loss of fluid by the blood. Simple hydremia results. Stage 3, vasomotor constriction resulting from anemia of the medulla causing (1) a rise of arterial pressure to the normal; (2) a moderate rise of venous and capillary pressure in the central parts of the trunk. The venous and capillary pressures of the peripheral parts remain subnormal, or may become normal. In stage 4, hydremic plethora is established and raises the venous and capillary pressures in the central portions of the body to a great height. There is still a relative anemia of the peripheral portions, although to an increasingly limited extent, as the congested area spreads peripherally. In stage 5, the ascites and hydrothorax increase in degree and the edema spreads in the areolar tissues peripherally, as the congested area encroaches on the anemic regions. True plethora is established. The abnormal output of lymph leading to dropsy is primarily conditioned by the nutritive state of the capillary wall, and is increased by the general plethora and consequent high capillary pressure. In uncompensated heart disease in man the central portions of the trunk are relieved by gravity at the expense of the legs, which become included in the congested area. The dropsical area spreads up the legs to the abdominal wall, thus encroaching on the anemic area from below upward.

13. **Hypertrophy of Nipple a Sign of Leprosy.**—Powell reports observations made by A. J. Kohiyar on eighty-one lepers. He found both nipples very large in sixty-two; both nipples moderately large in eight; large on one side only in two; both nipples normal in nine. Powell examined 221 cases. Both nipples were enlarged in 167; one nipple enlarged in forty-seven. The size of the nipple in the female depends on so many factors that it is of no aid in diagnosis. As a control, 200 consecutive nonleprous males were observed. In only two, that is, 1 per cent. was any hypertrophy comparable to that of a leper observed.

Lancet, London

May 12, I, No. 4889

15 Gunshot Wounds of Joints, Their Pathology and Treatment. F. Cook.—p. 711.
16 *Direct Transfusion of Blood. A. Fullerton, G. Dreyer and H. C. Bazett.—p. 715.
17 Fragment of Shell Embedded in Internal Popliteal Nerve. J. M. Davidson and P. Lockhart-Mummery.—p. 719.
18 *Oculopalpebral Prothesis. A. M. Ramsay.—p. 721.
19 Surgical Correction, without Cicatrix of Unlovely Noses. J. Bourguet.—p. 722.
20 *Easily Improvised and Effective Method of Obtaining Plate Cultures of Anaerobes. W. J. Wilson.—p. 724.
21 New Bone Clip for Treatment of Fractures of Long Bones. J. E. Adams.—p. 725.
22 Question of Economy in Food. M. S. Pembrey.—p. 732.

May 19, No. 4890

23 Paratyphoid Infections. C. H. Miller.—p. 747.
24 Trench Shin an Infectious Fibrositis. G. Chambers.—p. 752.
25 Amebic Dysentery and Its Relationship to Form of Diarrhea Occurring in Egypt. G. M. Findlay.—p. 755.
26 Treatment of Gonorrhea in Field Ambulance. E. T. Burke.—p. 756.
27 Retrograde Strangulation of Intestine from Constriction by External Aperture. S. Mort.—p. 758.
28 *Treatment of Varicocele by Excision. P. Turner.—p. 759.
29 Case of Gunshot Wounds of Face and Thighs; Edema of Glottis; Death under Nitrous Oxid Anesthesia. G. H. Colt.—p. 760.
30 Method of Suturing Ruptured Perineum. W. H. Bishop.—p. 761.

16. **Direct Transfusion of Blood.**—In the method described by the authors transfusion is effected from a small artery to a suitable vein. The apparatus used consists of two glass or silver cannulas connected by a short length (about 7 inches) of india rubber tubing, the whole being coated within and without by a thin layer of wax made by mixing hard and soft paraffin. The paraffin mixture consists of about equal parts of the constituents, or these should be mixed in such proportions as to set at a temperature between 43 and 48 C., the optimum being about 45. This mixture may be used again and again, but should be strained occasionally to ensure its freedom from solid particles. The rubber tubing can be used several times, if necessary, but it is preferable to renew it for each operation. Coating is effected by immersing the apparatus in the paraffin mixture in a bath, the temperature of the mixture being kept at about 130 C. Sterilization of the cannulas and tubes is thus effected. The connected cannulas and tubes are allowed to fill with the mixture, care being taken to avoid air bubbles. The apparatus is then held vertically by seizing the smaller cannula, and the fluid is allowed to run out of the end of the larger. The last drops are removed by drawing the end of the dependent cannula lightly across sterile gauze. The coating is allowed to set, and the tubes are then wrapped in sterile material, ready for use. If the tubes and cannulas are coated in this way no clotting need be anticipated, as in experiments on animals no clotting has been found after two and one-half hours. Should clotting take place it will be found to be due to excessive injury to the vessels, especially the artery or to damage to the coating of the tubes from rough handling.

18. **Oculopalpebral Prothesis.**—Ramsay uses an ecblepharon fitted to a spectacle frame.

20. **Method of Obtaining Plate Cultures of Anaerobes.**—The distinctive features of the methods described by Wilson are the interposition of a perforated circular disk between plate culture and vessel containing alkaline pyrogallate solution.

28. **Treatment of Varicocele by Excision.**—Turner describes his method as follows: The spermatic cord is exposed by the usual incision just below the external abdominal ring; the cord enclosed in its fascial covering is then freed and drawn out of the wound. With a knife or a sharp pair of scissors a longitudinal incision an inch or an inch and a half in length is made through the fascial coverings in front until the veins are exposed. The middle of the incision is secured on each side by a pair of Spencer Wells forceps, which act as retractors. With a blunt dissector the veins are separated from the sheath on each side until the vas, which is situated behind and is more closely connected with the sheath, is reached. The anterior three fourths or so of the venous plexus, including all the dilated veins, are then separated, leaving the remaining veins with the vas, which is not touched and is not separated from the sheath. The anterior mass of veins is now drawn downward and a little dissection frees them as high as is thought desirable. Next they are drawn upward and the separation can now be effected as low as the top of the tunica vaginalis. The separated group of veins is now ligatured above and below and the interven-

ing part is cut away. The ends of both the ligatures are cut short and the testicle is replaced in the scrotum. The sheath is now shortened by retracting the lateral margins of the longitudinal incision and closing this by a fine continuous catgut suture in the transverse direction. It is well first of all to approximate the upper and lower angles of the incision with forceps and to observe what effect this has on the position of the testicle. As a rule, it raises it to a slightly higher level than the testicle of the other side, but if further elevation is considered desirable the length of the original incision can be increased. All bleeding points are then secured, and the wound is closed in the usual way. The great advantage of this operation is that the opening in the sheath is completely closed, and hence the cord and the divided veins do not become adherent to the surrounding tissue. The tender inflammatory nodule around the site of the operation is absent or only very slightly marked, while the testicle remains suspended in a normal manner in the scrotum at a higher level with its mobility unimpaired.

Annales de Médecine, Paris

March-April, IV, No. 2, pp. 109-228

31 *Cholesterinemia in Paratyphoid Fever. G. Etienne, R. Jolly and J. Mondelange.—p. 109.
32 *Meningitis from Otitis Without Suppuration in the Tympanum; Two Cases. Baldenweck and Roger.—p. 127.
33 Evolution of Pleurisy at the Apex in the Tuberculous. E. Sergent and German.—p. 140.
34 *Protuberant Abdomen in Soldiers. (Les gros ventres de la guerre: leur pathogénie, les erreurs qu'ils entrainent.) D. Denéchau and H. Mattrais.—p. 147.
35 *The Urologic Phenomena with Epidemic Meningitis. III. P. Cazamian.—p. 165.
36 The Clinical Features and Pathologic Anatomy of Complete Severing of the Spinal Cord; Fifteen Cases. G. Guillain and J. A. Barré.—p. 178.

31. **Cholesterinemia in Paratyphoid Fever.**—In the seventeen patients with paratyphoid fever the cholesterin content of the blood was below normal during the disease and above normal as they became convalescent, finally settling down to the normal figure, 1.5 gm. This range is like that observed in typhoid. When a relapse was impending there was no rise in the cholesterin content or it dropped to subnormal figures. The mechanism seems thus to be similar to that of other defensive processes of which sero-agglutination is the witness or the translation.

32. **Otitic Meningitis without Suppuration in the Middle Ear.**—Baldenweck and Roger refer to meningitis which appears as the first objective clinical manifestation of a non-suppurative otitis. The four different ways by which the infection can be transmitted are described, with two cases with necropsy, showing that this complication may occur even with an infection in the middle ear too mild to have attracted attention.

34. **Protruding Abdomen in Soldiers.**—Among the puzzling cases described was one in which a man was able by muscular action to cause his abdomen to protrude to such an extent that, as he complained of pains and vomited, gastro-enteritis or lumbar Pott's disease was assumed and he was kept in the hospital for months. In another case the diagnosis of tuberculous peritonitis seemed unmistakable, and treatment was applied on this basis, but flexing the thighs on the abdomen as the man reclined caused the protruding abdomen to recede. In all the nineteen cases described, with several illustrations, there had been at first some functional disturbance. Roentgenoscopy revealed that abnormal excursions or positions of the diaphragm were mainly responsible, aided by relaxation of the abdominal walls, and possibly a vicious attitude of the pelvis or lower spine. There was no general ptosis in any instance. By gentle continuous pressure on the abdomen, the diaphragm can be forced up and the abdomen then subsides at once to a normal outline. These "war abdomens" are analogous to hysteric tympanites and "nervous pregnancy." The aspect of the abdomen was like that of a six or seven months' pregnancy.

35. **The Urine in Epidemic Meningitis.**—In two previous articles on the "urologic syndrome" in meningococcus meningitis, Cazamian discussed the polyuria and elimination through the kidneys. He here describes conditions in regard to elimination of albumin, sugar, indican and urobilin as determined in 113 meningitics. He never found bile pigments, biliary acids or bodies of the acetone series in any of these cases. Albuminuria was the rule, but it was transient. Its prolonged persistence is more important for the prognosis than its intensity at any time. He is inclined to regard it as of central origin, with perhaps some liver element, but not connected with the condition of the kidneys. Urobilinuria was encountered in about 75 per cent. of the cases; it seemed to appear or disappear in waves of a few days, but was highest in the early stages.

Bulletin de l'Académie de Médecine, Paris

May 1, LXXVII, No. 18, pp. 555-574

37 *The Use of Saccharin in Place of Sugar. Pouchet and Others.—p. 556.
38 Ozone in Treatment of Experimental Peritonitis. O. Laurent.—p. 560.
39 Persistence of Effects of Concussion After Trephining for War Wounds of the Skull. L. Mac-Auliffe and A. Carel.—p. 566.
40 *Experimental Research on Cornmeal. E. Weill and G. Mouriquand.—p. 569.
41 *Intravenous Quinin Treatment of Malaria. F. Barbary.—p. 570.

37. **Regulation of Use of Saccharin.**—In the discussion of the report from a committee that had been studying this subject, Reynier declared that his extensive laboratory and experimental research on saccharin demonstrated that it is not at all toxic. He kept for ten years, without its spoiling, a meat bouillon containing 3 per cent. saccharin. He also kept fishes in saccharinated water for months at a time, and they did not appear to suffer. Dogs and guinea-pigs given large amounts of saccharin in their food increased normally in weight. As saccharin is eliminated unmodified in the urine, he gave it as an antiseptic to patients with pyelonephritis and purulent cystitis. In doses up to 4 or 5 gm. a day, kept up for months, the patients bore it well, and had no digestive trouble. In some the urine became acid and the general condition improved. On the other hand, the committee, as a whole, regard saccharin as liable by its antidiastasic action to interfere with the normal phenomena of digestion. When some function is disturbed, even in a slight and transient manner, but repeatedly or constantly, conditions are created which predispose to a definite lesion. For this reason the committee disapprove absolutely of the addition of saccharin to food. Pouchet declared that when condensed milk is put up with saccharin, gastro-intestinal accidents are liable to occur. Robin and Hayem stated that they had several times observed an injurious influence from saccharin when taken in too large quantities, especially by diabetics. The Académie adopted the committee report without modification. It specified as the articles in which the use of saccharin is permissible: wines (except medicinal wines), ciders and pear cider, brandy, liqueurs (except for articles destined for exportation), lemonade, coffee and tea. For the following articles the use of saccharin should be forbidden: beer, preserves, jellies, marmelades, stewed fruits, cakes and pastry, cocoa, chocolate and condensed milk and household drinks. The third and last group included articles for which saccharin is forbidden, but they could be dropped entirely from the bill of fare without harm from an alimentary point of view, namely, syrups, ices, sherbets, candy and fancy desserts.

40. **Cornmeal in War Bread.**—Weill and Mouriquand report experiments on pigeons which sustain the assumption that cornmeal should not be bolted as this removes certain elements of vital importance.

41. **Treatment of Malaria.**—Barbary has been treating malaria during the last ten months by intravenous injection of 0.5 gm. quinin in 125 gm. of physiologic saline, with 1 gm. of ethyl carbamate. He has thus treated 899 patients with malaria at the military Hospital at Nice, and expatiates on the prompt and effectual action of this route. The injections were given every third day at first and then at five day intervals.

Paris Médical

May 5, VII, No. 18, pp. 341-388

42 The Tuberculous Origin of Psoriasis. E. Gaucher.—p. 342.
43 Factitious Eruptions and Ulcers. G. Milian.—p. 343.
44 The Present Diversity in Treatment of Syphilis. Hudelo.—p. 351.
45 *Problems in Syphilis That Call for Special Study. Sabouraud. —p. 369.
46 *Epinephrin Combats Iodin Poisoning. G. Milian.—p. 374.
47 Treatment of Suppurating Dermatitis. (Les pyodermites et leur traitement dans une ambulance d'armée.) Carle.—p. 376.

45. **Problems in Syphilis.**—Sabouraud remarks that it used to be said of Fournier that he wanted to make of general pathology merely an annex to syphilography, but time has proved him right, and that he even did not go far enough. The extent to which inherited syphilis is a factor in lupus has never been investigated. Sabouraud is convinced that in many cases of lupus, treatment should be given both for syphilis and tuberculosis. Syphilis as a factor in leg ulcer also deserves attention. The question as to the subsidence with age of the Wassermann reaction in inherited syphilis is another question that should be studied, as also the gravity of acquired syphilis in those who had inherited it. He declares that the effectual treatment of inherited syphilis has not been worked out systematically yet. It would be very instructive to have the curve of the Wassermann reaction over ten years for even ten patients with inherited syphilis, but nothing approximating this has been published yet. Another subject that needs study is the so-called conceptional syphilis. The seroreaction of the wife of an old syphilitic is often semipositive, even when there has been no pregnancy. He urges that the Wassermann test should be applied regularly to the consorts of the syphilitic, in order to ascertain more about this demicontamination. Persevering systematic research along the above lines may throw light on prophylaxis and treatment.

46. **Epinephrin Combats Iodin Intoxication.**—Milian tells of the prompt arrest of symptoms of severe iodism, under epinephrin, in a man taking a vigorous course of potassium iodid. The symptoms could be banished at once by giving epinephrin, or their appearance prevented by giving the epinephrin along with the drug. The preventive and curative action of epinephrin in regard to iodism is important, not only because it will allow us to push potassium iodid without fear, but also theoretically as it shows that the iodin symptoms come from suprarenal insufficiency. "Thus topples over one more of the old 'idiosyncrasies.'"

Presse Médicale, Paris

April 26, XXV, No. 24, pp. 241-248

48 *Partial Rupture of Abdominal Rectus Muscles. H. Hartmann. —p. 241.
49 Injections of Colloidal Mercury Plus Sulphur to Reactivate Wassermann Reaction. A. Bergeron and C. Jouffray.—p. 241.
50 Primary Suture of War Wounds. P. Dézarnaulds.—p. 242.
51 Pinching Test for Trunk Nerve in Course of Operations on Peripheral Nerves. (L' épreuve du pincement tronculaire.) J. A. Sicard and C. Dambrin.—p. 248.

48. **Rupture of Rectus Muscle.**—In both of Hartmann's cases the rupture occurred during an attack of coughing. One patient was a healthy man of 42 who felt a sudden sharp pain in the lower left hypogastrium, and a small hard protuberance developed in the abdominal wall at that point, with some tendency to ecchymosis. In the second case the diagnosis of appendicitis had been made, and no heed was paid the woman's account of her sudden feeling of laceration in the right abdomen coming on during an attack of coughing. The abdomen was distended and painful, with vomiting and retention of urine, and the wall of the right lower abdomen was tender, while a tumor could be palpated in this region. The tumor could not be pushed down into contact with the vaginal wall, although certain other findings suggested an ovarian cyst on a long pedicle. At the laparotomy the peritoneum was found sound except at one point where it bulged a little and looked brownish. This suggested a subperitoneal hematoma consecutive to partial rupture of a muscle, which proved to be the case. The rupture of the deeper portion of the rectus had induced reflex phenomena simulating a peritoneal affection. In a similar case on record, the symptoms had suggested internal strangulation; in nine reported by Quénu there seemed to be appendicitis, but in all the trouble was merely a subperitoneal hematoma in contact with the peritoneum but without any inflammation in the latter.

Progrès Médical, Paris

May 5, XXXII, No. 18, pp. 147-154

52 *Sciatica, Zona and Skin Affections as Signs of Incipient Tuberculosis. (Propathies révélatrices de tuberculose pulmonaire.) P. Raymond.—p. 147.
53 War Wounds of the Eyeball. M. Bourdier.—p. 149. To be continued.
54 Injury from Metallic Dust in the Lungs in Munition Workers. (Forme nouvelle de pneumokoniose.) F. Renoux.—p. 151.

52. **Localized Nervous and Skin Affections as Heralds of Tuberculosis.**—Raymond cites a number of cases from his own and the experience of others in which the sudden appearance of sciatica, zona, psoriasis or nodular erythema was followed by manifestations of pulmonary tuberculosis. The connection between them was unmistakable, and the data reported confirm the necessity for close examination for possible pulmonary lesions when any of these "propathies of pulmonary tuberculosis," as he calls them, are encountered. Each testifies to the injury of some nerve or nerves from toxins generated by bacilli, usually tubercle bacilli.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 5, XLVII, No. 18, pp. 545-592

55 *Occurrence and Spread of Fat Embolism. A. Katase.—p. 545.
56 Progressive Spinal Muscular Atrophy in Insane Woman. P. Sokolow.—p. 551.
57 An Iron-Lecithin Preparation in Experimental Anemia. (Wirkung von Fortonal bei experimentell anämisierten Kaninchen.) B. Libin.—p. 553.

55. **Fat Embolism.**—Katase tested for fat droplets the lungs from 120 cadavers. There had been a fracture in only nine, and in one of these no fat was found in the lungs. In the other 111 cases large amounts of fat were found in 2.7 per cent.; considerable fat in 3.6; slight amounts in 16.2; minimal in 33.3 and none in 44.2 per cent. The males formed 54 per cent. of the total. Slight amounts of fat were found in three children under 10 and considerable amounts in two others. The extreme amounts were found exclusively in three persons between 50 and 80. None of the cadavers were corpulent; most of them were lean. In the three extreme cases of fat embolism there was parenchymatous nephritis, as also in two of the child cases with considerable fat; one of these children had the typical thymic-lymphatic status, the other hypertrophy of mesenteric lymph glands. In two other cases of parenchymatous nephritis there was no or minimal fat to be found in the lungs. No history of trauma or concussion of any kind could be learned in respect to any of the cadavers with much fat, and no fracture was found in any of the 111 cases analyzed. The findings suggest, however, that severe kidney disease is responsible to a more or less extent for fat embolism, but the mechanism for this is still obscure.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 5, XXXVIII, No. 27, pp. 417-432

58 *Meningitis Commencing with Gastro-Intestinal Symptoms. Andruetto.—p. 417.

April 8, No. 28, pp. 433-448

59 *Treatment of War Wounds. (La chimiatria antisettica.) Schiassi. —p. 433.

58. **Atypical Meningitis.**—In the two cases reported the men had been under treatment for one and two weeks for severe gastro-intestinal trouble, vomiting, pains and diarrhea, when the discovery of the stiff neck gave the clue to the true trouble, confirmed by lumbar puncture. The fluid in one case at first was limpid and only on standing could a few flakes of fibrin be detected, but the pressure was high in both cases.

59. **Treatment of War Wounds.**—Schiassi has long been emphasizing the advantages of treating war wounds by inducing an intense flow of fluids outward, by exosmosis, from the depths of the wound outward. He defines the process as an "exhumoral expulsive cellular antisepsis," supplemented by

an intense plasmatic and histologic defense and regeneration. The solution he uses for the purpose is a mixture of 8 gm. sodium chlorid; 0.3 gm. potassium chlorid; 1 gm. calcium chlorid; 1.5 gm. glucose and 1,000 c.c. water. For stronger action, he adds to the above, 2 gm. sodium citrate and 0.5 gm. sodium hydrate. This fluid disintegrates dead tissues and draws fluids out of the tissues as if by suction. This exosmosis is further promoted by keeping the part in a hot bath for hours at a time (39 C.).

Policlinico, Rome

May 6, XXIV, No. 19, pp. 609-640

60 *Gangrene in the Wounded. I. Tansini.—p. 609.
61 Treatment of Septic Wounds. L. Silvestrini.—p. 614.
62 *Biologic and Pathogenic Importance of Lack of Vitamins in Soldiers' Rations. P. Ramoino.—p. 616.

60. **Gangrene in the Wounded.**—Tansini discusses the gangrene with "trench foot," gas and simple gangrene. He says that the hope of benefit from oxygen has had to be abandoned, but good results have been obtained in many gas cases by prompt excision into sound and bleeding tissue. It is important to refrain from severing the entire muscle or group of muscles, but they can be slit over long distances with comparatively little harm. Excellent results have been obtained with these multiple long incisions, extending far beyond the part affected, at intervals of 6 or 7 cm. Through these incisions the muscles and fascia are worked apart, down to the bone, as the primary and most virulent gaseous focus is deep, and often some deep hematoma is a favoring factor. From this deep focus the gangrene spreads in all directions. The gangrenous tissues are best cut out with the actual cautery. If the gangrene is absolutely massive, he advises immediate and high amputation but, in case of doubt, multiple long incisions and exploration in the depths. The incisions may have to extend from the foot to the root of the thigh.

62. **Vitamins in Soldiers' Rations.**—Ramoino remarks that the soldier now on the firing line, "which is equivalent to saying in the trenches," is unable to supplement the ration given him, as under other conditions he can do. He is like an animal in a laboratory experiment fed in a certain way to study the effects of the restricted diet. The vicissitudes of weather, emotional stress and confinement do not depress the resisting powers as much as might be expected until conditions prevent an ample and varied food supply. Then the men lose appetite and force, but they do not seem to be sick. Gradually, however, gastro-intestinal disturbances develop, constipation alternating with diarrhea, the latter mostly at night. Herpes, eczema and epistaxis are common, the gums bluish, the breath fetid. There are often also pains in joints, muscles and head, with progressive loss of weight, dulness and melancholia, but no fever. In five cases there was considerable edema. All these disturbances generally subsided when vegetables and fruit could be obtained. The soldiers' ration, he continues, has been calculated on the basis of muscular work and contains too much protein, especially for men from the rural districts who are not accustomed to much meat. The Italian ration lacks vitamins, especially the antiscurvy vitamin. The men in the trenches, who need them most, get a vitamin-poor food. The ration contains the antiberiberi vitamin but none of the antiscurvy vitamin. When this is supplied, the men regain strength and good spirits. He recalls that with the introduction of the potato into Europe, the great epidemics of scurvy ceased to appear further. The distribution of lemons among the men in the trenches was found particularly advantageous, and he advises this whenever canned meat, etc., has to be used much. It is better also, he found, to restrict the amount of boiling to the minimum.

Riforma Medica, Naples

April 21, XXXIII, No. 16, pp. 421-448

63 Advantages of Intravenous Injection of Colloidal Gold in Typhoid; Thirty-Two Cases. R. Massalongo and S. Vivaldi.—p. 421. Commenced in No. 15, p. 397.
64 *Intradermal Vaccine Reaction in Typhoid and Paratyphoid. M. Pennetta.—p. 427.
65 Centrifugal Massage for Frostbite. A. di Luzenberger.—p. 429.
66 *Postoperative Brachial Monoplegia. N. Federici.—p. 431.

64. **Intradermal Reaction in Typhoid and Paratyphoid.**—Pennetta used a vaccine with typhoid or paratyphoid bacilli, killed with heat, applying it by the Mantoux intradermal technic. The response was constantly negative in the sick with other affections while it was positive in ten of fifteen cases of typhoid, in three of five paratyphoid A, and in nine of ten paratyphoid B as also in two of eight convalescents from typhoid. It was also positive in eight of eleven recently vaccinated patients. In all the other patients, as also in ten healthy persons, no reaction was apparent. The test may thus prove useful in differentiating incipient cases and in the first and second weeks. It elicited a positive response in 73.3 per cent. of the typhoid affections. He did not apply the test in the especially severe cases.

66. **Postoperative Paralysis.**—Federici reports a case of motor paralysis of the left arm after a laparotomy. The arm had not been fastened or constricted but had been held slightly raised and abducted for a time. A nervous predisposition and the shock of the operation evidently cooperated. As the paralysis was absolutely peripheral he thinks the chloroform anesthesia had nothing to do with it.

Prensa Medica Argentina, Buenos Aires

April 20, III, No. 32, pp. 341-351

67 *Painful Persistent Priapism. J. A. Esteves and R. Chiappori. —p. 341. Commenced in No. 31, p. 336.
68 *Cancer of the Lung. F. C. Arrillaga.—p. 346.
69 Spasm of the Colon with Transient Obstruction. C. B. Udaondo. —p. 348.

67. **Persistent Priapism.**—In the case of persistent priapism reported there was at first hyperesthesia of the perineal region and some contracture of the perineal muscles, with exaggeration of the cremaster and tendon reflexes, but under operative treatment approximately normal conditions in all respects were restored. In certain other cases on record the priapism gradually subsided spontaneously, after a few weeks or a month or two, but further functioning was entirely abolished. In the cases given operative treatment, function was restored. Three theories have been advanced to explain persistent priapism, thrombosis, hematoma or nervous spasm. In the case here reported, the unmarried man of 55 had had for some time unusually protracted erections. He entered the hospital when the erection had lasted for two days. The tenth day each corpus cavernosus was punctured with a large trocar, at about the center. Blackish fluid blood was aspirated and squeezed out. By the next day the man was much relieved and free from pain, and there was no further erection although parts of the corpora cavernosa felt abnormally hard and both were somewhat larger than normal. Since then conditions and function have been approximately normal except for the patches of induration in the corpora cavernosa still evident after six months. Esteves and Chiappori incriminate these fibrous changes as responsible for the upset in the mechanism of erection. The corpora cavernosa had lost their elasticity and contractility. This is demonstrated among other facts by the way in which the blood at the puncture has to be aspirated in such cases, instead of its spurting as under normal conditions. The data cited impose the necessity for operative treatment at once. This relieves the patient's suffering and wards off further local trouble. They advise general anesthesia to begin with. If the erection still persists, puncture or incise one or both of the corpora cavernosa. Leukemia or miliary tuberculosis have been noted in some of the cases on record. Terrier found a record of splenic leukemia in sixteen of forty-eight cases of his compilation. Priapism may be a precursor of leukemia.

68. **Carcinoma of the Lung.**—The man of 37 had neither pain, dyspnea, chronic cough nor expectoration when he entered the hospital. He was occasionally taken with a spasm of coughing during which he expelled scraps of tissue which proved to be cancer tissue; one an inch and a quarter long by half an inch wide. He had been previously in good health but the cancer proved fatal in three months after the first symptoms, pain and cough, which later had subsided completely except for the rare paroxysms of coughing.

Semana Medica, Buenos Aires

March 22, XXIV, No. 12, pp. 343-370

70 *Seborrheic Desquamating Erythrodermia. E. Bordot and R. D'Ovidio.—p. 343.
71 The Rise and Fall of Certain Medical Measures. (La caida de las hojas.) A. D'Alessandro.—p. 348.
72 *Lymphocytosis Characteristic Finding in Blood of Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 359. Continuation.
73 The Problem of Gastrulation in Mammals. A. E. Parodi and V. Widakowich.—p. 363.

March 29, No. 13, pp. 371-398

74 *Bites of Poisonous Spiders. (Arañidismo.) P. P. P. Garcia.—p. 371; (Picaduras de arañas venenosas.) B. A. Houssay.—p. 382.
75 Advertisements of Nostrums in the Lay Press. (Profilaxia social. El curanderismo en la prensa.) J. A. Lopez.—p. 383.
76 *Tuberculous Meningitis in Infants. E. Bordot and R. D'Ovidio.—p. 385.

70. **Desquamating Erythrodermia.**—Bordot and D'Ovidio summarize thirty-four cases of what they call Leiner-Moussous' disease. They explain it as a seborrheic desquamating erythrodermia of toxic origin, the consequence of the accumulation of toxins from defective digestion. It is most common in the winter, and disappears completely during the summer. It seems to affect exclusively breast-fed children, and develops in them within the first forty-five days of life. The best treatment is breast milk at intervals of fully four hours, a total of only five feedings in the twenty-four hours. The general condition did not seem to suffer after subsidence of the skin affection, the children developing normally thereafter.

72. **Lymphocytosis in Syphilis.**—See abstract 80 in THE JOURNAL of March 17, 1917, p. 884.

74. **Spider Bites.**—Garcia reviews considerable South American literature on this subject, citing eleven kinds of spiders the bites of which are known to be more or less poisonous. The symptoms seem to be of four types, local necrosis, the icteric, exanthematous and neurotoxic. The local process of defense in the necrotic and exanthematous types generally suffices to ward off further trouble. He reiterates that spider bites are not fatal. Cerrutti, notwithstanding the severity of the clinical picture in some of his more than 100 cases, had no deaths, and Garcia could find no record of fatalities from spider bites except with pre-existing disease of the heart, liver or kidneys.

He reports in detail four cases personally observed, saying that as the insect is seldom caught or killed, it is impossible to be sure of the species, and no antiserum is available. In his cases, besides symptomatic measures, he gave a subcutaneous injection of serum against snake bites, although knowing that it has no specific action in spider bites. The bitten area should be isolated with a tourniquet, never leaving it on for more than half an hour. The poison should be removed by incisions, cauterization, aspiration or be destroyed in situ if it has not yet been absorbed. Lacerda advises for this a 1 per cent. solution of potassium permanganate, injecting it into the lesion and around it. This neutralizes the toxin in vitro. Kaufmann uses 1 per cent. chromic acid; Halford 10 or 20 drops of a 50 per cent. solution of ammonia, injected into a vein, and Calmette, a few cubic centimeters of a 2 per cent. solution of calcium hypochlorite. As the chlorin gas is liberated it may act at a distance if the poison has been absorbed. The region can be dressed with a 1 per thousand mercuric chlorid solution or 4 per cent. boric acid, or with potassium permanganate.

Houssay's research has failed to show any hemolysins in the poison of spiders. He also states that his extensive study of the subject has shown that very few species are poisonous, and that even with the poisonous species accidents are rare, except with the *Latrodectus mactans.* [The spiders of this extremely venomous lactrodectus family are small, black, and spotted with red.] No antisnake venom serum neutralizes spider poison. He is convinced that some local or general infection complicating the spider bite was responsible for the disturbances in many of the cases that have been published.

76. **Tuberculous Meningitis in Infants.**—Bordot and D'Ovidio state that among 5,000 infants brought to the consultations at the Mejia Hospital in six years there were only fifteen known to have tuberculous meningitis. The diagnosis was confirmed by inoculation of animals in the majority. In only two of the cases was there a history of preceding acute infectious disease, whooping cough or measles. The irregularity of the symptoms is a special feature of meningitis in the younger infants and is liable to prove misleading. Somnolency and rapid loss of weight are always present, the weight dropping by 40 or 50 gm. a day. The child sleeps night and day, never crying for its food, and it is constantly indifferent to what is going on around. The face has a waxy tint, and the pupil reactions are sluggish. The cerebrospinal fluid shows abnormally high albumin content. The ages ranged from 2 months and 11 days to 11 months in the fifteen cases, all dying in from eight to thirty days. The writers know of only two cases of recovery in young infants on record: Gareiso's case in 1903, and Morquio's case in a boy of 2 who seemed to recover complete health but he died a year later.

Siglo Medico, Madrid

April 28, LXIV, No. 3307, pp. 285-304

77 Vaccine Therapy of Staphylococcus Skin Disease and Buboes. Azua.—p. 286. Concluded in No. 3308, p. 306.
78 *Intraspinal Treatment of Cerebrospinal Syphilis, Tabes and Progressive Paralysis. G. R. Lafora.—p. 289. Commenced in No. 3304, p. 226.

78. **Intradural Treatment of Cerebrospinal Syphilis.**—Lafora relates that he has applied the intradural administration of mercurialized serum, according to Byrnes' technic (THE JOURNAL, 1914, **63,** 2182), in treatment of five cases of tabes, two of old syphilitic myelitis and three of progressive paralysis. He has now under treatment a case of atrophy of the optic nerve from basilar meningitis and one of five year old syphilis. He summarizes the details of the more typical cases, and gives specimens of the handwriting in one of the paralysis cases, showing the progressive improvement, comparing the results with those that have been published by others. He combined the intraspinal treatment with intravenous, and regards this as the ideal combination for treatment of syphilitic and parasyphilitic affections of the nervous system, saying that it does not seem to be toxic when applied cautiously and in not far advanced cases. It is the preferable method for tabes, as it cures the early cases, he reiterates, and improves in all cases better than any other method of treatment. In general paralysis his results were also better than with other methods; in the early cases it seems to cure, but time alone can decide this.

Russkiy Vrach, Petrograd

XVI, No. 6, pp. 121-144

79 Influence of Surgery on Outcome of War. M. I. Rostovtseff.—p. 121.
80 Influence of Sulphur-Saline Waters on General Metabolism. B. I. Slovtsoff and A. N. Tchernevsky.—p. 123. To be continued.
81 War Wounds of the Carotid Artery; Five Cases. V. I. Savvin. p. 126.
82 *Comparative Wassermann and Stern Reactions. A. A. Melkikh.—p. 128.
83 Treatment of Traumatic Aneurysms. V. E. Salishtcheff.—p. 132.
84 Oxidation of Iron as the Chemical Basis of Vital Phenomena. N. A. Sakharoff.—p. 135.
85 *Experimental Cholesterinemia and the Disturbances It Induces. N. N. Anichkoff.—p. 136. Commenced in No. 4, p. 89.

82. **Comparative Wassermann and Stern Biologic Tests.**—Melkikh's communication reports the findings with parallel Wassermann and Stern tests applied to 2,500 persons. The Stern technic seems to be more sensitive, giving positive results in more cases than the Wassermann, and it was never negative in any case giving a positive Wassermann. When the Stern was positive and the Wassermann negative, it sometimes proved possible to obtain a positive Wassermann reaction by taking more serum or by applying the Wechselmann technic. The antigen must be carefully tested in relation to normal serum. Sometimes under treatment the Stern reaction may persist positive after the Wassermann has veered to negative. Treatment should be continued until both are negative, he reiterates.

85. **Pathologic Effects of Experimental Cholesterinemia.**—Anichkoff has been experimenting with cats, as meat eating

animals, rats and rabbits, pouring into their stomach through a stomach tube a 4 per cent. solution of cholesterin in sunflower oil in amounts up to 20 c.c. Fat infiltration with cholesterin esters was evident in the liver, the endothelial apparatus, suprarenal cortex and the walls of the arteries after a month or so of this alimentary hypercholesterinemia. These reactive and degenerative changes seem to correspond, he says, to human atherosclerosis, xanthelasma, and certain types of liver and suprarenal derangement.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 31, I, No. 13, pp. 977-1076

86 *The Borderland of Saprophytism. (Het grensgebied van commensalisme en parasitisme.) J. J. Van Loghem.—p. 994.
87 *Blue Sclerotics, plus Fragility of Bones and Deafness. J. Van der Hoeve and A. de Kleijn.—p. 1003.
88 The Diazo Reaction No Guide in Prognosis of Tuberculosis in Children. J. B. Schwab.—p. 1010.
89 Tumor in Liver Simulating Laennec's Cirrhosis. R. Remmelts. —p. 1013.

86. **Parasitic Symbiosis of Bacteria.**—Van Loghem defines three types of parasitic symbiosis: mutualism, in which both host and parasite benefit; commensalism, in which the host does not suffer but only the parasite benefits; and parasitism, in which the host suffers and the parasite benefits. He then discusses the borderland between the last two forms, saying that a typical instance of this phylogenesis of parasitism is the sequence formed by the colon bacillus—paratyphoid—typhoid group. Similar transitional sequences are encountered in the dysentery bacilli group, as he describes in detail. More attention should be paid to this promising field embracing the borderland between commensalism and parasitism, as it contains much that is of importance for epidemiology.

87. **Blue Sclerotics and Other Anomalies in Family.**—Van der Hoeve gives the family tree through four generations of a family in which eleven of the twenty-two members had blue sclerotics, extremely fragile bones and otosclerosis. Fractures and curvature of bones were common, and nearly all the members of the family were delicately built. Seven of the nine personally examined had syndactylia. The grandfather and four of his six children presented the trio of anomalies and six of the seven children of one of the sons affected, but all the seven other grandchildren escaped.

Hospitalstidende, Copenhagen

April 25, LX, No. 17, pp. 393-416

90 *Pains and Contracture of Fingers after Injury of Ulnar Nerve; Two Cases. A. V. Neel.—p. 393.

90. **Painful Contracture of Fingers after Injury of Ulnar Nerve.**—Neel has found only two cases on record similar to the two from his own practice which he describes in detail. The contraction was extreme only in the little finger and the one next to it, and the intense pains were restricted to the ulnar side of the hand. This entire region was also extremely tender. The thumb and forefinger were normal. There was a history of trauma of the ulnar nerve in all, single in three, and repeated, occupational injury in the fourth. This latter patient improved progressively after a change to another occupation.

Norsk Magazin for Lægevidenskaben, Christiania

May, LXXVIII, No. 5, pp. 505-640

91 *Progressive Bulbar Paralysis plus Progressive Spinal Muscular Atrophy in Adult Brothers. L. Sommerfelt.—p. 505.
92 *Roentgen Examination of Motor Functioning of Stomach. B. Kjørstad.—p. 545.
93 Fatal Intestinal Hemorrhage from Angiomatosis in Man of Forty-One. J. Borchgrevink.—p. 552.
94 Multiple Nodules, Simulating Tumors, with Chronic Peritonitis. E. Platou.—p. 560.
95 Case of Total Lateral Situs Inversus. H. Hopstock.—p. 566.
96 Apocynum in Treatment of Insufficiency of the Heart. (Cymarin og apocynum ved hjerteinsufficiens.) H. Salvesen.—p. 578.

91. **Progressive Bulbar Paralysis.**—Sommerfelt calls attention to the cases he reports in two brothers, men of 43 and 57, who both developed progressive bulbar palsy. The younger man had been previously healthy. As the bulbar paralysis continued its insidiously progressive course, progressive spinal muscular atrophy also became installed after twelve or eighteen months, and the man died by the end of the second year. The other patient was healthy until the age of 31 when he had a subacute attack of poliomyelitis which left him with slight bilateral quadriceps paresis. Twenty-three years later, six years after his brother had died from bulbar paralysis, he also developed a typical case of it, progressive spinal muscular atrophy also developing after a year. Necropsy in both cases confirmed the clinical diagnosis of these associated affections. Both men complained of severe pains; this is an unusual symptom with nuclear amyotrophy. The pains were mostly restricted to one side, although the muscular atrophy was pronounced on both sides. Nothing could be found to explain the younger brother's pains in his chest.

Sommerfelt has compiled from the literature fifty-nine cases of progressive spinal muscular atrophy, and all but seventeen showed a familial or inherited tendency. He has found only three instances on record of familial progressive bulbar paralysis, in mother and son, or in two brothers. Progressive external ophthalmoplegia has been noted in the same family by six clinicians. Amyotrophic lateral sclerosis has also been encountered in father and two children (Gee); in four sisters (Seeligmüller) and other familial cases have been published by other clinicians. He lists the titles of 105 articles on the subject. They demonstrate the possible familial tendency for myelogenous nuclear muscular atrophy, but show that it is rare. The records also show that when it developed after acute poliomyelitis only males were affected, and also that it developed at an earlier age than under other conditions; under 25 in 50 per cent. of the thirteen available cases, and in over 25 per cent. between 25 and 35. The interval ranged from two to seventy years. Only one of the nineteen patients was a woman, and in this case the trouble began with external ophthalmoplegia. Primary progressive spinal muscular atrophy affects both sexes nearly alike, as also acute poliomyelitis. In Leegaard's compilation of 3,290 poliomyelitis cases 55.57 per cent. were males. It seems plausible to assume that the severer use made of the muscular system by men exposes those who have had acute poliomyelitis to greater danger of progressive spinal muscular atrophy later than women, whose musculature and nervous system are not subjected to such strain. He urges investigation of the kind of muscular work that patients with this atrophy have been doing. This may possibly throw light on the causes of spinal muscular atrophy.

92. **Roentgen Examination of the Motor Functioning of the Stomach.**—Kjørstad has been investigating the relations between "Roentgen retention" in the stomach and clinical retention in ten healthy medical students and in 100 patients. The stomach was entirely or practically empty in the students by the end of the fifth hour. In 9 per cent. of the patients there was more or less Roentgen but no clinical retention, and in 17 per cent. there was clinical but no Roentgen retention. In the other 74 per cent., retention was evident with both the test meal and the contrast meal. This comparatively frequent lack of parallelism in certain cases between the evacuation of the contrast meal and the ordinary test meal is suggestive.

Ugeskrift for Læger, Copenhagen

April 26, LXXIX, No. 17, pp. 647-684

97 Clinical and Roentgenologic Study of Chronic Habitual Constipation. IV. T. E. H. Thaysen.—p. 647. To be continued.
98 *Quantitative Determination of Albumin in the Urine. G. Andresen.—p. 660.

98. **Test for Albumin in the Urine.**—Andresen here relates comparative tests with his technic for albumin in the urine. A round, not pointed, albuminometer must be used. The urine and the Esbach reagent are placed in it as usual and then 0.1 or 0.2 gm. of barium sulphate (tungspat) is added and after mixing the glass is set aside for precipitation. In four minutes it is complete. The amount of barium sulphate is immaterial. If the urine contains over 2 per thousand albumin it should be diluted before applying the test. The tabulated details show close concordance between the findings with this test and the Kjeldahl, especially with urine from nephritics.

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THE HOSPITAL OPPORTUNITIES AND RESPONSIBILITIES TO THE SYPHILITIC*

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DETROIT

In contrasting the hospital attitude of today with that of twenty-five or even ten years past, we are gratified to note the broadening attitude now extended the syphilitic everywhere. It has been only a short time since a known syphilitic was barred from hospital care and sent to the outpatient department for treatment which he received for symptoms only, and was then lost, the staff assuming no responsibility for further treatment or for the safety of the uninfected. Today, still increasing numbers of general hospitals not only admit to their special wards patients with all stages of syphilis for treatment and control, but are administering a far greater service in educating not only the syphilitic, but also the interns and nurses who administer to his care and treatment. A growing responsibility, then, confronts every general hospital toward the syphilitic, and on our shoulders rests the mission of driving home this responsibility. The teaching hospital which welcomes to its wards and its medical service the syphilitic is embracing the most gigantic opportunity in preventing and treating the most prevalent chronic disease in all communities.

In a recent survey of the Class A hospitals of this country, it was found that an overwhelming majority were closing their wards to all physicians not members of their staff. The advantages of such an action as this were considered a distinct advancement over the open wards, and in no instance was there any intention of returning to the old open hospital methods.

The hospital management which marks the success of the leading hospitals in this country is the management which advocates the closed or restricted medical service. The most successful hospital service for the syphilitic is the restricted general hospital with closed free wards and closed outpatient service. The advantage of this type of hospitalization is obvious.

More and more the hospital is becoming the center for scientific medical investigation and teaching. The inability of the medical man, as well as the surgeon, to conduct a complete medical examination in his office is now becoming more generally recognized. Grouping of medical specialists in a closed teaching hospital is without question a distinct advance in medical study and teaching. General hospitals with closed wards conduct closed outpatient clinics, and the treatment of all syphilis in all departments of the hospital should be under one department of syphilis and controlled by social service. The special service for the syphilitic must be equipped with the most modern laboratory facilities not only for determining an early diagnosis, but also to assist in the periodic treatment and teaching.

The medical service should be continuous and the responsibilities definitely placed on the chief of the service, with a selected corps of assistants. The service should first teach the intern staff of physicians who enter this department by selection, and few there are who are adapted to this work. They should be taught that no patient needs more human consideration from them than the suffering syphilitic, and there is no more appreciative class of patients and no more gratifying reward awaits them than that which is constantly coming from this unfortunate class when conscientiously treated. The true professional ministrations of the syphilographer in his daily rounds toward the syphilitic convey the most impressive teaching to the intern. The social service corps of nurses should also receive special instructions, so as to carry helpful knowledge and assistance to the syphilitic home rather than knowledge that is discouraging and detrimental. A course of special lectures and round table discussions with the social service staff of nurses is most helpful and advisable.

All syphilitics who enter the restricted wards or outpatient departments are recorded as syphilitics by the social service. This registration is made without objection on the part of the patient, because hospital records are considered private. Here, then, in the hospitalization of syphilitics we possess, next to the army and navy, the most accurate available records gathered in an unobjectionable manner. This registration will be of unequaled value in having on record the syphilitics of a community. The greatest difficulty in the hospital treatment of syphilis in the past was due to the inability of the hospital service to follow up and periodically treat the syphilitic. Here then, through the follow-up records of the social service department and clinics in which social service has been installed, we have the necessary data. Not only has attendance been enormously increased, but also the patient is voluntarily recorded and periodically notified when to return for further observation, laboratory checks and treatment. With this valuable service we are treating not only the symptoms of the disease but the disease itself and are preventing its transmission. When a syphilitic is registered under the social service department and that patient is a member of a family, we not only treat the one who presents himself, but we go into the family and determine the extent of the syphilis, and often the whole family is

* Chairman's address, read before the Section on Dermatology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

found syphilitic. No hospital service can successfully treat syphilis without a well organized social service department.

Under this closed system these patients do not lose days of valuable hospital service because of inattention which comes through the shifting of responsibility. The syphilitics of a general hospital should all be in one department under the supervision of a group of specially trained men. This service should be wholly responsible for the absolute control and treatment of the syphilitics of that institution. When complications arise and the counsel of other specialists is necessary, cooperation is most essential. These specialists should examine and report to the head of the department recommendations for special treatment without any transfer to another department. The syphilitic cared for under such a system places confidence, first, in the syphilographer, and second, in the institution and its social service system of control. A small percentage of registered active syphilitics does not respond to periodic notification for return to the hospital for treatment. This irresponsible class should be compelled to return by an order from the probate judge until it is considered uninfectious.

In no other disease is it more important that the confidence of the syphilitic in his physician be most firmly established. Rotation of service or the transferring to other services destroys this confidence, and its loss is most damaging and detrimental to the control of this class of hospital patients. This confidence must be maintained and continuously carried over weeks, months and years of observation. It is a fact that the syphilitic wanders from clinic to clinic and shops from physician to physician principally because of a lack of interest of the staff physician.

It is estimated that from 15 to 25 per cent. of patients admitted to all departments of the general hospitals are syphilitic. This percentage is based on routine Wassermann tests and clinical symptoms of several hundred patients, and to this number could be added a certain small percentage of syphilitics who do not show positive serologic findings or even clinical symptoms, but show a positive spinal fluid finding. With this percentage of syphilitics in our general hospitals, how absolutely absurd is the action of any hospital board in rejecting known syphilitics. This has been the status of syphilitics in our general hospitals for many years. Yet the percentage that has been recognized and received treatment during hospitalization has been appallingly small. This scientific proof of their existence in the hospital is most positive, and the remedy for the correction of the present existing situation is equally positive. Recommendations for routine serologic examinations, and also spinal fluid, in doubtful cases, is as necessary as any routine standing order for examination of patients admitted to the hospital. Routine urine analysis for the possible existence of albumin or sugar is a standard order for all hospital patients; yet how comparatively seldom is this pathologic condition found, and how even more important is the knowledge of the existence of a positive Wassermann test. With such routine recommendations, much unnecessary suffering and hospital expense would be spared. Recognition, then, of this class of unrecognized syphilitics means prompt and appropriate treatment, a shortening of the days spent in the hospital, and the restoring of a large percentage of this class to their self-supporting vocations.

Syphilis is not only a grave disease, but also a most expensive one, both to the patient and to the community and state. The early recognition and treatment of syphilis is far less expensive to the community and the state than the unrecognized, insufficient treatment of the patient. If we are to check the constant enlarging of our public institutions to accommodate the increasing number of hopeless inmates, we must thoroughly acquaint the voter and the legislature with the great importance of appropriations for carrying on a more extensive preventive campaign in the hospitalization, treatment and control of syphilis. They should further be cognizant of the percentage of inmates and public charges who are now confined in our state institutions, the cause being directly traceable to syphilis, both inherited and acquired. State appropriations should be most liberal and unlimited, now that we can scientifically prove that early recognition and treatment can greatly diminish the number of hopeless public charges and maintain many syphilitics as self-supporting citizens.

Medical history records that following all recent wars there has been a wide dissemination of syphilis; yet in no previous national conflict have the soldier and the sailor been so surrounded with scientific protection. All credit is given to the medical army and navy service for this protection. Even with every possible knowledge of the form of transmission, as well as the medical protection given, there will be much syphilis returning to our country following this international conflict. The infection acquired will be that transmitted from one nationality to another, and according to bacteriologic laws, strains of any organism placed in new fields, transmitted from one race to another, usually present the most virulent type of the disease. This class will consist of registered syphilitics who will be returned to the community in which they reside to be further treated in the general hospital. This is a most important approaching situation, and we should be aroused to this responsibility and to the stirring need for more hospitals and dispensaries equipped with the most modern facilities to meet this approaching medical problem.

Now that we possess and have at our command the knowledge of the etiology, methods of early diagnosis and specific treatment of this disease, we should strongly advocate the installing of a more uniform systematic method of medical service in our general hospitals for the control and treatment of the syphilitic.

Poisoning from Rhubarb Leaves.—The sudden death of a person (*Pharm. Jour.,* May 12, p. 413) alleged to be due to the deceased having partaken somewhat freely of cooked rhubarb leaves is reported from Enfield, England. The symptoms corresponded to those usual in cases of poisoning by oxalic acid. Owing to the scarcity of vegetables newspapers recommended rhubarb leaves as a substitute for cabbage. The public health officer of Enfield has issued a warning against such substitution. The editor of the *Pharmaceutical Journal* calls attention to the account of another death in 1901 from eating stewed rhubarb leaves. In this country the leaves are not commonly used as food but the leaf stalks are consumed to a considerable extent in the form of sauces and pies. The leaves and leaf stalks of rhubarb contain citric, malic and oxalic acids, chiefly as the calcium, magnesium and potassium salts. Of these, oxalic acid is the only one having distinctly poisonous properties. Cases of poisoning from eating stewed rhubarb leaf stalks are rare, probably because the amount of oxalic acid thus ingested at a single meal is small.

ETIOLOGIC DIAGNOSIS OF CHRONIC NEPHRITIS AND HYPERTENSIVE VASCULAR DEGENERATION *

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The etiology of acute nephritis is no longer open to argument. General agreement exists that except in those rare instances of nephritis produced by chemical irritants, such as mercuric chlorid, the invariable cause of acute inflammation of the kidneys is bacterial invasion from some primary source or focus situated elsewhere. The pathogenic organism in the overwhelming majority of cases is the streptococcus. The etiology is usually apparent in a comparatively recent tonsillitis, rheumatism or other form of streptococcus infection with or without endocarditis. In both acute and subacute cases, streptococci may often be found in the urine.

Ophüls insists that there exists no sharp line of division in anatomic features between acute, subacute and chronic nephritis. They appear to be different grades of the same pathologic process. By inference and analogy we might expect chronic nephritis to possess the same etiology as more recent and acute forms of the disease; but the information proving this is usually hard to come by, owing chiefly to the difficulty of securing a satisfactory clinical history. The period elapsing between the original infection and the date of investigation in chronic cases often interferes with any accurate coupling up of cause and effect. Search for the time and character of the original infection is prejudiced on the one hand by failure of memory or indifference to important details of health on the part of the patient, and on the other hand by the fact that the persisting infective focus which perpetuates the nephritis may be so obscure and insignificant as to baffle investigation for its discovery.

A very real problem in working out the etiology of these chronic cases is the difficulty of evaluating the various infective incidents in the history of any given case. For example, one patient of the series presently to be summarized gave a history of a severe wound infection with septicemia fifteen years, arthritis six years and gonorrhea five years before coming under observation, and at the time of examination the patient had an unusually extensive pyorrhea alveolaris. Another patient had suffered repeated attacks of tonsillitis, had had polyarthritis, gave a double plus Wassermann reaction, and had exceptionally severe dental sepsis. Such difficulties discount any attempt to be exact or dogmatic in drawing conclusions. The etiology is perhaps sufficiently obvious when it is possible to demonstrate a chronic septic tonsillitis, sinus infection or pyuria, or if the patient has chronic endocarditis; but lacking some such definite finding, there remains merely reasonable conjecture as a resort. Even from the pathologic side there exists no distinctive morphologic picture by which the antecedent infection in any given case can be identified.

One other point that has to be determined is the influence exerted by syphilis in the etiology of nephritis. Should the existence of a positive Wassermann reaction be accepted as proof that the lesions in the kidneys are of syphilitic origin even to the exclusion of other existing etiologic factors which ordinarily would be considered operative? This question is hard to answer. Unmistakable syphilitic lesions, such as gummas, are rare in the kidneys. Acute and subacute forms of nephritis have been observed to occur in early acquired syphilis and have been attributed to that disease. Hoffman found living spirochetes in the sediment of the last portion of the urine in one of his cases. The observation, so far as I am aware, has not been confirmed, and Hoffman acknowledges that the organisms may have come from lesions within the urethral canal, since the specimen was not catheter drawn.

The status of syphilis in the etiology of chronic nephritis is uncertain. Ophüls frankly states that he does not believe that proof has yet been furnished that spirochetes can produce lesions in the kidney similar to those observed in ordinary bacterial infections. Thus far, there has been no success in the attempts to demonstrate spirochetes in the renal tissues in chronic nephritis. In striking contrast to the acknowledged important rôle played by syphilis in the production of circulatory disease, there has been little success in attributing to it an important direct influence in the etiology of nephritis. Possibly future studies may clear this point. There is a strong temptation to accept offhand the existence even of latent syphilis as sufficient etiology in any case of chronic nephritis. It seems to me that this is a temptation to which we ought not to yield too readily. Since the proof of the etiology of certain cases must be indirect, syphilis may serve as well as any other assumption; still if reasonably certain evidence of a chronic bacterial infection exists in any given case, the burden of proof is in favor of that element rather than of syphilis. Even in the vascular type of cases, known as hypertensive cardiorenal disease, the etiologic value of syphilis, while much more reasonable, owing to the sclerotic nature of the lesions, fails on examination of the material to appear of great magnitude.

CAUSES OF NEPHRITIS

Condition	Number
Tonsillitis	9
Pelvirectal abscess	1
Puerperal nephritis	1
Pyelitis	1
Furunculosis	1
Scarlet fever	1
Chronic sinus infection	1
Chronic endocarditis	3
Pleurisy	1
Pneumonia	3
Malaria	1
Bronchitis	1
Infected sores of foot	1
Wound infection with septicemia	1
Dental sepsis	4
Syphilis with alcoholism	1
Syphilis	3
Unknown	6

CAUSATION OF CHRONIC NEPHRITIS

As possibly throwing some light on the foregoing problems, I would submit a brief analytic summary of the etiology of forty cases of chronic diffuse nephritis taken from private records and the medical service of St. Luke's Hospital during the past two years. Of the forty cases, fourteen were in women and twenty-six in men. The average age was 38 years. Edema of the renal type was present in eighteen cases; severe uremia existed in eleven cases, and death from uremia occurred in seven cases while under observation. Retinitis albuminuria was present in five instances. The kidney function was studied by the phenolsulphonephthalein test in thirty-one cases, the average function index being 30 per cent. in two hours. The blood

* From the Medical Service of St. Luke's Hospital.

Wassermann test was made on thirty patients, and was found to be positive in seven and negative in twenty-three.

A study of the histories and careful search for foci of infection furnished data sufficient to enable us to hazard the accompanying etiologic tabulation. In every patient included in the tonsillitis group, infection could be demonstrated in the tonsils. One patient had had repeated tonsil infection, once with polyarthritis. One developed albuminuria following tonsillitis four years before coming under observation, and had become dropsical following a recent sinus infection. Another patient of the group showed albumin in the urine after tonsillitis three years before entering the hospital, and in the interim had experienced several tonsil infections. Four other patients testified to the occurrence of repeated tonsil infections, one having also had herpes zoster. In two other patients no definite throat history existed, but the laryngologist condemned the tonsils as chronically infected. The case ascribed to pelvirectal abscess was of a physician whose albuminuria was first noted during that infection, his nephritis persisting and developing up to the time of his death from uremia some years later. Puerperal nephritis is not a frequent starting point for chronic diffuse nephritis; but in the case here included the albumin had never disappeared from the urine and the case now constitutes a typical instance of chronic nephritis. One case each is ascribed to furunculosis, pyelitis and scarlet fever. There can be no doubt regarding the etiology of these cases, the nephritis developing in each instance as a direct sequel to these infections, while the patients were under close observation. One of the cases ascribed to chronic endocarditis recently came to necropsy, death being from uremia. Extensive vegetative endocarditis existed and the kidneys showed extensive disseminated foci of glomerular nephritis such as is common in ulcerative endocarditis. The patient whose nephritis is attributed to sinus infection had had a persistent sinusitis for many years with repeated acute exacerbations. Radical treatment of the infection greatly improved the nephritis. The preceding eighteen cases, regarding which the etiology is given somewhat in detail, have a reasonably direct etiologic connection with some streptococcus infection. The remainder of the series must be handled with much less certainty. The causes as ascribed, pleurisy, pneumonia, bronchitis, wound infection, malaria, etc., constitute a mere setting down of the most prominent infective incident in the patient's history that bears a reasonable time relationship to the discovery of the nephritis.

Two items of interest which claim attention are the significance of dental sepsis as observed in the foregoing series and the etiologic relationship of syphilis in those cases showing positive Wassermann reactions.

Dental sepsis of a mild grade, such as moderate signs of pyorrhea, caries and single alveolar infections, was, as might be expected, not infrequent in this group of invalids, and probably was no more directly connected with the systemic disease than in any other group of equally sick persons. In ten of the cases the condition is noted as extreme, either in the form of pyorrhea, multiple root abscesses, extensive caries or some combination of the three. Rightly or wrongly, it appears to me that the influence of this factor is discounted in all but four cases by the existence of some other etiologic factor of more established importance, such as tonsillitis or syphilis. In only four cases did dental sepsis constitute the only infection bearing possible direct connection with the nephritis.

Seven out of thirty cases tested in the foregoing series reacted positively to the Wassermann test. In only three of these cases does it seem possible to ascribe direct importance to this factor in the production of the nephritis. Of the other four cases, one patient developed nephritis after scarlet fever, another had chronically infected tonsils; the third developed edema three months after a severe grip infection with bronchitis, and the fourth is the fatal case of nephritis with endocarditis already referred to.

This group of forty cases of chronic nephritis is not large, and consequently no sweeping deductions would be warranted. The etiologic classification which is suggested is probably not sufficiently accurate to be even a close approximation of the truth, and yet a glance at the facts presented renews the impression, forcibly created by all similar studies, that true chronic nephritis is a secondary or subdisease produced by bacterial infection. The infective agent is usually, although not necessarily, the streptococcus. The fact that the search for the proper cause is often disappointing and many times futile need create no surprise. The original cause may have been tonsillitis. If the tonsils still harbor infection, their removal may favorably influence the course of the kidney disease, but not necessarily so, because there may exist elsewhere, perhaps beyond search to discover, a secondary infective focus which suffices to perpetuate the renal inflammation. On the other hand, the original focus of infection, be it in the tonsils, sinuses or elsewhere, may have long since disappeared, and yet an infected gland, septic focus in the spleen or some similar bacterial localization may exist to the continuous detriment of the kidneys. Etiologic therapy — the only curative therapy we may avail ourselves of in this disease — imposes the duty of painstaking search for and discovery of all foci of infection of whatsoever nature, and their radical removal whenever possible.

CAUSATION OF HYPERTENSIVE CARDIOVASCULAR-RENAL DISEASE

A subject of equal interest and of greater obscurity than the etiology of chronic nephritis is the proximal cause or causes of hypertensive cardiovascular-renal disease, or what has been familiarly and I believe wrongly designated "chronic interstitial nephritis."

I shall briefly review a series of these cases chiefly for the purpose of developing such information as they may yield regarding the apparent influence of syphilis and mouth and throat infections. This series includes sixty-eight cases carefully observed during the past two years. All of them were private patients with the exception of three taken from the medical service of St. Luke's Hospital. Thirty-one were women, thirty-seven men, and their average age was 50 years.

Careful note of the condition of the teeth was made in fifty-seven patients. It is to be remembered that the patients being observed in private practice were mainly from the well to do classes and that consequently the average care of the teeth and the mouth hygiene were unusually good. No unusual or significant dental sepsis was observed in thirty-eight of the fifty-seven patients examined. In nineteen, definite oral sepsis existed either as extensive pyorrhea, or alveolar or tooth root infections, principally the for-

mer. Whether the 33 per cent. of dental sepsis in this group is significantly in excess of what might be expected in an equal number of unhealthy persons beyond middle life, I am unable to state; but am inclined to believe that it is not.

The condition of the tonsil was noted by careful direct examination and at times culture in forty-eight patients. So far as could be determined by the methods of examination, the tonsils were apparently not the seat of infection in forty-three instances. In five others, positive evidence of chronic infection was secured. The percentage is not high enough to possess great etiologic significance.

The most surprising outcome of the investigation of this series of cases was the result of Wassermann study. The blood Wassermann test was made in thirty-three patients; thirty-two of these gave negative reactions, and but one reacted positively. I confess that I was prepared for a rather different result from the one obtained. The liability of syphilis to produce vascular disease, which is one of its most fixed characteristics, and the increasing importance ascribed to it in the etiology of circulatory disease generally, might reasonably lead one to look for a more important rôle in high blood pressure disease than the results in this series would indicate. I may add as a personal note that since Schottmüller's report of a positive Wassermann reaction in over 40 per cent. of his cardiac cases taken as a whole, irrespective of the lesion, came to my attention, I have made the Wassermann test a routine part of the examination of every patient coming under my observation with circulatory disease, and my experience to date would lead me to believe that in place of syphilis being of such high incidence as claimed by Schottmüller, it is relatively uncommon. The reason for this wide divergence probably lies in the difference of material studied in this country.

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SHOULD THE COLON BE SACRIFICED OR MAY IT BE REFORMED?

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About fifteen years ago, when spending a few weeks in Paris, I learned that Metchnikoff of the Pasteur Institute had announced the discovery that the colon was a useless appendage, a vestige of a primitive state which evolutionary processes had unfortunately failed to eliminate; that the colon bacillus was the germ of old age; that, in general, long lived animals had short colons, and animals with long colons, short lives.

About the same time Mr. Lane began advocating the operation of short circuiting and colectomy. I had an opportunity to witness his operative work and to admire his admirable technic and his genial courtesy. I saw a number of the patients on whom colectomy or short circuiting had been performed. In general, the patients seemed to be greatly benefited, although most of them had been operated on quite recently.

The contention of Metchnikoff that the colon is an objectionable organ which we might do better without because of the absorption of noxious products from the putrefying materials which it harbors, and Mr. Lane's contention that the most effective method of getting rid of colon germs and poisons would be the removal of the colon itself, seemed plausible. Having spent most of my lifetime in the study of dietetics, however, especially from the standpoint of physiology and biology, the question naturally arose in my mind whether the real cause of the objectionable influence of the colon was to be found in the neglect of Nature to remove a dangerous and useless portion of the anatomy which should have been left behind thousands of years ago in the upward climb of the race, or whether the real fault was to be found in the wrong use to which the colon has been put and the various abuses to which the organ has been subjected through neglect, ignorance and departures from biologic methods of living. The extensive character of the operation and the considerable degree of mortality which attended it led me to the conclusion that a more thoroughgoing trial of all other possible means, especially dietetic measures, should be made before resorting to so formidable a surgical procedure.

That both Metchnikoff and Lane were perfectly right in attributing to the absorption of putrefaction products from the colon a multitude of chronic ailments and morbid conditions is now pretty generally admitted, and these pioneers of medical progress are entitled to great credit for the able and courageous manner in which they defended their fundamental thesis against the bitter attacks of a multitude of ultraconservative and skeptical medical men, internists as well as surgeons.

The question which presented itself to my mind was this: Granted that the colon has "gone wrong" and has become a veritable Pandora's box of human ills, is it not possible that the offending member may be reformed, restored to biologic rectitude and thus cease to be a menace to the vital interests of the body? The thought in my mind was exactly that enunciated by the eminent English anatomist, Keith, in a discussion of the subject of alimentary toxemia by the Royal Society of Medicine, at several meetings during 1912. Said this ablest of living anatomists:

> We seem drawn to the conclusion that it is not the organization of the great intestine that has failed, but that our modern dietary sets a task for which it is not adapted. In civilized modern communities the great bowel has to maniplate a dietary such as was never before prescribed to it at any stage of its long evolutionary history. If an engine runs unsatisfactorily it may not be from a fault in its mechanism, but from a defect in the fuel. Those who regard the great bowel as a useless structure blame the engine; for my part I stand by those who blame the fuel.

With this thought in mind I have labored constantly and earnestly during many years to devise and perfect methods for changing the intestinal flora, increasing peristaltic activity and overcoming stasis by removing mechanical obstacles to colon activity without resorting to operative measures having for their purpose either short circuiting or ablation of the colon. I have been much stimulated in my endeavors by the disappointing results of the operation advocated by Mr. Lane. Although cautious surgeons have been from the first slow to adopt these radical procedures, not a few surgeons, especially of the younger class, were apparently pleased to discover a new operative indication, especially when the new procedure was advocated by so eminent an authority as Sir William Arbuthnot Lane. It was not long, however, before the fact began to appear more and more distinctly that a large proportion of the patients who seemed at first to be

bettered by the operation lapsed into conditions as bad as and in some cases even worse than those which existed before the operation was done. It was inevitable that this should be the case. The short circuiting operation did not remove the colon, and hence did not diminish the size of the reservoir in which putrefying fecal matters might accumulate, but converted the colon into a blind sac, thus rendering colonic stasis more certain and the clearance of the colon more difficult; besides, the ileocecal valve was left behind. The lumen of the small intestine and that of the colon were made a single cavity with no barrier against a reflux of fecal matters from the blind end of the colon into the ileum whenever conditions might favor such a retrograde movement, such as overdistention of the colon through delayed evacuation. This difficulty Mr. Lane himself recognized, and sought to find a remedy in removal of the greater part of the colon, although the descending colon and often a portion of the transverse colon were still left behind.

The reduction in the size of the colon did not, however, remove the difficulty to any considerable degree, for the lack of a barrier against reflux at the new ileocolic junction permitted the fecal matter accumulating in the shortened colon to back up into the small intestine with the greatest facility, causing distention and intense toxemia. I witnessed an operation in one case of this sort by Mr. Lane three years after the first operation had been done. The second operation was made necessary by obstruction which developed at the sixth month of pregnancy. The ileum had been stretched until it was nearly as large as the colon for a distance of several feet from the ileocolic junction. The ultimate effect of this operation had been to add to the already overstretched colon an additional fecal reservoir so extensive that instead of 5 or 6 feet of colon the patient now possessed a fecal reservoir not less than 15 feet long.

Systematic Roentgen-ray examinations made by Case have shown that reflux of fecal material after short circuiting and colectomy is not an exceptional circumstance but is the regular rule. Case has examined about fifty cases at different intervals after one or the other of these operations had been performed, and has found the ileocolic junction incompetent in every one; in other words, neither the operation of short circuiting nor the operation of colectomy as performed by Lane permanently cures ileac stasis. Both these operations, on the contrary, by making a common cavity of the ileum and the colon, create a condition from which ileac stasis must almost certainly result. For a short time after the operation the tone of the small intestine may be sufficient in some cases to resist the reflux of fecal matters from the colon; but sooner or later, the small intestine becomes exhausted by the continual effort required of it, its lumen becomes increased, and several feet of ileum may be thus converted into a fecal reservoir, a purpose which it is poorly qualified to serve because of the active absorption which takes place from its villous surface.

It is no wonder, then, that these patients not infrequently find themselves a few months after the operation in a condition more deplorable than that which at first existed. I do not wish to be understood as maintaining that there are no conditions in which the operation of partial colectomy is indicated as a rational procedure. In cases in which the proximal colon or terminal ileum is the seat of extensive malignant or tuberculous disease, and in some cases in which the proximal colon has been irreparably crippled by acute or chronic inflammatory processes, partial colectomy is certainly indicated; but in restoring the continuity of the intestine, the ileum should be joined close to the proximal end of the distal colon so that there shall be left no blind end in which feces may accumulate. It is also essential that the new ileocolic junction shall be protected by constructing a check valve so that reflux of fecal matters and consequent ileac stasis may be prevented.

I am confident, however, that cases in which colectomy is actually required are comparatively rare, provided the patient is given the benefit of rational nonsurgical treatment and, if necessary, supplemented by surgical procedures of a nonmutilating and far less drastic character. The short circuiting operation is, in my opinion, not based on sound surgical principles, and involves disadvantages which forbid its use in any except rare and exceptional conditions.

In my experience, nine out of ten, or even a larger proportion of patients suffering from severe stasis involving the large or small intestine, or both, may be made well and maintained in good health by the thoroughgoing and persevering application of measures of treatment which wholly exclude surgical procedures of any sort. This statement is based on the successful treatment of several thousand cases of chronic intestinal stasis which had stubbornly resisted all ordinary measures of treatment. A few weeks is usually sufficient to bring the patient to a state of improvement in which two or three natural evacuations occur daily, and to establish a regimen, by the following of which the patient may maintain his improvement indefinitely. This, of course, must be accomplished without the use of laxative drugs and mainly by dietetic measures.

In a few cases in which stasis is due to pronounced mechanical obstruction, comparatively slight surgical procedures will accomplish all that is necessary to render the dietetic and other measures above referred to effective. In by far the majority of cases in which nonsurgical measures fail, the seat of difficulty will be found to be a prolapsed and adherent or incarcerated pelvic colon. As pointed out by Case in numerous papers, adhesions may be readily shown when present by a Roentgen examination. The operative measure required is a simple one. It is only necessary to break up the adhesions by careful dissection and to prevent recurrence of the difficulty by attaching the pelvic colon to the omentum, which is in turn made fast to the abdominal wall at a point near the umbilicus. By this procedure the pelvic colon is suspended by a swinging attachment which does not interfere in the slightest degree with the movements of the intestine and does not give rise to the pain from which patients usually suffer when the intestine is attached directly to the abdominal wall.

Another operation which is occasionally but less frequently indicated is repair of the incompetent ileocecal valve. This condition, however, is practically always secondary, and is rarely found except when associated with a prolapsed and adherent or incarcerated colon or a spastic condition of the distal colon. The operation for repair of the ileocecal valve is a simple procedure and not accompanied by greater risk than the operation of appendectomy.

Within the last ten years I have performed the operation of colectomy in twenty cases.

The indications for the operation in the several cases were as follows:

In seven cases, cancer of the cecum or ascending colon with obstruction.

In one case, tuberculosis of the cecum and terminal ileum with obstructions.

In one case, gangrenous colitis of the entire colon.

In four cases, extreme colonic stasis, the result of short circuiting operations previously done elsewhere.

In seven cases, intractable stasis due to so-called Jackson's membrane or adhesions.

These twenty cases have been selected from more than 40,000 cases which have been treated in the Battle Creek Sanitarium clinic during the last ten years, or less than one in 2,000. Most of these patients have been found to be suffering from intestinal stasis, but they were relieved by nonsurgical means, or by simple restorative surgical procedures.

The nonsurgical means which I have found most effective in relieving intestinal stasis are the following:

1. A low protein, bulky diet consisting largely of fruits, fresh vegetables and whole grain preparations.

2. The free use of bran or agar-agar, or a combination of both, at every meal. From one half ounce to an ounce of cellulose daily seems to be necessary to stimulate the bowels to normal activity.

3. The use at every meal of half an ounce to an ounce and a half of liquid petrolatum. In some cases an emulsion of liquid petrolatum gives more satisfactory results, and the best results are often obtained from the use of petrolatum (which melts at the temperature of the body).

4. Abdominal massage and special exercises for developing the abdominal muscles.

5. In very obstinate cases the patient takes, three or four times a day, a couple of tablespoonfuls of bran and as much fruit as he can eat. Fresh and stewed tomatoes are found to be especially useful. Lettuce and celery may also be used freely. The patient is allowed to take fruit between meals or whenever he feels inclined to do so. For persons suffering from hyperacidity, nonacid fruits, like bananas, pears, white cherries and melons, are used. Occasionally it is found advantageous to make the diet consist wholly of green vegetables, raw and cooked, with bran or agar-agar. This regimen will usually clean off the tongue and get the bowels moving three or four times a day within four or five days. Occasionally the regimen must be continued for a week or ten days. When mechanical obstacles to bowel action, such as prolapse of the pelvic colon and adhesions or other obstructive lesions, are not present, this method will very rarely fail.

6. At first it is occasionally necessary to use an enema at 80 F. once a day. The patient should be required to go to stool on rising in the morning and after each meal.

7. In cases of colitis with a spastic condition of the descending and pelvic colon, the colon is treated by means of hot saline enemas, and afterward there is introduced into the colon, with the patient in the knee-chest position, several ounces of a liquid culture of *Bacillus bulgaricus* and *Bacillus bifidus,* to which is added a small amount of malt sugar and boiled starch, the purpose being to change the character of the bacteria growing in the colon and thus encourage the healing of the infected mucous surface.

8. In cases in which the lower colon has lost its normal sensibility, various stimulating applications are made, among the most useful of which the electricity applied to the upper part of the rectum or pelvic colon by a bipole electrode; very weak solution of hydrogen peroxid (0.25 per cent.); solution of citric acid (from 0.25 to 0.5 per cent.), and a mixture of equal parts of carbon dioxid and pure oxygen gas (from 200 to 500 cm.).

9. In cases in which the mucous membrane is atrophied as the result of chronic proctitis, it is found very advantageous to introduce into the lower colon at night 3 or 4 ounces of a preparation of petrolatum which melts at the temperature of the body. Such a preparation may be made by melting together equal parts of liquid petrolatum and paraffin.

10. The wet girdle worn at night and a variety of other hydriatic procedures are also found highly useful in dealing with stubborn cases of constipation.

Too much cannot be said in favor of bran and liquid petrolatum used in combination. One supplies bulk, which is necessary to stimulate the sluggish colon, and the other furnishes lubrication which is required on account of loss of the normal mucus due to degeneration of the mucous membrane which results from chronic infection.

The last ten years will be known in medical history as the colectomy era. The introduction of the Roentgen ray has opened the way for exploration of the colon, as well as the stomach and other viscera. The time has come to call a halt on colectomizing and short circuiting operations. Many hundreds of stomachs and colons have been "fixed," "pleated," "suspended," "short circuited," "resected," etc., in many cases only because the Roentgen ray showed prolapse or "kinks," or "folds," or suspicious shadows of some sort. Larger experience is making clear the danger of too much intermeddling with Nature's cunningly contrived and delicately constructed mechanism. The Roentgen ray has demonstrated that prolapse of the stomach and colon are not indications for surgical intervention. Lane's kink is definitely proved to be a consequence of intestinal stasis and not the cause of this condition. The movable cecum is not a pathologic state but a condition essential to the physiologic functioning of the colon.

Except in cases in which actual and severe mechanical obstruction exists, surgery is not indicated. By the liberal use of bran and liquid petrolatum in conjunction, not in succession, and the skilful use of a "fruit regimen" followed by a properly regulated low protein dietary, practically all cases of intestinal stasis may be cured, excepting only the rare cases in which Roentgen examination shows actual mechanical hindrance.

I am convinced that the sober second thought of experienced surgeons, by which the value of every new surgical procedure must sooner of later be determined, will demand such modifications of the Lane operations, short circuiting and colectomy, as will relieve them of their most objectionable features and will restrict the use of these surgical measures to extremely rare and exceptional cases.

Untrained Health Officers.—Here is a place where the trained officer shows his value. An untrained man cannot initiate, cannot lead. He will follow and copy. He is likely to be forced by well-meaning people outside the department to give undue prominence to things not at all of first importance—to "swat-the-fly" campaigns, fights on food adulteration and white-washing dairy barns, instead of attending to such unexciting features as birth registration, sewage disposal and a pure water supply.—Alice Hamilton, *Survey,* Jan. 20, 1917.

THE HYPODERMIC USE OF CHAULMOOGRA OIL IN LEPROSY

PRELIMINARY REPORT OF SERIES A

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Of the remedies used in the treatment of leprosy, chaulmoogra oil has given the most constant results. Its use by mouth, however, has been very difficult, since it induces such nausea that patients cannot bear prolonged treatment by that method. Those patients who can take the oil over a long period of time have invariably shown some improvement.

In 1914 Heiser[1] reported exceptionally good results in a series of cases treated at the Leper Colony at Culion, P. I., with hypodermic injections of a chaulmoogra oil formula. Camphorated olive oil and resorcin were added to the chaulmoogra oil. No bad effects on the patients thus treated were noted, the oil being absorbed into the system without even local irritation.

In May, 1916, this treatment was begun in a series of fourteen cases in a leper settlement outside the Hoi How city wall. Later seven more cases were added. These (Series B) will be reported in a later communication.

The conditions for treatment were far from ideal. The patients were all in advanced stages of the disease: six of the cases were of the anesthetic type, and eight were of the mixed anesthetic and tubercular type of leprosy. The average duration of the disease in these patients was eleven years, the most recent being of four years' duration. Five of the series gave a history of leprosy in the family. All belong to the lowest class of China, have always lived in filth, and have partaken of the usual Chinese food, including a liberal allowance of salt fish.

The formula given by Heiser was used: chaulmoogra oil, 60 c.c.; camphorated olive oil, 60 c.c., and resorcin, 4 gm. This mixture was sterilized and injected under the skin of the arms or legs. The injections were begun with 1 c.c. of the mixture, repeated at weekly intervals. After three weeks the dose was gradually raised until 3 c.c. were injected each week. After the first injection there was a slight reaction in all the patients. It began a few hours after the injection and lasted until the next day. In no case did the reaction exceed a slight headache with malaise and a suggestion of nausea. No reactions occurred after the first injection. Weekly injections have been given for nine months.

There was no local reaction at the site of the injection. The mixture was easily absorbed. In one case there was a local infection which, however, healed promptly. No injections were made directly into the lesions. In addition to the weekly injections the patients have been given sodium bicarbonate baths three times a week. They have also to take a compound iron and arsenic pill in alternate weeks. Cathartics have been administered when indicated.

Within four weeks after the injections were commenced, all the patients asserted that they felt more comfortable. The malaise and lack of energy which accompanies the disease had to a large extent decreased. The appetite was increased and the general condition of all was markedly improved.

In the anesthetic type of cases before treatment there were found the usual areas of anesthesia, with trophic changes in the extremities, and contractions of the joints of the hands and fingers, with loss of fingers and toes. In these cases for the first six or seven months of the treatment the only changes noticed were constitutional, increase in weight and strength, and slightly increased motion in the contracted joints. After that time, however, in three of the six cases of this type (Cases 3, 7 and 8), the patients began to complain of pains in the legs, at first in the nature of shooting pains, and later more constant in character. In one of these cases (Case 7), there had been a slight return of tactile sensation. In one case (Case 13) there were ulcers on the stumps of both hands, all ten fingers being gone, and over the anterior tibial surface of the right leg. These ulcers have all healed over with the formation of clean scar tissue.

In these cases, therefore, clinical improvement has been noted, with the return of pain sensation in three of the six cases, and with return of tactile sensation in one.

In the mixed type of cases there were tubercular deposits in the skin of the face, ears, arms and chest, with anesthesia of the hands and feet. Some of these patients had extensive ulcers, with more or less trophic changes, and loss of fingers and toes. Most of these patients have shown marked improvement as a result of the treatment.

At first all showed more or less improvement of the general condition with gain in weight and strength. After an interval from the time of commencement of treatment varying from six weeks (Case 4) to eight months (Case 12) six of the eight cases of this type began to show change in the tubercles. These have been more or less absorbed, in some cases the whole expression of the face being changed.

Shortly after the tubercles began to disappear, these patients began to complain of severe pain in the feet and legs. In some cases this pain was so intense that the patients were unable to stand on their feet. Large ulcers which had previously been absolutely insensitive now were exquisitely tender. This condition kept up for several weeks, after which the pain gradually subsided. As the pain went away the ulcers healed over, and the patients report that the sense of touch has returned. This seems to be especially true in Cases 4 and 11, in which the most marked improvement has been shown.

The patients with both the anesthetic and mixed type who have experienced the sense of pain in the feet and legs have invariably shown a change of color of the skin of the affected areas from the dusky shade suggestive of stasis to a reddish flesh color suggestive of improved circulation. If the anesthesia and trophic changes which accompany the disease are considered the result of pressure on the nerves and blood vessels caused by the leprous deposits, the intense hyperesthesia and improved circulation can be explained on the grounds of absorption of these deposits, and the release of pressure.

Nodules were excised in three of the cases of the mixed type. In Case 4, sections showed a degeneration of the epithelioid cells of the lepra nodule with deposits of fibrous connective tissue within the nodule. This man has shown the most marked improvement of the entire series. In Case 6, sections showed no

1. Heiser, V. G.: Supplement 20, Pub. Health Rep., October, 1914.

change in the lepra nodule, and bacilli were very abundant. This patient has shown little change to date except for the pain in her legs. In Case 9, sections showed some degeneration of the epithelioid cells of the nodule with some deposit of fibrous connective tissue within the nodule. Bacilli are present. This patient has shown marked improvement of the contour of the face.

The changes, therefore, seem to be destruction of the epithelioid cells of the lepra nodule with deposit of fibrous connective tissue, a process of fibrosis similar to that which takes place in healing in tuberculosis. Further study of this phase of the subject will be reported later.

CONCLUSIONS

1. The chaulmoogra oil formula used by Heiser is effective in the treatment of leprosy.
2. The hypodermic use of this formula is a satisfactory method of administering the drug.
3. The tubercular forms of leprosy respond to the treatment earlier than the anesthetic forms.
4. Anesthetic areas in both types of the disease have become hypersensitive with improvement, and some of the patients report the return of tactile sensation.
5. Under this treatment large ulcers have healed with the formation of clean, white scar tissue.
6. Sections from two cases showing marked clinical improvement have shown fibrosis of the lepra nodule; sections from one case with very slight clinical improvement showed a typical leproma.

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OIL OF CHENOPODIUM AND CHLOROFORM AS ANTHELMINTICS

PRELIMINARY NOTE *

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In view of the fact that numerous experiments, which are given in detail in a paper now ready for publication, have apparently established some general facts of interest to the medical profession in regard to oil of chenopodium and chloroform as anthelmintics, we wish to anticipate the appearance of that paper by presenting some of the more important conclusions.

Briefly, the essential facts of interest in connection with these drugs are as follows: Oil of chenopodium has a very high coefficient of efficacy against ascarids, and among the drugs which we tried we found it more effective in a single therapeutic dose against these worms than any other drug. Furthermore, its efficacy against ascarids proved greater than that of any other drug against various other parasitic worms with which we experimented. It should be given with castor oil and followed with castor oil, the drug being administered on an empty stomach, in order to secure the best results and to give the patient the maximum amount of protection from the local and systemic effects of the drug. Chloroform, however, has a higher coefficient of efficacy against hookworms than oil of chenopodium or any other drug with which we experimented. It can be given internally in castor oil in therapeutic doses with a degree of safety that compares favorably with that of the classic, and, according to our experiments, less effective remedies.

We have carried out a number of experiments with dogs, and we believe that the conclusions which we have drawn from them may be applied rather closely to man, as the digestive tract, the parasites, the dosage for most drugs and the general reactions to drugs are much alike for both animals.

In our experiments on dogs, the animals were given anthelmintic treatment, the feces collected and examined carefully for worms passed from then on until the animal's death, and the animal finally killed, and the entire digestive tract examined for worms. The animal was usually killed on the fourth day. The percentage of efficacy was computed on the relation of the number of worms passed to the total number present when treatment was instituted, this total being the sum of the number passed after treatment and the number found postmortem.

The first point which we have noted as of interest, namely, that oil of chenopodium in a single therapeutic dose is more effective against ascarids than is any other drug with which we experimented as a remedy for ascarids or any other worms, needs but little discussion. We have compared it with santonin, thymol, turpentine, areca nut, tartar emetic, ether, chloroform, coal tar phenols, spigelia, a number of common purgatives which have been said to have anthelmintic properties, and two samples of the latex of *Ficus laurifolia* — one of which, however, did not accord with the description of this substance — and have found that oil of chenopodium properly administered is a more effective and dependable remedy for ascarids than any of the others. In fact, it comes close to being 100 per cent. effective.

An ideal anthelmintic should be 100 per cent. effective against the worms it is intended to remove, and should exert no untoward action whatever on the host animal. While oil of chenopodium may exert some untoward action on the host animal, we regard it as entirely safe when used in accordance with the second proposition of this paper. This proposition is that oil of chenopodium should be given with castor oil and followed with castor oil, the patient being fasted to permit of the digestive tract being cleared of food that might mechanically, or otherwise, protect the worm from the anthelmintic. We believe that it would also be advisable to precede the anthelmintic with castor oil.

Although castor oil appears to be contraindicated with such anthelmintics as oleoresin of aspidium and thymol, it appears to be the best protection against ill effects from oil of chenopodium. The systemic effects of chenopodium are not generally known. We find it distinctly constipating, something which Motter[1] has noted, but which writers in general seem to have overlooked. Salant and Livingston[2] find that chenopodium brings about a fall of blood pressure, the fall being of cardiac origin, diminishes the frequency of heart action, decreases the vagus irritability, and produces a depression in the amplitude and rate of respiration. Salant and Mitchell[3] find that chenopodium produces a marked decrease of tone in isolated segments of intestine. Salant and Livingston[4] find that

* From the United States Bureau of Animal Industry.

1. Motter: Pub. Health Rep., 1914, **29**, 2651-2653.
2. Salant and Livingston: Am. Jour. Physiol., 1915, **38**, 67-92.
3. Salant and Mitchell: Am. Jour. Physiol., 1915, **39**, 37-53.
4. Salant and Livingston: Am. Jour. Physiol., 1916, **41**, 21-38.

chenopodium produces a marked depression on the isolated frog heart. It would seem possible that it is this depressant action on the musculature of ascarids which results in the failure of these worms, which do not attach to the mucosa, to maintain themselves against the flow of the intestinal contents under the influence of peristalsis, and this in turn results in their expulsion from the body. However, the depressant action on the intestinal musculature of the host results in constipation, in decreased peristalsis, and, as a sequel to that, in increased absorption, with local irritation and toxic systemic effects. To offset this effect of the chenopodium on the host animal, active purgation is called for; and since the chenopodium exerts a constipating effect, the purgative may be given in large doses without serious purgation resulting. An ounce of castor oil at the time the chenopodium was administered, followed in an interval of from half an hour to an hour by another ounce, would not be too much. In case of poisoning by chenopodium, it is our opinion that large doses of castor oil would be the principal treatment indicated, epinephrin and digitalis being also indicated according to the findings of Salant and Livingston; but it is as a concomitant treatment that the castor oil is valuable in promoting peristalsis, slowing absorption, hastening elimination, and preventing poisoning. It may be urged that time should be allowed for the anthelmintic to exert its effect on the worms before purgatives are administered. Whatever may be true of that classical procedure as a general rule, the anthelmintic effect of chenopodium appears to be increased by the simultaneous administration of castor oil. It may be urged that some persons do not tolerate castor oil well. This is true, but it is our experience that castor oil gives the best results. Its unpleasant taste may be disguised by saccharin, aromatic oils, orange juice, etc., or it may be given in soft capsules. Methods of administration other than with castor oil may give good results with a reasonable amount of safety; this gives the maximum amount of efficacy and safety.

The present commonly accepted method of administering oil of chenopodium for hookworm disease is to give it in three 5 to 15 drop doses at intervals of one or two hours or even of twenty-four hours, the last dose being followed by castor oil after an interval of one or two hours. We regard it as inadvisable to allow oil of chenopodium to lie in the digestive tract for hours or to permit hours or days to elapse before administering castor oil. In the dose given, the chenopodium is probably absorbed, entirely or nearly so, within a few hours, by the unprotected mucosa, and the purgative which may remove worms is too late to remove any of the anthelmintic and aid in protecting the host by its removal. We cannot say whether the best results would be obtained in the treatment of hookworm disease by giving divided doses as noted above or by giving an entire dose of 15 to 45 minims at a time, but for the safety of the patient we believe the doses, large or small, should be accompanied by castor oil. Of course, the divided doses aid in protecting the patient by permitting the development of symptoms of idiosyncratic intolerance, or other trouble, and the consequent cessation of anthelmintic treatment.

In our experience, chloroform was decidedly superior to thymol or oil of chenopodium as an anthelmintic against hookworms. Schultz[5] found that chloroform was very effective against hookworms in the dog. He says of it: "It has proved rapid in its action, and thus far not followed by any evil after-effects. Should the chloroform-castor oil mixture act as favorably in human beings as it has for me in dogs, it will prove a universal worm remedy of great importance." However, Schultz was afraid of the irremediable injuries following overdoses of this drug and therefore favored the use of the less effective drug, thymol. His experimental results favoring chloroform made little impression in this country, and the enthusiastic advocacy of chloroform as an anthelmintic comes from an Italian, Alessandrini.[6] Alessandrini states of chloroform that it has these advantages: Combined with castor oil, it requires no special preparation of the patient; it can be administered at a single dose; it does not cause local or general disturbances either immediately or subsequently; and it is perfectly well tolerated and not nauseous. Alessandrini advocates the use of from 3 to 4 gm. doses, dissolved in olive or castor oil, and states that it is thoroughly efficacious against hookworms, whipworms, pinworms and ascarids. We can confirm its efficacy against hookworms; we found it much less effective against ascarids than is chenopodium and not especially effective against whipworms; we have not tested it on pinworms, but we believe that it would be less effective than some other anthelmintics. It may be that its efficacy against hookworms is due to the fact that hookworms are bloodsuckers and that the chloroform rapidly absorbed by the blood is ingested by the hookworms in amounts sufficient to produce anesthesia or lethal toxic effects. Various writers have advocated the use of chloroform in castor oil in connection with oil of chenopodium or other anthelmintics, and some have claimed a synergistic action for chloroform and chenopodium. We have not found any convincing evidence of synergistic action. Chenopodium has a certain anthelmintic value for hookworms, and chloroform has a greater value; but we have not observed that the simultaneous use of the two drugs adds to the efficacy of the chloroform alone. However, the combination of chenopodium and chloroform is a valuable one, as the chenopodium can be expected to remove ascarids when these are present in hookworm cases, and ascarids are commonly present in such cases.

As regards our fourth proposition, that chloroform can be given internally in castor oil in therapeutic doses with a degree of safety which compares favorably with that of other anthelmintics, we can only say that our experiments show it to be true so far as dogs are concerned. Almost all anthelmintics are poisons, intended to kill or stupefy or otherwise disable and remove worms, while at the same time inflicting a minimum amount of damage on the host animal by virtue of the comparative insolubility of the drugs or their rapid elimination. Chloroform is one of the type which is rapidly eliminated. While present in the body and in the course of elimination, it does more or less damage to the liver, and frequently to the kidneys and heart. In the therapeutic dose, this damage to the kidneys and heart is usually slight, and that to the liver is completely repaired in the course of two or three weeks. We doubt whether the permanent damage to the organism is greater than that resulting from the general surgical anesthesia of chloroform or the employment of the common anthelmintics.

5. Schultz, W. H.: Remedies for Animal Parasites, THE JOURNAL A. M. A., Sept. 30, pp. 1102-1106.

6. Alessandrini: Policlinico, Rome, 1915, **22**, prat., pp. 822-827.

However, it is evident that in the interest of the patient's safety, an anthelmintic dose of 2 or 3 c.c. of chloroform should not be repeated within three weeks, and that certain lesions of the liver, kidneys and heart would be contraindications. It is also true of chloroform, as of other anthelmintics, that patients with massive infestations who are in very poor physical condition and whose vitality is much lowered should be put in the best possible physical condition before a weakened digestive tract, with the lesions due to hookworm attacks, is subjected to the shock of anthelmintic treatment.

SUMMARY

Our experimental findings indicate that oil of chenopodium should be accompanied by large doses of castor oil, and that when so given it is an uncommonly effective and quite safe anthelmintic for use against ascarids. Chloroform in castor oil, in therapeutic doses, is the most effective anthelmintic we have found for use against hookworms, and we consider it as safe as thymol or any other effective drug for use against hookworm disease.

OCCURRENCE IN CLINICAL TUBERCULOSIS OF SCARS FROM TUBERCULOUS CERVICAL ADENITIS

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It would seem that old scars in the neck due to tuberculous adenitis would be found with reasonable frequency in a large series of patients who are suffering from clinical tuberculosis. By this is meant scars from suppurating tuberculous cervical glands, or scars following operations on these glands. The removal of such glands is a common operation in surgical clinics; and in general and dispensary medical practice, patients with suppurating glands of the neck present themselves quite often for treatment. What becomes of these patients? Do they ultimately die from tuberculosis? There is a widespread belief that many do, for it has been almost a clinical axiom that scrofulosis predisposes to tuberculosis. The sure way to ascertain this would be to trace these patients through life, which is obviously impracticable. One may approach this from the other way and find how many tuberculous patients who for the most part have unfavorable prognosis, have neck scars due to tuberculous cervical adenitis. This, of course, is not definite; but in a group of patients presenting, for the most part, far advanced cases of tuberculosis, the data will be dependable. There may be objections that these scars may not be due to tuberculous disease; but a careful examination and inquiry into the history will exclude some, and the assumption that all are due to tuberculosis unless definitely proved otherwise will give fair conclusions and will place the errors on the safe side.

During the past year and a half, at Sea View Hospital, Staten Island, N. Y., 2,000 patients with clinical tuberculosis were examined for scars on the neck. The entire neck was inspected and palpated, and the patient was questioned as to the scars. Of the 2,000, there were about 1,600 who had moderately and far advanced pulmonary tuberculosis, and the great majority of these were far advanced, with an unfavorable prognosis. The remaining 400 had incipient (a very few), orthopedic, glandular, genito-urinary and surgical tuberculosis. A group such as this is a fairly representative series of the common run of tuberculosis, and it is fair to assume that it should give an idea of how frequently these neck scars occur.

Among the 2,000 patients, there were sixty-nine with neck scars. Of these, five were excluded: one whose scar followed an operation for wryneck, two from tooth abscess, and two whose scars occurred during scarlet fever. Of the remaining sixty-four:

The scars of twenty occurred in childhood, their clinical tuberculosis not becoming evident to them until after childhood: Fifteen were improving, five retrograding; twelve had pulmonary tuberculosis, four pulmonary and orthopedic tuberculosis, and four orthopedic tuberculosis.

There were eighteen whose scars appeared after childhood and before the onset of their clinical tuberculosis: Nine were improving, nine retrograding; sixteen had pulmonary tuberculosis, and two pulmonary and orthopedic tuberculosis.

There were nine whose scars occurred after the onset of their clinical tuberculosis: Five were improving, four were retrograding; seven had pulmonary tuberculosis, and two pulmonary and orthopedic tuberculosis. This group impressed one as having the poorest prognosis.

There were seventeen whose scars occurred at the same time at which their clinical tuberculosis began: Fifteen were improving, two retrograding; thirteen had pulmonary tuberculosis, one pulmonary and orthopedic tuberculosis, and three orthopedic tuberculosis. This group seemed to have less active tuberculosis and a better prognosis than any of the other groups. It was rather difficult to classify some of these as to their type, and some had cases probably of uncomplicated glandular tuberculosis.

The whole number of patients who had neck scars (sixty-four) is 3.2 per cent. of the entire group, and it was less than was expected. Slightly more than two thirds were improving, which is worthy of notice when the unfavorable far-advanced nature of the great majority of the 2,000 cases is considered. The number of patients who had orthopedic tuberculosis (sixteen) is large in proportion, since there were only about 250 orthopedic cases in the series.

These observations were made chiefly to learn how many patients with clinical tuberculosis had old cervical scars due to tuberculous disease which had occurred in childhood. There were twenty, 1 per cent. of the series. This also was a great deal less than was expected. This is of interest because of the present popular theory of childhood infection of Roemer, Much and others. According to this theory, all tuberculosis has its incidence in childhood; it is primarily a disease of the lymphatic structures, in which it is latent until it assumes the characteristic types. The tonsil is a frequent portal of entry for tuberculosis in childhood, and the cervical glands usually derive their infection by way of the tonsils. The tendency of tuberculous cervical adenitis is to suppurate and thus produce neck scars, or, if treated surgically, to produce scars, and yet only 1 per cent. of 2,000 patients with clinical tuberculosis showed this evidence of childhood infection. There seems to be a growing belief among many observers that simple glandular tuberculosis in childhood adds resistance to later tuberculous infection, and that few adults who show this die of tuberculosis. Furthermore, the radical removal of tuberculous cervical adenitis by surgery has many advocates who consider many of these cases as purely local lesions which, if excised, cause the patient little if any further trouble. These findings are in agreement with both of these beliefs, for few scars were

found, especially childhood scars, and the majority were showing a tendency to improve.

CONCLUSIONS

Scars in the neck due to tuberculous cervical adenitis are infrequent in clinical tuberculosis.

Tuberculous patients having these scars generally show a greater tendency to improve with the usual sanatorium care than do others.

Neck scars from tuberculous cervical adenitis in childhood are infrequent in adult clinical tuberculosis.

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THE TREATMENT OF HYPOPYON KERATITIS *

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Of the serious corneal ulcers the most frequent are those due to pneumococci, while next in frequency of occurrence are those due to diplobacilli. The characteristics of the pneumococcus ulcer, or ulcus serpens, are so well known that it is not necessary to discuss them here at length, but it may be well to emphasize certain features. Undoubtedly the most common cause for this type of ulcer is trauma, but there are two other causes that are often not recognized, namely, herpes corneae and glaucoma. Peters,[1] in fact, insists that the peculiar character of ulcus serpens is dependent on a neuropathic basis. This I think is doubtful, but it is probable that in many cases corneal herpes permits the pneumococcus infection to take place. After the infection has become well established the herpetic condition is obscured and so escapes recognition. The course of these cases, however, usually seems to be no different from the frankly traumatic cases. In cases due to glaucoma the failure to recognize the cause may prove disastrous. In many of the eyes that have been removed for perforating ulcer of the cornea and submitted to me for examination I have found deep cupping of the optic disk, although the glaucomatous condition was previously unsuspected. This mistake will less frequently be made if the tension of the affected eye is taken with the finger and the other eye is carefully examined for evidences of glaucoma. The tonometer should not be used on an infected cornea, even after it has apparently healed, as the traumatism may have an unfavorable effect.

As a rule an ulcus serpens appears less serious than it really is. This is due to the fact that the leukocytic infiltration is often relatively slight and is most marked at the periphery of the ulcer, leaving the center comparatively clear. The central clear area, however, is really the most severely damaged part of the cornea, for it is almost completely necrotic. The pneumococci are usually most abundant in the infiltrated border of the ulcer because those in the center are cast off with the superficial layers as loss of substance occurs. In rapidly advancing cases, however, before much loss of substance has taken place, I have found the surface layers of the central portion loaded with pneumococci. The center of the ulcer may later appear more opaque owing to the deposition of fibrin and pus cells on Descemet's membrane behind it. This is analogous to thrombus formation on the injured wall of a blood vessel.

Although ulcus serpens is now known to be due to the pneumococcus, yet much bacteriologic work remains to be done in regard to it. The fact that ulcus serpens never occurs in cases of pneumococcus conjunctivitis, while it is not infrequent in cases of dacryocystitis, would seem to show that some special strain or strains of pneumococci are required to produce it. The fact, too, that ulcus serpens is rare in children, although the latter are especially susceptible to pneumonia and to pneumococcus conjunctivitis, also seems to point in the same direction. It is possible, on the other hand, that this may be due to the fact that children do not often sustain the kind of injuries most likely to cause ulcus serpens, and that they are seldom affected with corneal herpes or glaucoma. So far as I know, however, no careful bacteriologic investigation of this question has yet been made. In view of the beneficial results of serum treatment obtained by Cole at the Rockefeller Hospital in cases of pneumonia due to certain strains of pneumococci, it is possible that such an investigation would be of value from the standpoint of treatment of corneal ulcers.

The diplobacillus ulcer differs considerably in its clinical appearance from ulcus serpens, but if not properly treated is fully as destructive to sight. There are several varieties of diplobacilli that may cause corneal ulcers, the most common being the Morax-Axenfeld. All such ulcers seem to have about the same clinical characteristics, so that for practical purposes the diplobacilli may be identified with sufficient accuracy by the examination of smears. It has been stated that it is impossible to differentiate by clinical appearances alone between pneumococcus and diplobacillus ulcers, but this is not in accord with my own experience. Perhaps the most striking feature of the diplobacillus ulcer is the relatively slight general reaction of the eye compared to the extent of the ulcer. This is manifested especially by the size of the hypopyon, which is relatively very small. The ulcer itself is more uniform in appearance than an ulcus serpens, the marginal infiltrate being less marked and the whole ulcer having a gelatinous appearance, due to plastic exudate.

The treatment of hypopyon keratitis has hitherto been highly unsatisfactory, judging by the fact that out of all the diverse methods of treatment no single one has been generally adopted. It would be impracticable here to discuss each of these methods in detail, and I have therefore attempted to classify them as follows:

Symptomatic Treatment.—This includes the use of an occlusive bandage, hot applications, and atropin to combat the iritis. The use of various nonirritating ointments may also be included under this head, since, judging by the ineffectiveness of still stronger antiseptics, their only value is to act as lubricants. Ethylmorphin hydrochlorid (dionin) is also frequently used, and some surgeons employ miotics instead of atropin. This method of treatment undoubtedly yields a fair percentage of relatively good results, a fact that is apt to be lost sight of when estimating the value of other methods.

Serum Therapy.—The antipneumococcus serum of Roemer has not yielded the results anticipated, and has therefore never come into general use. As already pointed out, however, in view of the results obtained in cases of pneumonia at the Rockefeller Hospital, there

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* From the Massachusetts Charitable Eye and Ear Infirmary.

* Read before the Section on Ophthalmology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Peters: Ueber traumatische Hornhauterkrankungen und ihre Beziehungen zum Herpes Corneae, Arch. f. Ophth., 1904, **57**, 93.

is still a possibility that an immune serum may be developed that will prove effective in corneal ulcers due to certain strains of pneumococci.

Vaccine Therapy.—If vaccine therapy is under any condition effective against pneumococci, it should be especially valuable in cases of ulcus serpens, for here we have a relatively minute localized focus insufficient to cause any appreciable systemic reaction. Nevertheless, no conclusive evidence has been brought forth that vaccines are of the slightest benefit in cases of ulcus serpens. Recently interest has been shown in the nonspecific treatment of infectious diseases by injections of other foreign proteins, but I am not aware that it has yet been tried in cases of corneal ulcer.

Chemotherapy.—As regards the treatment of localized infections in general, the ideal germicide, of course, would be one which destroyed the micro-organisms without seriously injuring the tissues. In 1907, with E. K. Ellis,[2] I made experiments with a large number of antiseptics claimed to be noninjurious to the tissues, and found that in every case their germicidal activity was destroyed by serum. This explained at once their ineffectiveness against infections as well as their nonirritating qualities. It seems to me that it is altogether unlikely that any chemical substance of simple structure will be found to fulfil the ideal requirements. In any case, dilute solution of the germicide and prolonged exposure to its action would probably be necessary for differential effects as between the organisms and tissues. Thus far, no germicide fulfilling the foregoing requirements has been brought forward with the possible exception of optochin.

Ethyl-Hydrocuprein (Optochin).—This was introduced by Morgenroth as a specific germicide against the pneumococcus. It seems, however, to have proved a disappointment in the treatment of pneumonia, owing to the fact that it cannot safely be given in doses sufficiently large to be effective. It has also been used as a local application in the treatment of ulcus serpens, and almost all the reports of cases so treated have been highly favorable. When added to serum, the hydrochlorid is immediately and abundantly precipitated, so that it is evident that only a minute quantity could penetrate inflamed tissues. It is stated, however, that enough remains in solution to give a certain amount of germicidal effect. It seemed improbable to me that this could be sufficient to be of service in the treatment of ulcus serpens, and I have therefore waited for more conclusive evidence before personally giving optochin a trial. In the meantime I have noted its action in a few cases of my colleagues in which it has been highly ineffective. It is noteworthy that even those reporting favorable results admit failures in certain cases. These are explained by assuming that the organisms develop tolerance toward the drug. I suspect, however, that the real difficulty is that the germicide cannot reach the organisms when the cornea is deeply infected. This is suggested also by the fact that many treatments are necessary, whereas if the germicide actually reaches the organisms in effective concentration, as supposed to be the case, it should be possible to sterilize the ulcer in one or two vigorous treatments.

Organic Silver Salts.—The best known of these are argyrol and protargol, but many others have been brought forward. Pitzman[3] has pointed out that their germicidal properties depend entirely on the amount of uncombined silver salt they contain. It is obvious that their irritating properties depend on this also. Thus argyrol contains a very small amount of uncombined silver salt and hence is almost nonirritating and nongermicidal, while protargol, which contains a relatively high proportion, is correspondingly more highly germicidal and also more irritating in solutions of the same concentration. So far as germicidal activity goes, the large amount of combined silver in argyrol is wasted. In other words, if solutions of each of the various organic silver compounds were made in such concentrations as to have the same irritating properties, they would each have practically the same germicidal powers. In 1906 I showed that the germicidal properties of argyrol and protargol are destroyed by serum, so that it is impossible for them to kill bacteria within inflamed tissues even if they reach the organisms.[4] Although it seems certain, therefore, that they are valueless in the treatment of corneal ulcers, their use for this purpose has not even yet been abandoned.

Tincture of Iodin.—This has been highly recommended for the treatment of corneal ulcers, but I fail to see how it can be of service except in the most superficial infections. While it is highly germicidal to bacteria immersed in it, as ordinarily applied to corneal ulcers, it cannot penetrate the tissues effectively. When it comes in contact with moist surfaces the alcohol is diluted and the iodin precipitated, or the alcohol precipitates the albuminous bodies encountered and is thus checked in its penetration. In this connection the following experiment seems to be of considerable significance: I applied tincture of iodin to a large colony of staphylococci growing on coagulated blood serum, allowing the solution to act for over two minutes. On then making a culture from the colony, I obtained an abundant growth. Unless, therefore, the solution is applied sufficiently long and in sufficient abundance as markedly to injure the tissues, no important germicidal action can be expected from it. This conclusion, I may say also, is in accord with my practical experience.

Zinc Sulphate.—Axenfeld[5] states that he has never failed to check the progress of a diplobacillus ulcer of the cornea by means of zinc sulphate. He uses strong solutions applied directly to the ulcer and weak solutions instilled into the conjunctival sac. A few observers report unsuccessful results with this treatment in severe cases. In laboratory tests zinc sulphate is said to have but slight germicidal action on diplobacilli, so that its therapeutic value is probably dependent on an inhibitory effect.

Anilin Dyes.—Pyoktanin (methyl violet) and methylene blue have been used in the treatment of corneal ulcers, but without marked success. Basic fuchsin and gentian violet have in recent years been advocated as effective nonirritating germicides, but experiments made by me go to show that their germicidal action is too feeble to promise any success in the treatment of corneal ulcers. Thus in 1 per cent. solutions I found that neither of these dyes would destroy the *Staphylococcus aureus* with exposure of over an hour. A saturated aqueous solution of methylene blue was not destructive to this organism after an exposure of four and one half hours.

2. Verhoeff, F. H., and Ellis, E. K.: The Bactericidal Values of Some Widely Advertised Antiseptics, THE JOURNAL A. M. A., June 29, 1907, p. 2175.
3. Pitzman: The Antiseptic and Germicidal Properties of the Silver Salts and Preparations, Am. Jour. Ophth., 1912, **29**, 1.
4. Verhoeff, F. H.: A Further Note on the Antiseptic Properties of Sodium Aurate, Correspondence, THE JOURNAL A. M. A., May 12, 1916, p. 1462.
5. Axenfeld: Bacteriology of the Eye, translated by MacNab, New York, 1908, p. 301.

Ion Therapy.—The attempt to sterilize corneal ulcers by treating them with solutions ionized by an electric current seems to me irrational, for in this way the antiseptics are dissociated into simpler elements whose action on the bacteria and the tissues must be still less differential than the original solutions.

Thermotherapy.—The effectiveness of the thermocautery in the treatment of corneal ulcers has been well demonstrated by actual experience. The objection to its use is that so much tissue must be destroyed or injured in order to insure destruction of the organisms that excessive scarring results. Several attempts have been made to obviate this difficulty. Bourgeois[6] employed a blast of hot air, such as is used by dentists; Weekers[7] held the cautery point at a distance from the ulcer, while Wessely[8] employed a tube with a blunted point heated by steam. More recently Shahan[9] has made a careful experimental investigation along this line, and has devised an instrument by means of which he can accurately control the temperature to which the cornea is heated. He found, however, that with the moderate temperatures and relatively long exposures with which he worked, it was impossible to destroy bacteria within the cornea without severely injuring the corneal tissue.

Prince[10] has advocated what he terms the pasteurization of corneal ulcers. A conical shaped piece of copper is heated to a red heat and then held close to the ulcer until it cools. The treatment is given once or twice daily. Prince contends that the organisms are checked in their growth, thus allowing the natural defenses of the body better opportunity to cope with them. I have tried Prince's method both clinically and experimentally, and have reluctantly concluded that it is of little if any value. It was used in five clinical cases of ulcus serpens, all of a severe type. In two of these cases perforation occurred; in one, Guthrie-Saemisch section was required, and two came to enucleation. Experimentally I tested out the method by injecting staphylococci into each cornea of a rabbit and then "pasteurizing" one of them. I found that when care was taken to inject about the same number of organisms in each eye, the resulting abscesses were practically identical in size.

Working with Dr. C. E. Hill, I have also investigated the possibility, suggested previously by Shahan, that intense heat briefly applied might be more injurious to bacteria than to the cornea. It seemed to me that radiant heat offered the greatest possibility of success, since, owing to the transparency of the normal cornea, there would be a selective action on an ulcer owing to the absorption of the rays by the infiltrate, and since also, working with Bell,[11] I had found that the effect of radiant heat was greatest in the deepest layers of the cornea. We therefore made use of a carbon arc and lens system which delivered enough radiant heat at the focus to ignite a match almost instantly. The experiments were made by injecting staphylococci into one cornea of a rabbit and then exposing each eye in turn to the light for the same length of time, which was varied in different experiments. We found that even when the control cornea was severely injured by the heat, an abscess nevertheless developed in the infected cornea. These experiments seemed so conclusive that it appeared useless to proceed further. If they had resulted more favorably, it was our intention to standardize the apparatus and also to attempt to devise some method for protecting the iris and fundus of the eye from injury.

Phototherapy.—Hertel[12] in 1903, and again in 1907, brought forward what he regarded as conclusive evidence of the value of ultraviolet light in the treatment of corneal ulcers. I have elsewhere discussed Hertel's experiments and have pointed out that none of them were conclusive. In addition I have recorded a series of experiments[13] which prove that it is impossible to destroy bacteria within the cornea by means of ultraviolet light without severely injuring the cornea. In most of these experiments the cornea was exposed to the light immediately after it had been injected with bacteria, that is, while it was still transparent. If under these conditions the bacteria could not be killed without undue injury to the cornea, it is obvious that it would be futile to attempt to kill them in a cornea infiltrated with pus cells and so made practically impassable to germicidal rays. In fact, by the use of suitable screens, I found that the relatively long ultraviolet waves, the only ones that are able to penetrate the cornea, are much less injurious to the bacteria than to the cornea.

Cauterization.—Various chemical caustics have been advocated in the treatment of corneal ulcers, and probably any of them will check the ulcerative process if properly used; but the thermocautery seems to be generally preferred. Of the chemical caustics, pure phenol (carbolic acid) is probably as good as any, if not better. It has been shown experimentally by Guillery[14] that mineral acids should be avoided, owing to the danger of injuring the lens. The chief objection to the use of caustics of any kind is the same as that which applies to the thermocautery, that is, the excessive scarring which results.

Subconjunctival injections of irritating solutions for the purpose of causing severe reactions and thus combating the infection have been highly recommended in the treatment of corneal ulcers. Fuchs[15] stated that he regarded this method of value in early cases but of no service in advanced cases. I myself have found other treatment so effective in early cases that it has seemed unnecessary for me to give this painful method a trial.

Operative Treatment.—Stephenson[16] has pointed out that priority for the operation of incising corneal ulcers belongs to Guthrie, who performed the operation twenty-seven years before Saemisch. The beneficial effect of this operation is generally so great as well as prompt that there is no question as to its effectiveness. The explanation of its effect is probably that it reduces the pressure on the cornea and allows drainage to take place from the cut surfaces, while at the same time it causes the ulcer to be continually irrigated by fluid from the anterior chamber. This fluid is no longer

6. Bourgeois: Nouvelles considérations sur le traitement des ulcères infecticux de la cornée, Ann. d'ocul., 1899, **122**, 55; Le chauffage des ulcères infectieux de la cornée, ibid., 1911, **145**, 273.
7. Weekers: Nouveau traitement des ulcères serpigineux de la cornée par le chauffage, Bull. de la Soc. belge d'ophth., 1910, No. 28, p. 70.
8. Wessely: Zur Behandlung des Ulcus serpens, Ophth. Cong. Heidelberg. 1912, p. 339.
9. Shahan: Effects of Heat on the Eye, The Journal A. M. A., Aug. 5, 1916, p. 414.
10. Prince: Pasteurization in the Treatment of Corneal Ulcers, Ophth. Rec., 1916, **25**, 177.
11. Verhoeff, F. H., and Bell, Louis: The Pathological Effects of Radiant Energy on the Eye, Proc. Am. Acad. Arts and Sc., 1916, **51**, 692.
12. Hertel: Experimentelles über ultraviolettes Licht, Ber. u. d. 31 Vers. d. ophth. Ges., Heidelberg, 1903, p. 144; Experimentelles und Klinisches über die Anwendung lokaler Lichttherapie bei Erkrankungen des Bulbus, Arch. f. Ophth., 1907, p. 275.
13. Verhoeff, F. H.: Ultraviolet Light as a Germicidal Agent, The Journal A. M. A., March 7, 1914, p. 762.
14. Guillery: Hornhautverätzung durch Säuren und ihre Behandlung, Arch. f. Augenh., 1909, **63**, 258.
15. Personal communication to the author.
16. Stephenson: Priority; Guthrie or Saemisch Operation for Hypopyon Keratitis, Ophthalmoscope, 1910, p. 266.

ordinary aqueous, but owing to the low intra-ocular pressure as well as the inflammatory reaction, it is almost pure serum and hence richly contains the bactericidal properties of the blood. In rare cases, however, this operation fails and the ulceration continues, or intra-ocular infection takes place through the incision. Probably in these cases either the organisms are unusually virulent or the patient's serum is lacking in immune substances.

In spite of the remarkable results usually following the Guthrie-Saemisch operation, it is generally employed only as a last resort, for although it may put a stop to the ulcerative process, the condition finally resulting is apt to be far from desirable. Almost always there is anterior synechia with its attendant dangers of secondary glaucoma and sympathetic uveitis, while the irregular astigmatism resulting from the scar is apt to be of an extreme degree.

Keratectomy.—Foroni[17] reports exceptionally good results from dissecting away the superficial layers of the cornea in the ulcerated area, curetting the wound and irrigating with a 1:1,000 solution of mercuric cyanid. That the results of this treatment are not all that could be desired, however, is shown by the fact that he finds it necessary in some cases to perforate the cornea in its periphery with the galvano-cautery. I have never tried this method, but it seems to me unnecessarily severe.

Conjunctival Flaps.—The placing of a conjunctival flap over a corneal ulcer has been strongly recommended by Kuhnt and others as an effective method of treatment. In the few cases in which I myself have tried this procedure, the flap has not remained in position long enough to be of any service. Possibly my technic has been at fault here.

Author's Method.—With the limited number of cases at my command, it has seemed to me better to continue a method that was giving good results, to find out its exact limitations, and to attempt to improve it, rather than to change continually from one method to another and thus reach no definite conclusions. In this way, during the past three years, I have worked out a method of treating corneal ulcers that has given results more satisfactory than has any other method I have employed or seen used. I am far from regarding the method, however, as the final solution of the problem.

The patient is placed in bed, the affected eye thoroughly cocainized, and a speculum inserted. He is then told to look at various points on the ceiling until a position is found at which the ulcer is directly upward. This position must be maintained throughout the treatment, but the patient seldom finds any difficulty in keeping his eye sufficiently steady. Occasionally it has been necessary for him to fix his other eye on the finger of an assistant. With a Beer's knife, incisions are now made in the ulcer thus: The back of the knife is held toward the cornea and the point entered slantingly into the margin of the ulcer. The knife is then pushed through the middle of the ulcer to the opposite margin, care being taken to make the incision as deep as possible without entering the anterior chamber. It will be found that, owing to the slanting position of the knife, Descemet's membrane is pushed away from the point so that the incision may be carried down almost if not quite to this membrane without danger. The point of the knife is now entered in the center of the incision just made, and a radial incision perpendicular to the latter carried to the margin of the ulcer. A similar incision is then made in the opposite direction, so that the final result is a crucial incision. In the case of large ulcers, several additional incisions should be made, starting each time at the center. With the point of the knife the infiltrated border of the ulcer is now superficially curetted, and the material obtained used for the bacteriologic examination. After this, the entire surface of the cornea around the ulcer is dried by touching it with small dry swabs of sterile absorbent cotton.

The ulcer is now ready for treatment with the germicide, a highly concentrated Lugol's solution: iodin, 25; potassium iodid, 50; water, 100. This is applied by means of cotton-tipped tooth picks, and the application should be limited to the ulcer itself, as the solution will quickly injure the epithelium. Owing to the cornea's being dry, the solution has no tendency to spread beyond the ulcer. After the entire area of the ulcer has been moistened, additional solution is added until there is an actual puddle on the ulcer. This is allowed to remain five minutes, when it is quickly flushed out of the conjunctival sac by a jet of boric acid solution. A rubber bulb filled with boric acid solution should be in constant readiness for this purpose, for should the patient move his eye abruptly and cause the Lugol's solution to flow over the cornea, it is necessary to wash it away at once. If this should happen before the five minutes have elapsed, the cornea should be dried again and the Lugol's solution reapplied. The treatment is absolutely painless.

In cases of very small ulcers, the Lugol's solution is applied without making the incisions described. In deciding whether or not to make the incisions, I do not depend entirely on the size of the ulcer, however, but also on the rapidity of its progress and the amount of general ocular reaction, as evidenced particularly by the size of the hypopyon. In active cases, even when the ulcer is small, it is probable that the organisms have become disseminated for a considerable distance from the ulcer proper and hence may not be reached by the germicide unless the incisions are first made. When there is doubt, the incisions should always be made, as they do not noticeably increase the opacity left by the ulcer. In fact, as the ulcer heals, all traces of the incisions disappear.

In cases of rapidly progressing ulcers of large size, with large hypopyon, after the foregoing treatment has been completed, I make a small puncture through the center of the ulcer with the Beer's knife, and evacuate the aqueous. This puncture is not large enough to evacuate the hypopyon, and I believe it advantageous for the latter to remain. It holds both the iris and lens away from the opening, and thus prevents anterior synechia and injury to the lens. I have never seen any harm result from this central puncture, and I now always make it unless I am absolutely certain it is unnecessary. In cases of suspected glaucoma, it should never be omitted. Its chief disadvantage is that it causes more or less pain.

The after-treatment of these cases consists in keeping the patient in bed with both eyes bandaged, the use of White's mercuric chlorid ointment as a lubricant, and in the instillation of atropin to keep the pupil open. The beneficial effects of the iodin treatment do not become apparent until after forty-eight hours, when the ulcer appears cleaner, the hypopyon smaller, and the eye becomes much more comfortable. In case the central puncture was made, the longer the anterior

17. Foroni: Keratektomie, Arch. f Augenh., 1915, **78**, 279.

chamber remains empty the better. If no improvement is noted at the end of seventy-two hours, and the anterior chamber has become reestablished, the treatment should be repeated.

It may be of interest to give the reasons that led me to adopt this method of treatment. Although it was evident that we possessed no germicide that would destroy bacteria in the cornea without injury to the cornea itself, it seemed to me that some of the germicides must be far less injurious than others. Moreover, since the cornea was already severely injured in the ulcerated area wherein the bacteria chiefly occurred, it seemed that a certain amount of additional injury would make relatively slight difference as regards the visual results. It occurred to me, therefore, that Lugol's solution, which was known to be a powerful germicide, might answer my purpose. I found that a freshly prepared solution even in as high dilution as 1:2,000 (iodin, 1; potassium iodid, 2; water, 2,000) would destroy the *Staphylococcus aureus* in less than one minute. I also found, however, that when mixed with an equal volume of ascitic fluid, a solution of 2:1,000 would not kill this organism in twenty-four hours. It was evident, therefore, that dilute solutions would be useless, since their germicidal activity would be destroyed as they permeated the tissue, and solutions sufficiently strong to overcome the neutralizing effect of the tissue fluid would be necessary. In this connection I found by experiments on rabbits that while strong solutions promptly killed the corneal corpuscles, they had remarkably little effect on the corneal stroma. For instance, a small amount of a 1 per cent. solution could be injected directly into the cornea without causing a permanent opacity. Evidently new corneal corpuscles made their way in from the periphery, and the original condition of the cornea was restored. Since in corneal ulcers the corneal corpuscles are already largely destroyed by the bacterial toxins, it appeared likely that strong Lugol's solution would do no additional harm except so far as it destroyed a greater or less number of corpuscles at the periphery of the ulcer. On the other hand, it was found that if an area about 5 mm. in diameter was injected with the 1 per cent. solution, it caused, owing to its prolonged action, softening of the corneal stroma and a permanent opacity.

It is unfortunately not possible to produce in animals progressive corneal ulcers similar to those caused in man by pneumococci. I was compelled, therefore, to test the value of Lugol's solution by actual trial in human cases. At the outset I employed a 2 per cent. solution and applied it by placing a glass tube over the ulcer and filling the tube with the solution. This method seemed effective, but was difficult of application. I then increased the strength of the solution to 5 per cent. and used the method of making a puddle on the ulcer as mentioned above. In cases of small ulcers this was uniformly successful, but in cases of larger ulcers it sometimes happened that the process would start up again at one point or another, thus indicating that bacteria in the comparatively normal cornea had not been reached by the germicide. I then adopted the plan of making incisions in the ulcer for the twofold purpose of allowing the germicide to permeate the tissue more freely and of permitting drainage afterward. At the same time the strength of the Lugol's solution was increased to 25 per cent. Even with this powerful solution applied for five minutes, there was an occasional case in which evidently not all the bacteria were not killed. In fact, judging by the amount of discoloration of the tissues, it was clear that in no case did the solution penetrate far into the normal corneal tissue. For rapidly progressing cases, therefore, in which it was probable that the organisms had become disseminated far into the cornea away from the ulcer, the plan was adopted of making a central puncture in the ulcer to obtain as far as possible the additional advantage of the Guthrie-Saemisch operation without its disadvantages.

Altogether I have treated forty-two cases of corneal ulcer with hypopyon by this method. These cases were unselected except to the extent that only such cases were treated in this way as were regarded as sufficiently serious to require admission to the hospital. Bacteriologic examinations, which were made in almost every case, showed the ulcers to be due either to pneumococci or diplobacilli.

In twenty-one cases the ulcer was small, from 1.5 to about 4 mm. in diameter, and the process was checked in every case. In these cases the visual acuity at the time of discharge from the hospital was $^{20}/_{70}$ or better in seven cases, $^{20}/_{100}$ in five cases, $^{20}/_{200}$ in six cases, and $^{12}/_{200}$ in two cases. In one case the acuity was equal only to the counting of fingers at 8 feet; but this was due to an older scar. In eight cases the ulcer was of moderate size, but was sufficient to reduce the visual acuity to the perception of light or the counting of fingers. Here the process was also checked in every case, but the resulting visual acuity was of course not great at the time of discharge, ranging from the counting of fingers at from 1½ to 8 feet. In thirteen cases the ulcer was very large, involving from one-half to two-thirds or more of the corneal surface. Here the process was checked in eight cases, but the visual acuity obtained was only equal to the perception of light or shadows. In five cases the process was not checked, and in three of these enucleation was performed. No doubt in some of the cases the visual acuity could later have been improved by optical iridectomy.

The average age of the patients with small ulcers was 39 years, while that of the patients with larger ulcers was 50 years. It would seem, therefore, that older persons allow the ulcerative process to gain greater headway before applying for treatment. This, I think, is due in part at least to the lessened sensibility of the cornea and the weaker mentality of the older persons.

In one of these cases the ulcer was associated with dacryocystitis. In twenty-two cases there was a definite history of recent trauma. Glaucoma was noted in one case, but may have been overlooked in others. Diplobacilli were found in six cases. In each of these the process was checked, except in one in which three-fourths of the corneal surface was involved at the time of treatment. Owing to illness, this patient was not treated by me personally.

Judging by my results, as well as by those of some of my colleagues who have also tried this method of treatment, I feel safe in saying that it will stop the progress of any corneal ulcer of small size and leave a minimal scar. In cases of ulcers of moderate size the process will also almost always be checked by it, but in cases of very large ulcers failures will often occur, owing to the fact that the germicide cannot reach all the bacteria. In the latter cases, however, so much of the cornea has already been involved that little is to be gained by checking the ulcerative process. It is impor-

tant, therefore, in the case of any ulcer to apply the treatment as soon as the patient presents himself. In hospital practice, to save unnecessary delay, the treatment should be carried out in the outpatient department before the patient has been admitted to the wards.

FURTHER STUDY OF THE EFFECTS OF HEAT ON THE EYE*

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In this work and in the work[1] reported at the 1916 session of the American Medical Association, the method of applying heat to the cornea has been one of direct conduction by means of hot metal placed in contact with the cornea. Methods of radiation by holding hot objects near the eye, by convection, through hot air or steam, etc., have been unsatisfactory because of the difficulties in exact control both as to intensity and as to quantity.

The difference between success and failure in applying heat in such grave conditions as serpiginous ulcer of the cornea is measured by only a few Fahrenheit degrees, as will be shown in the following experiments and case reports. Moreover, different materials have different degrees of heat conductivity, just as they do of electric conductivity. For an exact definition, therefore, it is necessary to state the intensity as indicated by the thermometer or thermocouple, and the material used for conducting the heat. In all these experiments and cases the material used was brass plated with nickel.

An experiment will make clear the need of stating the material used for conduction. A mass of nickel-plated brass (the thermophor applicator described at the 1916 session) was heated to 150 F. and applied to the cornea of a rabbit's eye for one minute. The epithelium was destroyed over an area somewhat greater than the surface placed in contact with the cornea. Bowman's membrane and the substantia propria were clouded so that the iris was scarcely visible through the heated area. It took five days for the epithelium to be completely replaced, and the cornea was somewhat clouded for a month or more. In contrast to this a test tube was filled with water, a thermometer placed in the water, and the whole heated until the thermometer indicated 160 F. The rounded end of the test tube was then placed in contact with a rabbit's anesthetized cornea for one minute. During this time the thermometer fell from 160 to 150 F. There was no visible effect on the epithelium, Bowman's membrane, or any part of the eye. The quantity of heat in the water and test tube was much greater (as measured in calories) than that in the brass applicator, but the heat in the brass applicator passed into the cornea with so much more rapidity that marked effects were produced. If glass should be used as an applicator, it would be necessary to institute a series of experiments to determine how high its temperature would have to be raised in order to produce desired effects. Glass is a poor heat conductor. The same condition applies to all other conductors. This probably accounts for the fact that the limit of heat tolerance for different eye tissues has been variously stated by different observers.

The most important application of heat is in serpiginous ulcers of the cornea. It was the routine loss of eyes afflicted with such ulcers that inspired this whole work. These ulcers are ordinarily pneumococcus infections, and are characterized by appearing nearly always singly as virulent ulcerative processes deep within the substantia propria. There is marked conjunctival injection, sometimes much chemosis, and after a few days, pus in the anterior chamber (hypopyon). The organisms advance in all directions from the primary focus, and are most virulently active beneath Bowman's membrane and where not exposed to the air. It is owing to the fact that the organisms are deep within the substantia propria that practically all surface medication has proved a failure. It is also noteworthy that experimental inoculation with pneumococci in numerous cases was produced only by breaking through Bowman's membrane and inserting the bacteria beneath it, and also that when large areas of epithelium were removed around such ulcers, further progress was not made *on* Bowman's membrane, but *beneath* it, while the epithelium was rapidly replacing itself. This replacement of epithelium occurred so rapidly in some cases that the ulcers were roofed over and converted into abscesses. This is important because it permits us to use therapeutic agents which destroy the epithelium wherever applied. This does not hold, however, in streptococcus or pyocyaneus infections.

When the investigation was started it was hoped that pneumococci could be killed within the substantia propria by a degree of heat below the limit of tolerance of the substantia propria. It was found that 130 F. for ten minutes was the limit of tolerance of the substantia propria when the heat was applied through a nickel-plated brass conductor. This was tried on various pneumococcus ulcers and resulted in disappointment. It was found that after such applications positive cultures could be obtained from the site of application, and that the heat which passed through the cornea was sufficient to cause atrophy of iris tissues without permanent clouding of the cornea. By means of thermocouple measurements it was found that heat so applied passed rapidly through the cornea, and that when a constant temperature was applied to the anterior surface of the cornea, the posterior surface reached a constant level in about one minute.

Another series of investigations was then undertaken. Inoculations of pneumococci were made in a number of eyes. Each eye of each rabbit was inoculated. One was treated with heat and the other left untreated, as a control. There is a tendency to spontaneous healing of pneumococcus ulcers in rabbits' eyes. Accordingly rigid controls are necessary for preventing misleading results. Gradually increasing degrees of heat were applied by means of nickel-plated brass thermophor points for one minute only. When applications of 152 F. for one minute were reached, the ulcerative process was stopped both bacteriologically and clinically. A detailed history of one of the rabbits will show the action of treated eye and control:

RABBIT 26.—Inoculated O. D. and O. S., July 13, 1916, with pneumococci.

July 14: O. D., vigorous infection. Area 7 mm. in diameter stains with fluorescein. Took culture. Applied 152 F. somewhat intermittently for one minute, after which ulcer appeared dry and clean. Washed with physiologic sodium chlorid solution. Took culture. O. S., vigorous infection, area 3 mm.

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1. Shahan, W. E.: Effects of Heat on the Eye, THE JOURNAL A. M. A., Aug. 5, 1916, p. 414.

in diameter stains with fluorescein. Washed with physiologic sodium chlorid solution.

July 15: O. D., ulcer quiet. No discharge, no hypopyon. O. S., ulcer very active, much discharge, no hypopyon.

July 17: O. D., profuse growth on culture, taken before heating. No growth on culture taken after heating. Eye quiet. Epithelium completely replaced. Thin gray spot on site of ulcer. O. S., much discharge, cornea clouded. Deep ulcer. Area 5 by 8 mm. stains with fluorescein.

July 21: O. D., entirely quiet. Gray central area becoming thinner. O. S., active ulceration. Pupil filled with a membrane. Whole cornea opalescent. Considerable discharge through the epithelium, which has covered ulcer so that fluorescein does not stain.

July 24: O. D., entirely quiet. O. S., severely inflamed. Vessels extend into cornea about 4 mm. from all parts of limbus. Center of ulcer stains with fluorescein.

July 27: O. D., entirely quiet. O. S., still severely inflamed. Vessels extend as a dense red zone 5 mm. into cornea from all parts of limbus.

July 31: O. D., entirely quiet. O. S., site of ulcer yellow, broken down and excavated. Whole cornea up to margins of ulcer filled with a dense network of blood vessels.

August 3: O. D., entirely quiet. O. S., site of ulcer organized. Still yellow deep within substantia propria. Hyphemia.

September 29: O. D., thin gray area at center of cornea. No iris changes. O. S., vessels in cornea all atrophied. Small gray area center of cornea. Yellowish deposit along lower part of cornea. Some clouding anterior capsule. Firm posterior synechiae.

This was repeated on rabbits with variations, sometimes with, sometimes without hypopyon, until it seemed reasonably certain that 152 F. applied for one minute was sufficient to stop the ulcerative process.

It now became desirable to know how much damage this amount of heat did when applied to a normal eye. This was applied to various eyes, and it was found in general that there was complete destruction of the epithelium over an area somewhat larger than the point used. With a 5 mm. point, for instance, there was an area 5 by 6 mm. of denudation. The surface of the cornea was clouded so that often the iris was not visible through it. The epithelium replaced itself in four or five days, and the clouding slowly diminished. A rabbit with O. S. heated so, July 27, 1916, now (Jan. 30, 1917) has a faint nebula at the site of application. The nebula is difficult to see without oblique illumination and the aid of a magnifying glass.

It would seem, therefore, that this method of thermotherapy offered much in the deep treatment of pneumococcus infections, and it was felt that the time was ripe for trial on human eyes when opportunity offered.

To date the following patients have been treated:

Case 1.—Coal miner, aged 39, consulted Dr. E. C. Spitze, East St. Louis, Dec. 17, 1916. A foreign body was removed from near the inner limbus. There were two small foci of infection at the site of the foreign body. Ulcers were cauterized with saturated phenol iodin solution. The foci coalesced and the ulcer slowly increased in size despite active daily treatment. Dec. 28, 1916, Dr. Spitze brought the patient to me for trial of heat treatment. The ulcer then bordered the limbus and extended about 3 mm. out into the cornea. Trial of methylene blue and 1 per cent. silver nitrate solution to the walls of the ulcer was advised. Dr. Spitze did this and also made subconjunctival injection of 20 mm. of 1:3,000 mercuric chlorid solution. The patient was now in the hospital. The ulcer was steadily growing worse.

Jan. 8, 1917: Dr. Spitze again sent the patient to me. The ulcer now extended 5 mm. along the limbus and 4 mm. into the cornea. There was a dark border where the silver nitrate was applied, and beyond this a yellow zone of virulent infection. Hypopyon was 1 mm. high. The patient complained much of pain. Heat was applied at from 150 to 152 F. with a 5 mm. applicator for one and one-fourth minutes to the ulcer under thorough anesthetization with cocain, 5 per cent. in suprarenal extract, 1:1,000. The application appeared to cause but little pain. After the application the yellowish color was changed to a grayish hue. The epithelium was destroyed over an area extending 1 mm. beyond the margin of the ulcer.

January 9: The patient spent a more comfortable night; the ulcer was quieter and grayish in appearance. The hypopyon was unchanged. Subsequently there was very little pain. The hypopyon disappeared and the ulcer became quieter until January 13, when there was a slight renewal of activity deep within the substantia propria in the border of the ulcer nearest the center of the cornea. There was a slight hypopyon with renewal of pain. Heat at from 150 to 152 F. was then applied for one minute with a 5 mm. applicator. The edge of the applicator was pressed with special firmness against the most active part of the ulcer. There was rather extensive coagulation of the new epithelium that had grown over the site of the ulcer since the first application of heat.

January 15: The ulcer was quiet. There was no discharge. The hypopyon was gone. There had been no pain since three or four hours after the application. Most of the heated area was still bare of epithelium.

January 20: The patient had been slightly uncomfortable for the last two days. There was no discharge. There was a faint diffuse staining with fluorescein along the edge of the ulcer nearest the center of the cornea. There was no hypopyon. A slight gray infiltration along the central and lower edge of the site of the ulcer may have indicated some pneumococcic activity deep within the substantia propria. Atropin and cocain (oil solution) was used. It was decided to wait another day before applying heat.

January 21: The patient was comfortable last night. The gray infiltration appeared to be breaking up into isolated foci. There was no hypopyon. There was no staining with fluorescein. Coddington lens (1 inch focus) revealed the site of the ulcer nearly surrounded by a narrow bulla. Atropin and cocain were used.

January 24: The eye was quiet. The site of the ulcer was filling in. There had been a severe iritis along with the ulcer. There were numerous posterior synechiae and some deposit of the anterior capsule. V. = 3/60. The ulcer did not reach the center of the cornea, and if the deposit on the anterior capsule clears up good vision should be obtained. This patient was seen daily either by Dr. Spitze or myself, and is now in Dr. Spitze's charge. Treatment was complicated by a suppurative postethmoidal and sphenoidal sinusitis. These conditions were cared for by Dr. Arbuckle.

February 10: Dr. Spitze telephones that there has been no renewal of the ulcerative process. The cornea has cleared up and the globe is slowly quieting down.

Case 2.—Man, aged 56, appeared in Dr. William F. Hardy's service at Washington University Clinic, Jan. 16, 1917, with a corneal ulcer 6 by 8 mm. staining brightly with fluorescein. The eye was blind as the result of an old injury. It was treated with silver nitrate, 0.5 per cent., and atropin. It was bandaged.

January 17: All the symptoms had increased. The treatment was the same.

January 18: A very profuse mucopurulent discharge was soaking the bandage and gumming up the lids and lashes. The patient had had much pain last night. There was moderate hypopyon. The ulcer was larger. Cultures revealed probably pneumococci submerged in staphylococci. With the thermophor, heat was applied at from 150 to 152 F. for one minute to the upper half, and one minute to the lower half of the ulcer with a 5 mm. point. The whole surface of the ulcer was made somewhat gray by the heat.

January 19: The patient complained of pain in the head and the left jaw last night. There was much less discharge. The ulcer was cleaner. There was not much pain in the eye. The hypopyon was about the same as yesterday. Silver nitrate, 0.2 per cent., and atropin were used. A bandage was applied.

January 20: The patient passed a comfortable night. There was very little discharge. The ulcer was quiet. The patient

had the notion that the treatment (heat) had affected the other eye. No physical evidence of this was found. He could not be rid of the notion. Treatment was the same as before.

January 22: The eye had not been dressed for two days. The dressing was dry. The "eye felt fine." The hypopyon was gone. There was a small active area at the upper margin of the ulcer. This should have had heat treatment with a small crescentic applicator. The patient refused to permit this. Treatment was the same.

January 23: The patient had much pain last night. There was a moderate discharge. The active area noted yesterday was extending rapidly downward over the former site of the ulcer. The patient refused heat. He was turned over to an assistant for routine treatment. He disappeared from the clinic. This eye might have been saved either by a higher or more extensive initial application, or by repeating the application over the small area of exacerbation as soon as it appeared.

CASE 3.—A coal miner, aged 46, was referred to me by Dr. Spitze for heat treatment, and has since been cared for by us jointly.

January 18: The patient was struck in the right eye five days ago by a piece of coal. There was an ulcer at the center of the cornea 5 mm. in diameter. Hypopyon was 1 mm. high. Cultures and smear revealed pneumococci. There was very marked chemosis. The bulbar conjunctiva overhung and lay on the cornea for about 1 mm.

In this case the serious mistake of explaining the working of the thermophor to other physicians in the presence of the patient was made. The applicator was felt by these physicians and the audible comment on its hotness made. As a result the patient was nervous and apprehensive, expecting his eye to be burnt. Heat, from 150 to 152 F., was applied for one minute somewhat intermittently. The patient did not hold his eye still. This was done by artificial light, and slight changes in the hue of ulcer could not be made out.

January 19: Dr. Spitze reported that the patient had very little pain last night.

January 20: The ulcer was much worse and was spreading in all directions. The hypopyon was larger. The ulcer was too large to be covered by a 5 mm. thermophor point. Heat, from 150 to 152 F., was applied to the upper temporal surface of the ulcer for one minute and also to the lower nasal surface for one minute. Continuous applications were made. The patient exhibited some signs of pain.

January 21: Dr. Spitze reported the ulcer clean and much better.

January 22: The eye had not been dressed for about twenty hours. There was little complaint of pain. The ulcer was clean. The bandage was dry. There was no discharge. There was a small area of activity at the upper margin and another at the temporal margin of the ulcer. Heat, from 150 to 152 F., was applied to each of these for one minute with a 2 mm. applicator. They were washed with physiologic sodium chlorid solution. Atropin and cocain (oil) solution was used.

January 23: The patient had considerable pain, especially in the head, last night. The ulcer was generally clean. The active area at the upper margin of the ulcer was still somewhat active. The active area at the temporal side was quiet. The eye "felt fine" this morning. The hypopyon was smaller.

January 24: The conjunctiva at the upper limbus overhung the cornea and extended downward on it for 2 mm. Beneath this fold and sharply defined by it was a very active deep area of infection. All the rest of the cornea was quiet and translucent, allowing all parts of the iris and pupil to be seen. This focus emphasized the previous statement that pneumococci are most virulently active where not exposed to the air. By means of forceps the overlapping conjunctiva was held away from cornea and 154 F. was applied to the ulcer for one minute with a crescentic pointed applicator.

January 25: The patient had rather marked pain last night. The ulcerative process had stopped. There was a small quantity of fresh blood within the substantia propria at the center of the cornea. This was probably due to a small central perforation, although the anterior chamber was not collapsed and the iris did not touch the cornea. This perforation confused the effects of the heat somewhat, as such ulcers often improve rapidly after corneal perforation. The hypopyon had gone.

February 6: There had been no pain since the last note. Chemosis was gone. Epithelium was growing in over the surface of the cornea. Tension was subnormal. The anterior chamber was very shallow or absent. The iris and pupil were still visible, although the cornea was now somewhat turbid, as a result of reparative processes. There had been no foci of infection since the last heat application.

The ultimate outcome is still pending. The usual course of such a severe infection as this is total loss of the cornea with expulsion of the lens, etc.

CASE 4.—A laborer, aged 39, was referred to me for heat treatment by Dr. Meyer Wiener, and treatment has been conducted by us jointly. The man had been struck in the left eye three weeks before by a nail. There was a perforating wound of the cornea somewhat nasal to the center. A yellow abscess 2 mm. in diameter extended nasally from the wound toward the limbus. Earlier in the case this was an abscess with hypopyon, and the diagnosis of pneumococcus infection was established by Dr. Wiener. Under surface medication this improved until the epithelium covered the ulcer and converted it into an abscess. Improvement then ceased and extension began in the substantia propria. There was an exudate on the anterior capsule, and numerous posterior synechiae.

Jan. 29, 1917: Under thorough anesthesia with 5 per cent. cocain in suprarenal extract, 1:1,000, from 154 to 155 F. of heat was applied for one minute with a 2 mm. applicator. Continuous application was made. The patient had some pain. After the application an area 4 mm. in diameter stained with fluorescein. The center of the abscess stained more deeply than the rest of the area, which would indicate that the abscess had been unroofed.

February 2: The patient had had very little pain since the application of the heat. There was now a small moderately active ulcer at the deepest part of the former abscess. The epithelium was all replaced except over this small area.

February 5: There was an exacerbation, with more pain. The ulcerative process was active; 153 F. was applied for one minute with a 2 mm. applicator. The area about the ulcer turned slightly gray. The deepest part of the ulcer still appeared of a somewhat yellow hue. The application caused but little pain. Half an hour after application, the patient complained of the eye burning. This was quieted with an instillation of atropin and cocain oil solution.

February 8: There had been no pain since the last application. There was no discharge. There was no activity except possibly in the center of the site of the ulcer deep within the substantia propria.

February 10: There had been continued improvement, and no further pain. The site of the ulcer was somewhat gray. There was no staining with fluorescein. In this case it would have been better to use an applicator with a somewhat rounded, bullet pointed tip than one with a flat surface 2 mm. broad. The heat would have then been carried more effectively into the center of the ulcer. Such applicators have since been constructed.

These cases tend to confirm the experimental conclusion that heat, when properly used, is an effective therapeutic agent in pneumococcus infection of the cornea. It will be observed that the temperature is about what is stated as necessary for the immediate death of pneumococci in culture (from 65 to 70 C., 149 to 158 F.[2]). All temperature readings given in this article are those indicated by the thermometer. These readings are the ones most convenient to use in actual practice. In the previous article it was shown that the temperature of the surface in contact with the eye was less than that indicated by the thermometer, and that as the temperature increased this difference increased. When the thermometer indicates from 150

2. Besson: Technique microbiologique, Ed. 4.

to 155 F., the temperature of the surface in contact with the cornea, while in contact with the cornea, is about 4 F. less than the thermometer shows. The temperature of 152 F., therefore, which was found sufficient for the death of pneumococci in the cornea of the rabbit's eye, was actually only about 148 F. This difference was measured by means of a junction of a thermocouple placed in a fine hole drilled through the tip of the applicator parallel to the surface in contact with the eye, and as close to it as possible.

In all the work up to the present, the thermophor used has been the compact but rather complicated one shown at the Detroit Session.[1] It consists of a resistance coil, sensitive regulating strip, platinum contacts, etc., and was primarily designed for maintaining constant temperatures in the applicators for long periods of time. For practical purposes for one minute applications, a much simpler apparatus can be used.

The parts of such a simplified instrument are shown in Figure 1. In the left hand part of this illustration are four bullet-shaped objects. These are the applicators. Each one is hollowed out so as to receive the bulb of the thermometer. To the right of these is shown the "core" with an applicator and thermometer in position. This core is a heavy piece of brass (or copper) tubing 4 inches (about 10 cm.) long and 9/16 inch (about 14 mm.) in outside diameter. One end has a lock-nut in it for holding fast the thermometer, while the other end is reamed out properly for snugly receiving the applicators. The larger object to the right is a metal case 1¼ inches (about 32 mm.) in diameter, and a little over 4 inches (about 10 cm.) long. This is heavily lined with felt, has an opening at each end and a hollow space through the center just large enough to receive the core. It is an insulating jacket for retaining the heat. Figure 2 shows the jacket with core, thermometer and applicator in position as when ready for use.

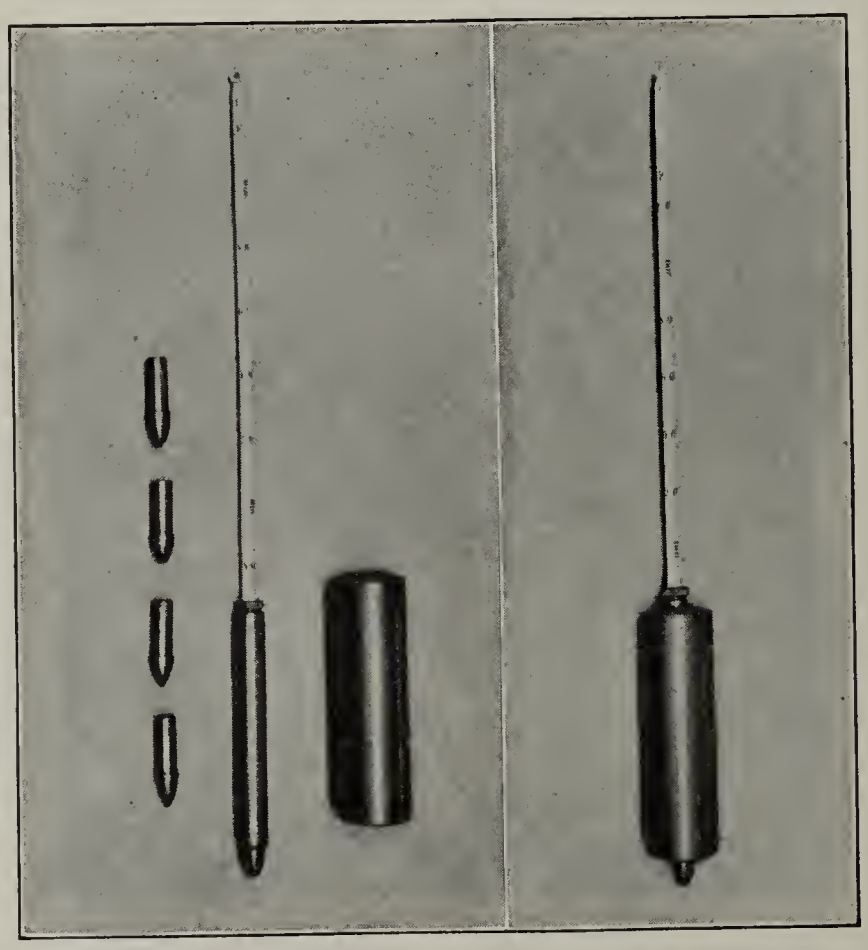


Fig. 1.—Thermophor parts: applicators, core with applicator and thermometer in position and felt lined insulating case.

Fig. 2.—Assembled thermophor, as it appears when ready for use.

When it is desired to use the instrument, a properly shaped applicator is selected and slipped into the end of the core. The thermometer is then slid through the lock-nut and core until its bulb is in the applicator as far as it will go. The thermometer is then fastened in place by a few turns of the lock-nut. Then, with the thermometer used as a stem, the core is held over a flame, as that of a Bunsen burner, until the mercury in the thermometer reaches about 170 F. The core is then slipped into the insulating jacket, where it will be held by the friction of the felt. The mercury in the thermometer is then observed until it falls to 156 F. At this instant the tip of the applicator is placed in contact with the ulcer and held there for one minute. During this time the mercury will fall from 5 to 10 F., according to the size of the tip of the applicator. The method of use is illustrated by the following case:

A coal miner, aged 50, was referred to me for heat treatment, Feb. 13, 1917, by Dr. E. C. Spitze of East St. Louis. He had been struck in the left eye ten days previously by a piece of coal. A pneumococcus infection set in and was treated by various cauterizing agents by Dr. Spitze. Also a hot copper mass was held as near the ulcer as the patient could stand for five times. Despite these measures, the ulcer steadily increased in size and severity. When he came to me, February 13, there was an ulcer 3 by 2.5 mm. in the lower nasal quadrant of the cornea nearer to the center than the limbus. There was marked injection of the bulbar conjunctiva, beginning iritis and much pain. The patient had been unable to sleep the past two nights. There was moderate discharge. The stage of hypopyon had not yet been reached. A smear revealed pneumococci.

The eye was thoroughly anesthetized with 5 per cent. cocain in suprarenal extract, 1:1,000, for about fifteen minutes. During this period the applicator, in position in the thermophor, was held against the ulcer several times before it was heated so as to accustom the patient to it. Care was taken that the word "heat" was not used in his hearing. When the eye was ready the core was slipped out of its jacket and heated over a Bunsen burner out of sight of the patient. The core was then slipped back into its jacket and the instrument laid on a table in view of the patient while the mercury was falling to 156 F. During this time more anesthetic was instilled and the thermophor picked up. At the proper moment the patient's lids were held apart with the fingers of one hand while the applicator in the thermophor was held against the ulcer with the other. The patient did not notice any difference between this application and the former ones made before the core and applicator were heated. Consequently he was calm and held perfectly still. The application, therefore, was constant and thorough. A casual question afterward elicited the response that it did not hurt. A 3 mm. applicator was used for this. An area 4.5 mm. in diameter was denuded of epithelium. Shortly after the application considerable pain developed and was controlled by cocain, or oil solution of atropin and cocain, about every half hour for about three hours. The pain was such as follows a burn.

February 14: The patient "slept fine" last night. There was no discharge. No pain was felt. The ulcer was clean and everywhere free from yellow infiltration. Epithelium was replacing itself from all parts of the periphery. The area of denudation was now 3.5 mm. in diameter. Atropin and cocain (1 per cent. each) oil solution was used several times. Excellent mydriasis was obtained.

February 15: There were no pain and no discharge. The ulcer was replaced by gray surface. The area of denudation was 3 mm. in diameter. It was washed with physiologic sodium chlorid solution. Atropin and cocain in oil solution were used. A light bandage is kept on all such eyes until the epithelium is completely replaced.

February 16: There was no complaint. The area of denudation was 2 mm. in diameter. Treatment was as described above.

February 17: There was no complaint. The area of denudation was 1.5 mm. in diameter.

February 19: There was no complaint. The conjunctival injection was disappearing. An area of 0.75 mm. stained with fluorescein. There was steady filling in of the excavation in the substantia propria. There was no undermining or any symptom of pneumococcic activity. With + 1.50 sph. V. 20/60 +. The iritis had done no harm. The nebula was eccentric. The prognosis for complete recovery was absolutely good. Yet I have seen just such cases as this go to complete destruction of the cornea with extrusion of the lens, in my own hands as well as in the hands of my associates, despite most vigorous and conscientiously applied methods. The somewhat higher initial temperature of 156 F. was used because the temperature of 152 F. constantly maintained did not always stop the process in one application in the human cornea, and because in the simplified thermophor the temperature is steadily falling during the application.

In using the thermophor care must be taken to see that the thermometer is in order. One series of experiments was spoiled by a small volume of gas (some thermometers have a small amount of nitrogen in their stems) breaking the column of mercury and holding it so that the parts could not reunite. When this occurs the thermometer bulb is put into a freezing mixture and cooled until the mercury is all in the bulb. The gas then diffuses itself in the stem and the mercury column rises unbroken. Another series was spoiled by an appreciable quantity of the mercury becoming fixed in the small dilatation at the top of the thermometer stem. This gave false readings which caused the use of points hotter than was desired. In this case the bulb of the thermometer is cautiously heated over a flame until the mercury in the stem reaches and unites with that in the dilatation. On cooling, the mercury sinks as a continuous column and correct readings are obtained.

NOTE.—Since the foregoing article was written, nine additional cases of serpiginous (pneumococcus) ulcer have been treated by means of the simplified thermophor. The results have been most gratifying. The infective process was stopped definitely in all but one case by one or two heat applications. It was found best, however, to use an initial temperature of 158 F. instead of 156 F. as being more certain to stop the process in one application of one minute's duration. Also a series of experiments on the normal corneae of rabbit's eyes showed that one minute applications up to 170 F. merely increased the depth and intensity of the resultant nebula without causing any necrotic changes leading to corneal perforation. A temperature of 190 F. (dropping to 180 F. during the one minute application) caused intense whitening of the substantia propria, followed in a few days by extensive vascularization of the treated area and some bulging of this area but no necrotic changes leading to perforation.

The effective temperature 158 F. for one minute is, therefore, far within the limit of safety for therapeutic uses on the cornea.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. VERHOEFF AND SHAHAN

DR. WILLIAM C. POSEY, Philadelphia: At Wills Hospital we see many infected ulcers of the cornea. Our method of procedure is as follows: In mild cases if we find the Morax-Axenfeld bacillus we use zinc, often with excellent results. If the pneumococcus is found we use ethyl-hydrocuprein (optochin), and often in mild cases the results are good. During the past winter we have been using the pneumococcic serum. Before coming here, on questioning the house surgeon, who has been following up these cases, I found that he was not sure that he had seen any one case in which the serum had been of positive worth. We see many bad cases in which the patients have been injured in the mines. They do not get to us until some days afterward, so that we frequently find half or three-quarters of the cornea ulcerated and exudate in the anterior chamber. In these cases we do at once a Saemisch section—a modified Guthrie-Schwenk-Saemisch section. We follow the method outlined by Dr. Schwenk. The patient is etherized and after the knife is carried into the anterior chamber, instead of drawing it out at once so that the aqueous flows out rapidly, the knife is rotated and the pus slowly flows away. Frequently such eyes heal without prolapse of the iris and very often without anterior synechia; so that after irridectomy is done they have useful vision. I hope Dr. Schwenk will speak of the method. After the hypopyon has been allowed to flow out, iodoform is dusted on the surface of the eye and a compress bandage applied. Dr. Verhoeff's deductions are scientific and logical, and his methods of treatment certainly demand a fair trial. His results, however, in his bad cases I do not think are as good as those we have had at Wills with the methods I have just described. Out of forty-two cases, twenty-one were very bad cases in which no vision was saved in his series; three eyes had to be enucleated; two others, he says, were lost, probably also demanding enucleation; five of the twenty-one bad cases were lost. Also, as he says, if iridectomy could have been performed he would have obtained useful vision.

DR. EDGAR S. THOMSON, New York: I am somewhat at a disadvantage in that I received one of Dr. Shahan's thermophors only a few days before the meeting and was unable to use it because we had no suitable cases at the time. However, I should like to say that my experience has been the general one with regard to these cases. The pneumococcic serum, it seems to me, has doubtful value. With optochin some improved and others were disappointing; and of course we know the value of cauterization. The principles on which Dr. Shahan is working are incontrovertible. A method to do the least possible damage to the cornea and at the same time destroy the pneumococci is what we want. We have had evidence of the clinical value attached to heat, so that I think his method deserves extensive trial. He has fairly well shown that there is not much damage to the cornea in this one-minute application. Whether it will destroy all the infection in this class of ulcers is another question. We all know that the virulence of bacterial strains varies, and a large series of observations is necessary to determine the status of the method. The outlook seems to me to be rather hopeful.

DR. PETER N. K. SCHWENK, Philadelphia: The modification of the Saemisch incision is a simple one and to my mind very important. Saemisch passed his knife across the anterior chamber, made a puncture and counter puncture, the cutting edge of the knife anteriorly, and cut directly forward, cautioning not to rotate the knife on its axis. That relieved the tension suddenly and naturally pushed forward the iris, lens and the contents of the ball. It occurred to me that after the counter puncture if the knife was made gently to press backward to equalize the tension, then rotated on its long axis, causing a gap or opening at both ends of the knife to allow the fluids in the anterior chamber to flow out and gradually release the pressure until tension was nil, then to replace the knife edge outward and cut out slowly, it would prevent the prolapse of the iris. The operation must be done under general anesthesia, and the incision must not be made rapidly but patiently and slowly. If you do that you will have no anterior synechia. At Wills Eye Hospital we get the majority of the patients before the time for operation has arrived and cure them. Unfortunately, we get neglected cases from the country towns, and especially from the coal regions, and these are the patients on whom we are obliged to operate. Of late, I have paid much attention to the subject, and I believe there are several grades of the pneumococcus varying in strength, as described by Henderson and Lehnfels.

Depending on infection with malaria, a 3 per cent. solution of quinin has been used, supplemented by about 8 grains of

quinin a day in 2 grain doses. This arrests the process without corneal destruction. But the pneumococci of the first type are the destructive pneumococci. Lately, after having cocainized the cornea, and applied phenol, making a thorough application, wiping off the white film and again reapplying the phenol, followed by a free application of glycerite of tannin, which will agglutinate the streptococci or pneumococci in the conjunctiva, I have found this to be one of the most satisfactory treatments. My last four patients have been treated by this method. Some say we should confine the patients to bed. Three patients coming from the country nearby I wanted to admit to the hospital. I believe they saved their eyes by declining. Confinement is deleterious and they should stay outdoors.

Dr. John E. Weeks, New York: In regard to the diplobacillus ulcer, if our bacteriologic examination shows it to be such, the zinc salts are specific. But let us understand what the condition is in pneumococcic ulcer as described by Morax and Axenfeld and demonstrated by microscopic section. There is no overhanging lip and edge when the ulcer is not advancing, but when the ulcer is advancing there is an overhanging lip and the ulcer is typical. We will find the pneumococci in the lamellae of the cornea which have not broken down. We should reach these pneumococci with our treatment. It is my habit to cocainize the eye thoroughly and cut away the lip and gently curet the base of the ulcer. Then I have a surface to which I apply my antiseptic or germicide, whatever it may be. I have found, if I use a germicide other than the cautery or heat, that formaldehyd is one of the best we have. It has given in my hands better results than the tincture of iodin or any iodin preparation. Formaldehyd solution in the ordinary commercial strength reduced to 8 or 10 per cent. in sterile water, should be applied to the surface of the ulcer, particularly in the vicinity of the pneumococcic infection. That should not be allowed to spread out over the epithelium. The epithelium should be dry, the surface of the ulcer should be dry, and then this application, which will not flow over the cornea, made to the base of the ulcer. A surer way is to apply heat, particularly to this portion of the ulcer. For the application of heat it is my plan to use a platinum bulb with a spirit lamp; bring it to a red heat, apply it carefully, touching every portion of the surface, but lightly, so that the resulting scar will not be very dense. Afterward I use an ointment of mercuric chlorid 1:3,000 or 5,000 in petrolatum and bandage the eye. If the tension of the eyeball is plus, I use a drop of pilocarpin. That, in cases in which the ulcer is not very far advanced, will bring about a cure in a short time. The eye should be treated and the bandage renewed about three times a day. If after a day or two there is a spot of inflammation, renew the cauterization at that point.

Dr. Elmer G. Starr, Buffalo: I have great faith in covering the ulcerating cornea with conjunctiva. Dr. Verhoeff speaks of this, but is not impressed with its virtue. He speaks of the difficulty of keeping the conjunctival flap in place. It is often difficult to do this. Of course if the ulcerating area is not covered we cannot expect much benefit from the flap. Most authorities who mention covering the ulcer with a tongue or flap of conjunctiva speak of this difficulty, and it is true that where a small tongue of conjunctiva is stretched across the cornea under considerable traction the retaining stitches are prone to cut out within one to three or four days. The difficulty which I experienced with that led me to adopt a different technic. Latterly now in extensive corneal ulcer, my plan is to incise the conjunctiva all around the cornea, undermine it well, put in a purse-string suture and cover the entire cornea in that way. There is no particular tension at any point and the suture holds very much better. I believe the ulcer must be covered and kept covered, not for a few days, but for a good many, preferably for a week or two in extensive, deep-seated ulcer. Where I have been able to cover the cornea and keep it covered I have yet to be disappointed in the result. It seems to me Dr. Shahan's results have been very promising indeed. I should like to ask what his procedure is in ulcers involving one-half or two-thirds of the corneal surface. Does he attempt to cover the entire surface with one treatment?

Dr. John A. Donovan, Butte, Mont.: A marked feature of these papers is the authors' anxiety to save tissue and to do no harm. It is my experience that so much tissue is already lost that to save a little extra is immaterial. Dr. Verhoeff has added another method to corneal ulcer treatment, and we are grateful for an additional method, because times come when we use them all. When Dr. Verhoeff gave his results, however, I was disappointed. I do not see that the results are better than by any other method. The method of treatment by applying heat, which Dr. Shahan has given us, is another excellent method. There is no question about the efficacy of heat. The method of using it makes it a little more complicated. I still stick to the electric cautery. The point made by Dr. Weeks of undermining the edge of the ulcer is good. When using the electric cautery in making a puncture, I use the cautery point red hot, sometimes a little more, and make it deep enough to get down into the corneal tissue between healthy and diseased tissue. This will always check the ulcer, at least for a while, but in some portion of the spreading edge it may not stay checked. Then I make little punctures with the cautery, having the point heated before putting it on; then to cover the ulcer I leave it at a black heat, testing the temperature on a bit of cotton, which may smoke. One can accomplish everything by that method, and do it more quickly and easily. Using the electric cautery, I know where the temperature is, and I find you lose as little tissue as with any other method. Hundreds of cases of simple ulcer can be touched with black heat and they will heal up without apparently any scar or loss of tissue. If they are bad, then you do not need to worry so much about loss of tissue; to save the eye you are fortunate. The results from that treatment I think are better than those Dr. Verhoeff has described for his treatment. In addition to the methods described, the injection of salt solution or mercuric cyanid solution, 1:1,000, is very beneficial. It is painful. As to putting patients to bed, I never put them to bed unless in severe cases, and if I see it is not beneficial I let them up.

Dr. Melville Black, Denver: Dr. Verhoeff does not have much to say about subconjunctival injections. After a long experience with mercuric cyanid I insist that it is of very great value. If I had an eye going to the bad from keratitis with hypopyon, I should wish it used at once. I am sure that many have failed to get results from it because they have not used it right. A few drops injected at intervals of a few days is worse than useless and only brings the method into discredit. If results are to be obtained, from 20 to 30 minims must be injected, and the strength should be from 1:1,500 to 1:2,500 in accordance with the severity of the infection. I add ⅓ grain of novocain to the dose to be injected, and if the pupil is not well dilated 1/100 grain of atropin is also added. The eye is first well cocainized. The needle should be pushed through the conjunctiva by a quick thrust and the latter not picked up with forceps, as they tend to tear it and allow the fluid to escape. The average hypodermic syringe does not hold more than 15 minims; therefore an extra large size should be procured for these injections. The novocain prevents all pain at the time of the injection and for an hour or so following. The next six or eight hours there is a dull, deep ache, but it is not at all unbearable. The next day there is great chemosis and lid swelling, but like the singed cat, it looks worse than it feels.

Arthur G. Bennett, Buffalo: I want to bear testimony to the efficacy of the method spoken of by Dr. Starr. In Buffalo we have a great many ulcers to deal with, and covering the cornea with a conjunctival flap has in our hands acted most admirably. I have seen the most desperate cases, cases that I did not think could be saved, make the most wonderful recoveries under the flap. The point Dr. Starr makes is that you must keep it covered for a considerable time. The stitches will have a tendency to break away, but it is not difficult to put in a reenforcing stitch which will hold it for about seven days. It is not always necessary to keep it in position for seven days, for I have seen the con-

junctiva adhere to the ulcer. That appears to be a complication which one would think would give an eye with a dense leukoma; but in a case treated about a year ago in which the conjunctiva became adherent to the ulcer, after the process had ceased I divided the conjunctiva from above the ulcer, and then, after the eye had quieted down, simply stripped the conjunctiva off, with a remarkably clear cornea. That was a most desperate case. The ulcer was advancing. From the size of 1 mm. one day it had almost entirely covered the cornea the next day. That case Dr. Starr saw afterward with almost a clear cornea. My success with optochin has been greater than Dr. Verhoeff says his has been. I think it is good.

DR. R. L. RANDOLPH, Baltimore: My experience with this variety of corneal ulcer has not been very extensive, yet I see cases now and again. I do not regard the mere presence of exudate in the anterior chamber as necessarily serious, for, as Dr. Weeks has said, this exudate is usually sterile. Touching the area of the ulcer with phenol in the early stage of the ulcer has given me better results than anything else. Along with this measure, irrigations with normal salt solution are very valuable. The irrigation should be directed exactly to the spot, and this can be done best by erecting over the patient (on his back) a drop-bottle such as we use in the laboratory when making sections with the microtome. These instillations should be made every hour and should last five minutes at a time. Atropin of course is always demanded. The use of phenol, then, and frequent irrigations with salt solution at body temperature, constitute the treatment. I have never been at all satisfied with the use of heat in these cases, and have been disappointed with the galvanocautery. In my experience a pressure bandage acts admirably; exactly how, I am unable to say. It may help the nutrition and circulation of the eye and in this way promote the more rapid disappearance of the exudate in the anterior chamber.

DR. S. LEWIS ZIEGLER, Philadelphia: I am glad to learn from Dr. Verhoeff's investigations that a form of iodin can be applied to the eye without causing pain. I have used Lugol's solution internally in exophthalmic goiter with success, but I have never applied it locally. Tincture of iodin is extremely painful when applied to the cornea. A patient some years ago stated that tincture of iodin had been applied to his eye once, but that he would shoot the next man who would use it. Naturally, I did not apply it. The serum treatment has proved successful in certain cases in my hands, but not sufficiently so to depend on. For many years we relied on the Saemisch incision. Seeing a number of adhesions and a certain weakening of the cornea in large sloughs, led me to try peripheral paracentesis, which gave the same effect. I think it is really the flaccidity of the cornea which has a great deal to do with stopping the suppurative process. Following paracentesis we could obtain, if you choose, the removal of the hypopyon as a coagulum either with the Graefe dressing forceps or the Schmidt spoon forceps, and follow this with irrigation.

Speaking of Dr. Shahan's method, I have used heat only in the form of the heated cautery point, sometimes applied directly and sometimes applied as radiant heat; that is, not in contact. After cauterization I use the method Dr. Weeks spoke of, applying a solution of formaldehyd, not stronger, however, than 3 per cent., usually 1 per cent., with a small pledget of cotton wound tightly on the end of an applicator, wetting it with the formaldehyd solution and removing the excess of moisture so that it will not spread to healthy tissue. The formaldehyd is then rubbed into the sloughing cornea until the ulcer is thoroughly macerated. The eye is then washed with boric acid solution. This method is just as applicable to corneal ulcer when you do not make a cauterization. I prefer to use it after cauterization, because the resulting scar is reduced and modified by the application of the formaldehyd; in fact, there is always less scarring when formaldehyd solution is used. Another point that might be mentioned is that a great many cases of sloughing keratitis, even after traumatism, are due to infection from the tear duct. The cause should, therefore, be removed. It has been my habit to stretch the tear duct by rapid dilatation in order to promote drainage and to prevent recurrence of the infection. This procedure has a very marked influence on all forms of corneal ulceration due to lacrimal lesions.

DR. F. PARK LEWIS, Buffalo: In the first place, the desideratum we all have in view is simplicity of apparatus, with efficiency. I believe that one of the added elements in the use of heat is the desiccation that comes from it. I have therefore used superheated air, by which one gets as nearly as possible the temperature Dr. Shahan thinks most desirable. After a good deal of experimentation to get an apparatus to get the air at the right temperature I found that such an instrument had been made for the rhinologists. It is simply a rheostat which can be attached to the air tank and a gradation of the heat obtained as you choose, and the superheated air directed on the infected area. In that way we not only sterilize the point covered, but it goes deeper into the tissues, as Dr. Weeks pointed out, under the overlapping edge and into the layers of the cornea; and the heat can penetrate without destruction of tissue. I have found its use in this way has in many cases produced results which no other method gives.

DR. L. WEBSTER FOX, Philadelphia: I have been listening for the name of one of California's pioneers in ophthalmology who applied heat in corneal ulcers—Dr. Barkan. He introduced this procedure many years ago and it has been followed by operators in all parts of the world. I have tried all the things that have been promulgated and have found them of value, each and every one. There is one additional drug that I am going to add from the dentists, and that is trichloracetic acid. I have used it in 1, 2, 3 and 10 per cent. solution, and it has been one of the most valuable adjuncts. It is not exceedingly penetrating, but has penetrating power to find its way into the spaces of von Recklinghausen where the cocci find lodgment and break down the tissue. I am sure if you will use it in 1 to 30 per cent. you will find it most valuable, and as a means of driving away hypopyon it is one of the most useful drugs I know of. As to heat, I have tried Prince's method. I found it was not as satisfactory as we had hoped. I devised a coil of platinum which we put over the ulcer, and then with five seconds on and five off every minute I thought I got good results. As to the Saemisch incision, if any one will read Guthrie's method of puncturing the cornea they will admit that the Saemisch wasn't the lightning stroke, but the slow, deliberate puncture with a very fine knife. You will find the description in Guthrie. I have had no experience of pus flowing out and causing prolapse of the iris, because in every irritation of the cornea, or in an ulcer, which is a terminal infection, we find the iris will contract, and where you have evidence of pus you have inflammation and the iris will not prolapse unless a great deal of force has been used in executing the counter puncture. Therefore I feel if you will perform the Saemisch incision as the original man did you will have no trouble.

DR. WILLIAM ZENTMAYER, Philadelphia: I have had an experience with ethyl-hydrocuprein in about fifteen cases. I am quite sure my results have been much better than by any other single method or better than all the other combined methods. In fifteen cases I have not lost a single eye. Perforation occurred in about three cases. All the patients had good light perception and many had useful vision. I believe that this is a good result for any method of treating pneumococcic ulcer, especially the class of cases at Wills Hospital. You have been told that we often get them in a desperate condition. I believe optochin is worthy of further trial.

DR. FREDERICK H. VERHOEFF, Boston: I think those who have criticized the visual results I have reported have failed to note that the tests were made at the time the patients were discharged from the hospital. I attempted to keep track of the patients afterward, but it was so difficult I gave it up. I do not myself attach a great deal of importance to the visual results, but to the fact whether the ulcer was stopped in its progress. For instance, in some cases, although the ulcer was promptly healed, the iris was already tied down so that there was no clear space around the corneal scar. Since

my paper was written, some of these cases have returned for optical iridectomy and obtained useful vision.

In regard to Dr. Shahan's method of applying heat, it seems to me it might be effective for moderate sized ulcers, but that the resulting scar would not be less in extent than that following other methods of cauterization. In large ulcers it seems to me that to kill the bacteria at the edge of the ulcer sufficient heat would have to be brought to bear to cause considerable opacity in the clear cornea. As he says, sufficient heat to kill bacteria will cause permanent opacity in the rabbit's cornea. This means considerable injury, because the rabbit's cornea has a greater power to clear up than the human cornea.

Dr. William E. Shahan, St. Louis: Twenty-two cases have been treated by this method since December. Saemisch section was not required in any; none came to enucleation; the process was stopped in all. Final vision acuity depended on the size and situation of the original ulcer. The scar from a small central ulcer caused a greater visual loss than that from a larger peripheral one.

With ulcers larger than the largest point, the point at 158 F. was applied steadily for one minute to a part of the ulcer, then reheated and applied to another part, until all the ulcer had had a continuous application for one minute.

The advantage of this method of thermotherapy over all others is its exactness. We can reproduce the same condition every time and soon learn precisely what to expect. Moreover, heat applied in this way affects not only the surface of the ulcer, but passes directly through the cornea into the anterior chamber. This was proved by thermocouple measurements in the paper read at the Detroit session, and its practical value shown in a case of intracorneal abscess due to a perforating wound. There was a pneumococcus infection with hypopyon, etc. The wound closed leaving an abscess which would not heal and could not be reached by surface applications. Two or three one-minute applications of heat at intervals of several days stopped all symptoms and brought about permanent cure. This was a case of Dr. Wiener's.

The additional clouding caused by the heat can be limited accurately to the area of the ulcer and is of negligible importance as compared with an extension of the ulcer.

Several of the cases cured by this method had been fruitlessly treated with optochin. In fact, most of the cases had been vigorously treated by various methods before the heat treatment was applied. Three rodent (Mooren) ulcers were treated by this method without any benefit. This type of ulcer does not appear to be due to bacterial activity.

Immobilization of Tuberculous Lung by Extraction of Intercostal Nerves.—The *Ugeskrift for Læger* gives a summary, p. 383, of an illustrated article by Warstat in the *Deutsche Zeitschrift für Chirurgie* describing his success in excluding the tuberculous lung from participation in respiration by extracting a stretch of each intercostal nerve on that side. Attempts have been made to arrest the functioning of half of the diaphragm by severing the phrenic nerve. But the effect of this is restricted to the lower portion of the lung, while tuberculous processes usually are located in the upper portion. The upper portion can be immobilized by paralyzing the thoracic muscles of respiration. He exposes the intercostal nerves from the second to the eleventh, inclusive, his incision being along the margin of the erector spinae. He cuts each nerve distal from the dorsal root, and then twists the distal end of the nerve out with forceps. He applied this operation to sixteen rabbits and one dog, and when killed weeks or months later the lung was found materially reduced in size and of solid consistency. The abdominal muscles did not seem to feel any effect from the operation, either in the animals or in the two clinical cases in which he has applied it. In his first patient that half of the thorax did not participate at all in inspiration, and in three months was much flatter. The patient's condition had improved notably by the end of six months, the tuberculous process having been unmistakably arrested. There was no cavity in the second patient, and the whole set of symptoms disappeared in the course of a few months.

CUFF OPERATION FOR NEPHROPEXY

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CHICAGO

A review of the literature reveals many different methods for kidney fixation. It seems that thus far none has been accepted as a standardized way for this

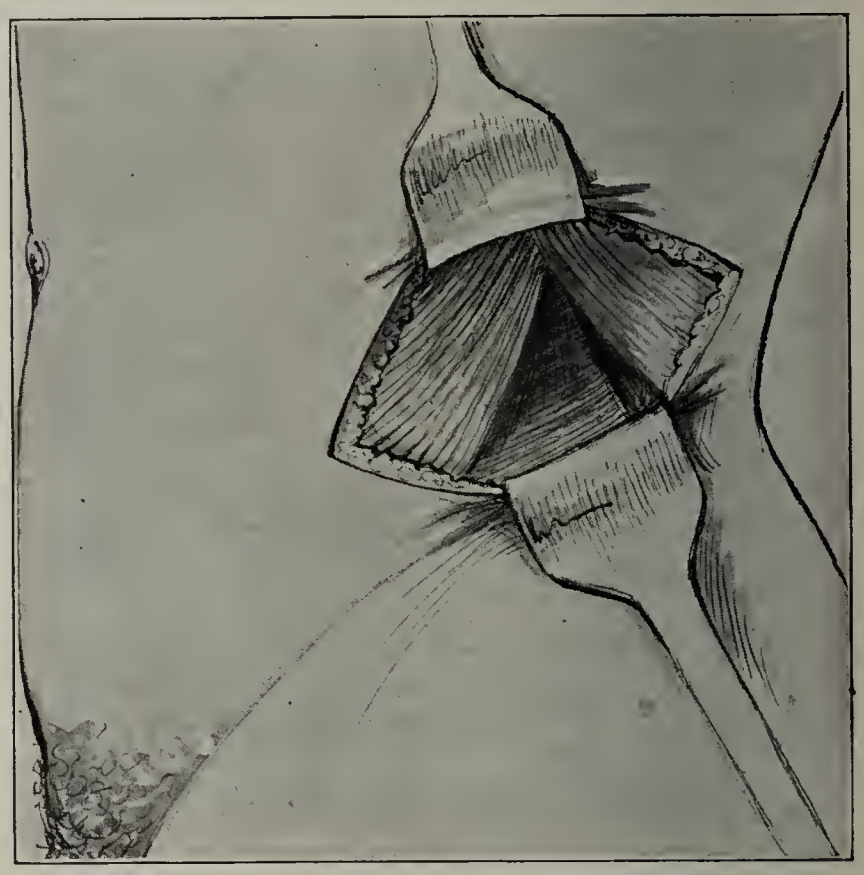


Fig. 1.—Full exposure of Petit's triangle.

operation. Albarran, a French surgeon, suggested the splitting of the capsule, and used it as a layer to make the fixation. Hahn, a German, suggested the splitting of the capsule into four parts. He separated



Fig. 2.—Easiest way to deliver kidney, upper pole first.

the capsule longitudinally and divided it so that the upper pole and the lower pole could each be fixed by two anchors. A number of various methods

could be enumerated, with most of which all are familiar.

The one about to be described is offered as a suggestion. I have used it in a number of cases with

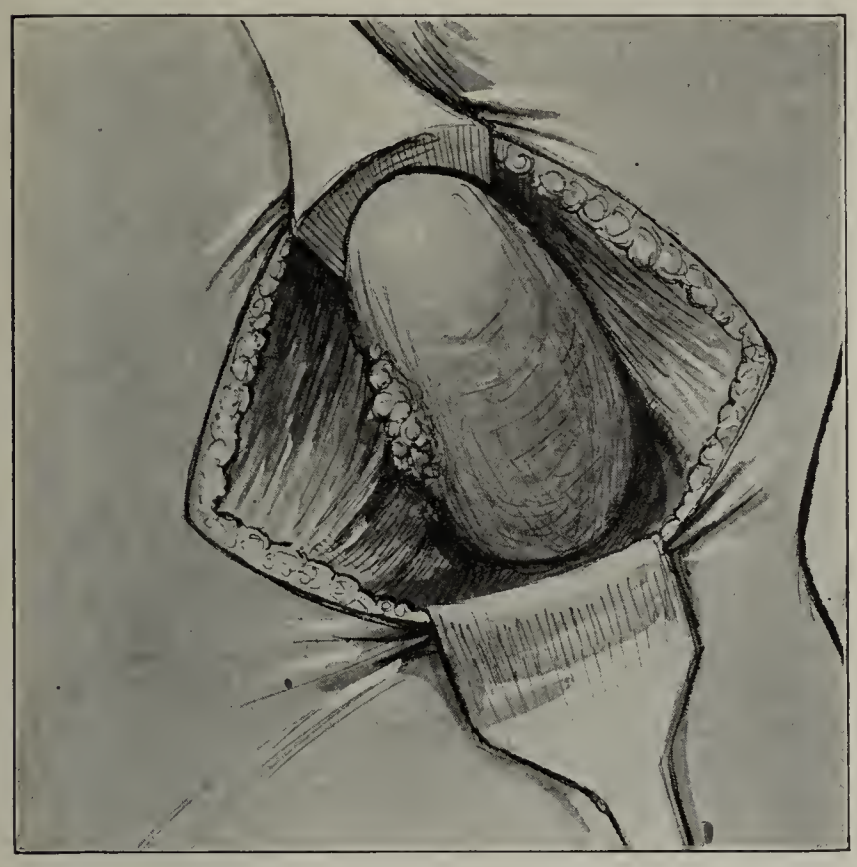


Fig. 3.—Free delivery of kidney.

most gratifying results. Petit's triangle is divided and the kidney exposed. The capsule is split from pole to pole and separated carefully on each side of the kidney down to the hilum. If the capsule is fairly

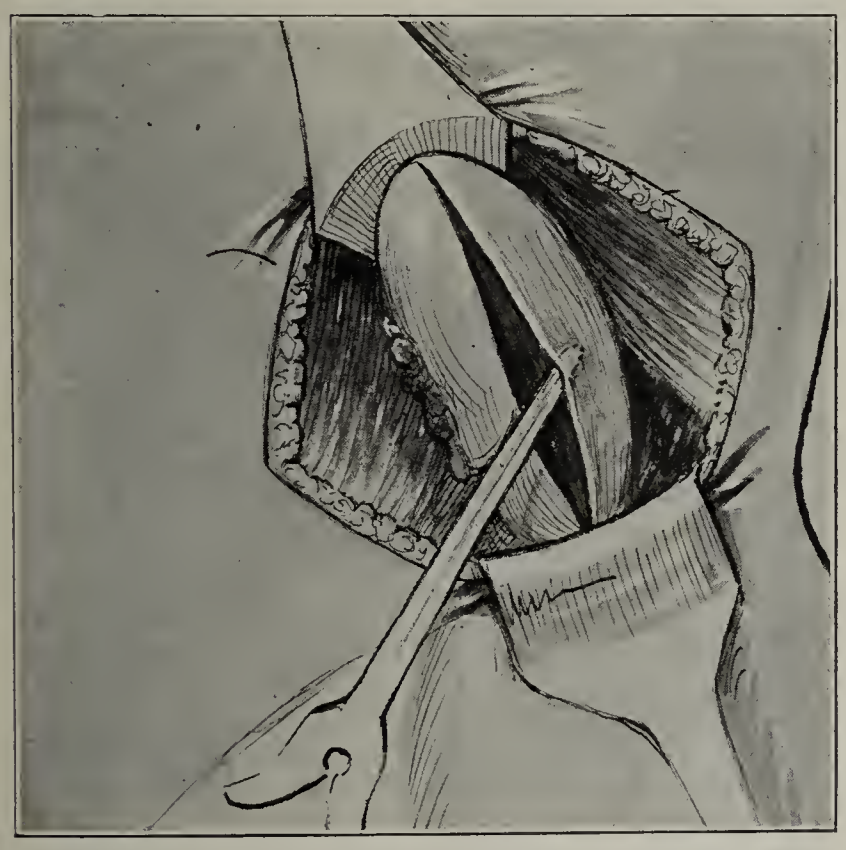


Fig. 4.—Decapsulation of kidney from pole to pole.

firm and thick, the cuff may be made out of three or four thicknesses of the capsule by folding it on itself. Then a mattress suture is introduced through the capsule at both the upper and lower poles on both sides of the kidney, thus making four strong anchor points. In this method, it is not necessary to decapsulate to the hilum. If the capsule of the kidney is thin, and one fears that the tension would be too great on the capsule or would allow the suture to pull through or let the kidney go back to its former position, it may be necessary to fold the capsule back on both sides to a point at which they come together, this point being above and below the hilum. Here a mattress suture may be inserted at both the upper and lower poles and used for the fixation; this forms a ligament.

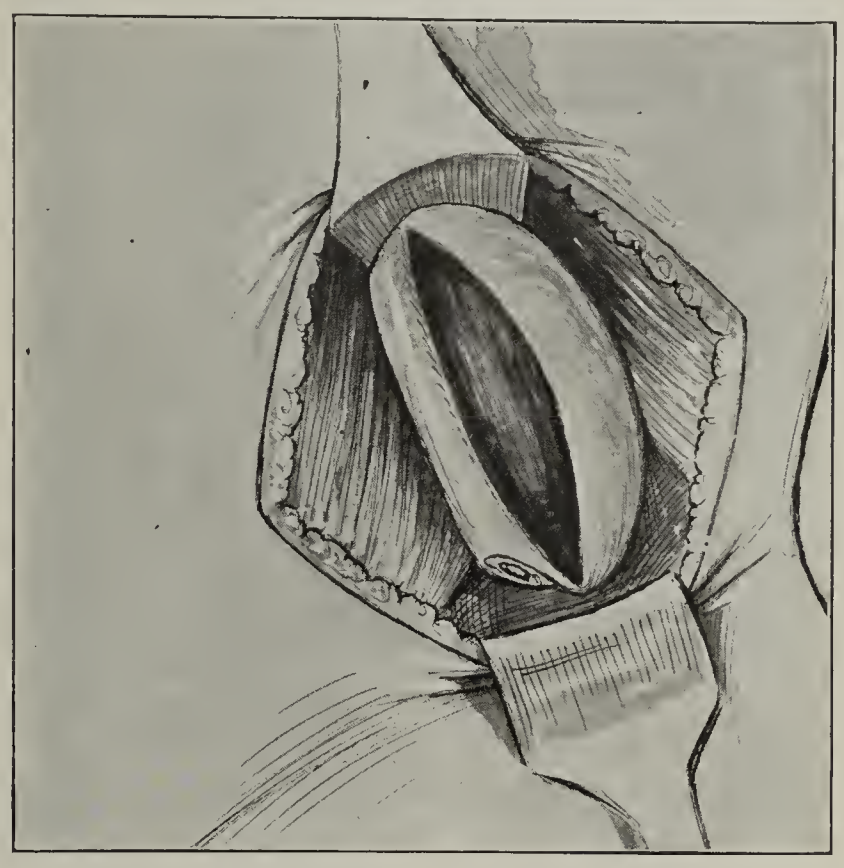


Fig. 5.—Capsule folded on itself on side of kidney.

It may be seen from the illustrations how thick the capsule is when the two parts are brought together, and what an effective anchorage point can be made

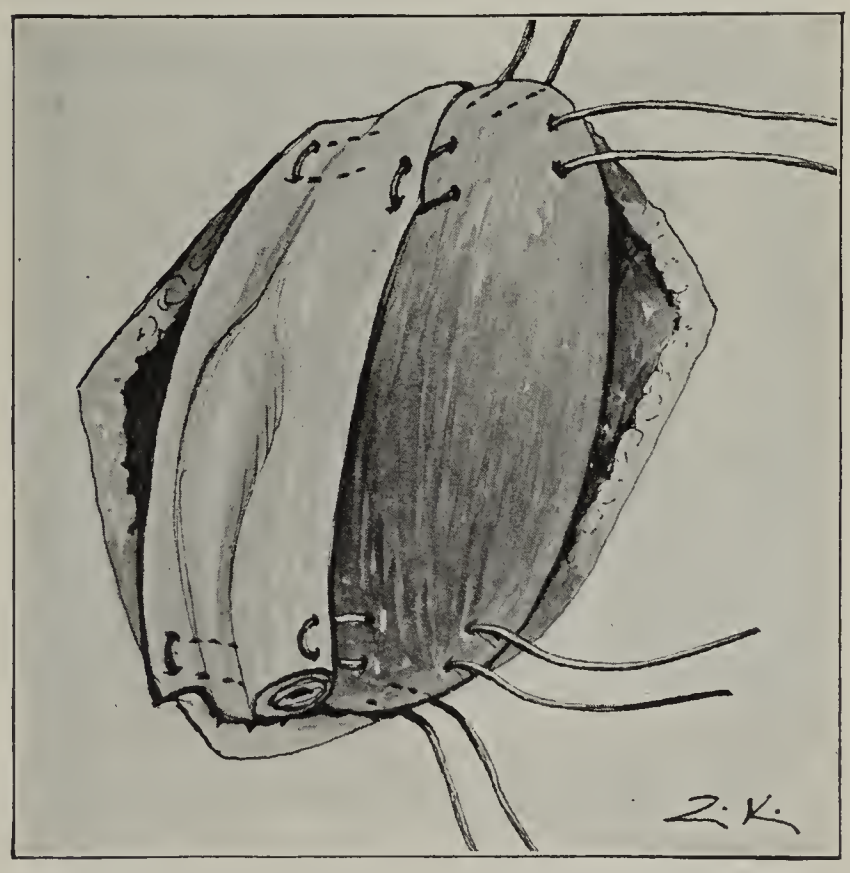


Fig. 6.—Kidney capsule folded and mattress suture in place. The suture could not be shown as it really is through the kidney parenchyma.

of it with a mattress suture. It will be noted that Hahn used only a single layer of the capsule. Albarran also used a single layer, but used it in four distinct

anchors. The particular weakness is that the sutures will either pull through, or the capsule will stretch away from the parenchyma of the kidney.

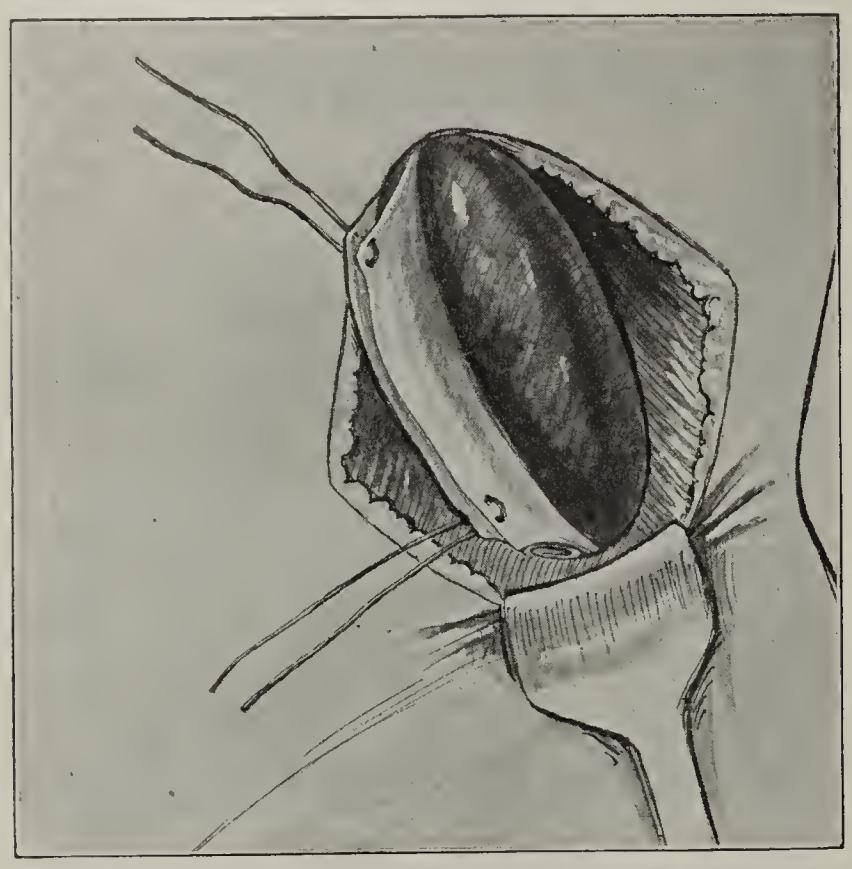


Fig. 7.—Capsule denuded of both sides and brought together as a kidney ligament for fixation.

The question may be raised that if a cuff operation is done, the last fold of the capsule next to the kidney would play the same part as in the operation mentioned above. This question would come up only when the operation was done without completely decapsulating the kidney down to the hilum and the kidney sutures placed in the folds on each side. This can be easily overcome by placing the sutures through the parenchyma of the kidney, thus holding it firmly to the kidney itself. When the capsule is completely denuded as far as the hilum, there is no chance of pulling through, as the folded capsule is too thick an attachment.

After the kidney is put in position and the capsule ligament is sutured firmly to the muscles, the next step of the operation to be taken up is picking up the fatty capsule which has fallen away.

The capsule is brought up over the denuded surface of the kidney and sutured to the muscle. This

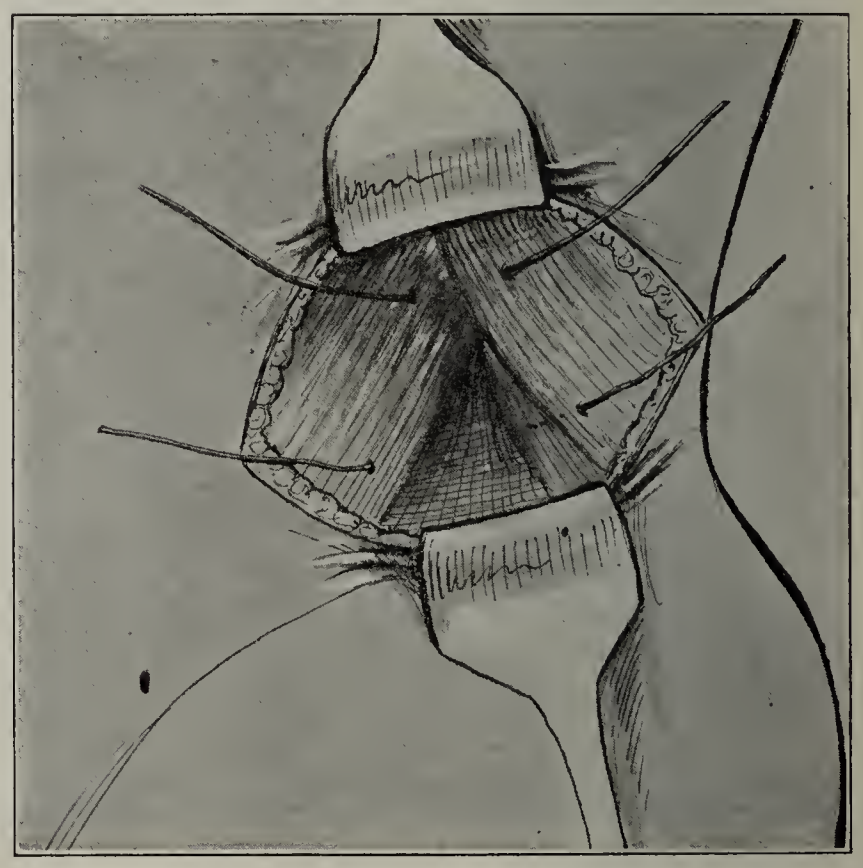


Fig. 9.—An easy and simple method of closing Petit's triangle.

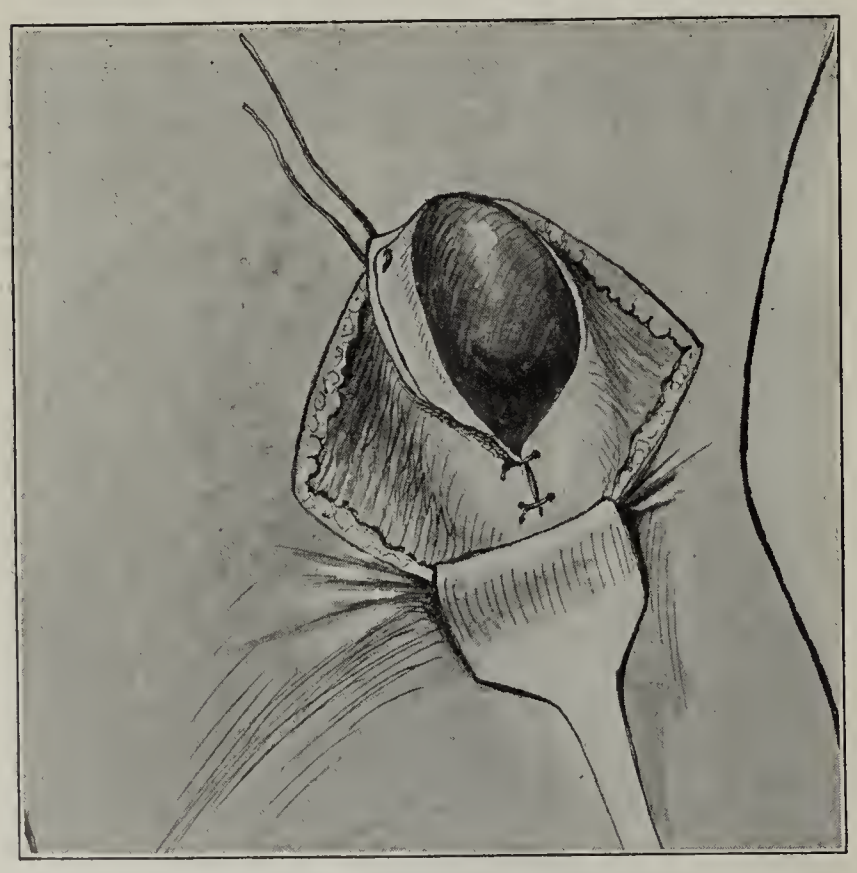


Fig. 8.—Putting kidney in place and closing wound.

reinforces the fixation by adhesions between the fatty capsule and the kidney proper. The third step consists in placing one or two sutures into the peritoneum

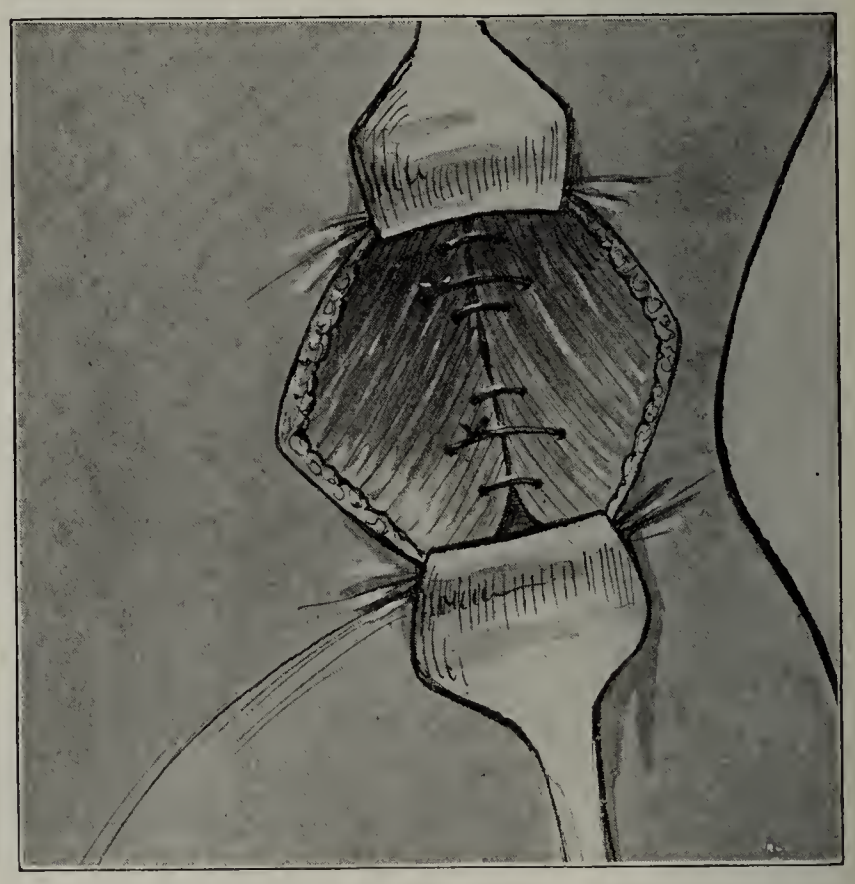


Fig. 10.—Improvement over old method of closing kidney incision.

and closing the space underneath the kidney. This is Swenson's suggestion. Thus far we have tried the foregoing technic in six cases with good results.

The wound is then closed with three or four sutures through Petit's triangle, and the skin is closed with silkworm-gut uninterrupted sutures. The patient is taken back to bed and kept in a recumbent position from ten days to two weeks. At the end of this period, he is allowed to get up and walk about the hospital for three or four days until he has gained sufficient strength to be discharged. It will be noted that the patient has no difficulty in walking about, and is not inconvenienced by having had the operation. This is due, of course, to the method, which employs the division of Petit's triangle instead of a muscle cutting operation, which would cause the patient afterward to walk lopsidedly for some time. It is much easier to deliver the kidney through this incision and make a free exposure than by the old route. There is less danger of infection, since there has been scarcely any catgut used to tie off bleeding points.

The Petit's triangle incision makes the operation almost bloodless. The folded kidney capsule forms a ligament and makes a strong cleavage for fixation. The fatty capsule brought up and tied over the denuded surface of the kidney makes a second point of anchorage.

The introduction of two sutures below the kidney through the peritoneum and sutured to the muscle makes the third point of fixation.

The patient is allowed to walk about in from ten days to two weeks. The patient enjoys the freedom of the side which has been operated on, and suffers no untoward result. This operation is done only when the kidney is well down toward the pelvis and fails to respond to other treatment.

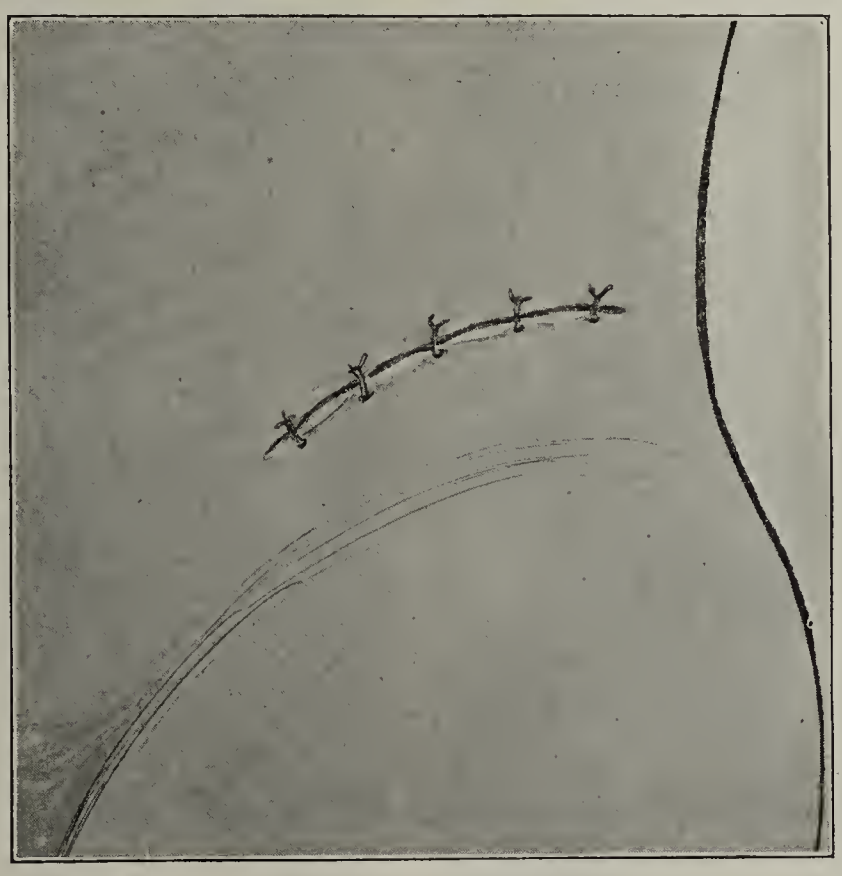


Fig. 11.—Incision closed.

The diet after operation should be nourishing and the same as that given by the internist. The patient is advised not to engage in heavy work for at least one month after the operation.

25 East Washington Street.

Handicapping the Intellectually Superior Child.—As intellectually supernormal or superior, we may characterize those children whose present capacity and promise of development point to exceptional mental ability, and who are likely to become leaders in the community. At present they often are as much handicapped in our schools as are their intellectually inferior companions, for whereas the latter are forced beyond the limits of their mental capacity, the former have inadequate opportunity for the expression of their powers. The social importance of specialized treatment, both intellectual and manual, for this group of children is incalculably great. On them human progress chiefly depends. Recently, much attention has wisely and profitably been given to the so-called feebleminded or intellectually weak. We are now beginning to see that, however important this humanitarian work may be, it is even more important that careful attention and special care be given to the intellectually superior.—Robert M. Yerkes, *Mental Hygiene,* April, 1917.

OXYCEPHALUS

REPORT OF THREE CASES WITH OPERATION IN ONE *

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That oxycephaly has existed for ages is undoubted; that the ocular changes are among the most prominent symptoms is common knowledge; but that a cranial decompression may relieve the intracranial pressure, preserve vision and enable the patient to be a self-supporting member of society is too little recognized. It is to review the symptoms of three cases and to stimulate interest in this subject on the part of ophthalmologists that this communication is presented.

MacKenzie[1] in 1854 seems to have been the first to attract attention to cranial deformity as a cause of blindness. Friedenwald,[2] Fletcher,[3] Enslin,[4] Patry[5] and Hanotte[6] have recorded their experiences in communications of great value. Within the past few months, Sharpe[7] has presented a paper clearly describing his cases and recording the results of four operations. His paper should be read for the reason that only one other worker has published the report of an operation, Eiselsberg of Vienna, although Cushing has performed several operations and will soon make his report. A similar proceeding has been suggested by several, but their cases were not so treated. I am able to find the records of only seven operations, including the one here reported for the first time.

Symptoms may pass unnoticed, but usually the headache is so severe that it attracts attention, whereupon it is found that the head is deformed and vision failing. The three symptoms of this disease are such as usually to bring these cases to the ophthalmologist primarily: (1) exophthalmos; (2) impairment of vision, and (3) cranial deformity.

* Read before the Section on Ophthalmology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* Owing to lack of space, this paper is abbreviated in THE JOURNAL by omitting some of the illustrations and the bibliographic references. The complete paper will appear in the Transactions of the section and in the author's reprints.

1. MacKenzie: Practical Treatise on Diseases of the Eye, 1854, p. 77.
2. Friedenwald: Cranial Deformity and Optic Nerve Atrophy, Am. Jour. Med. Sc., 1893, p. 529; On Optic Nerve Atrophy Associated with Cranial Deformity, Arch. Ophth., 1901, p. 405.
3. Fletcher: On Oxycephaly, Quar. Jour. Med., 1910, p. 385.
4. Enslin: Die Augenveränderungen beim Turmschädel besonders die Sehnervenerkrankung, Arch. f. Ophth. (Graefe's), 1904, p. 151.
5. Patry: Oxycephalic avec cornées à grand axe vertical, Soc. d'ophth., Paris, March 6, 1906, in Rec. d'ophth., 1906, p. 157.
6. Hanotte: Anatomie pathologique de l'oxycéphalie, Thèse de Paris, 1898.
7. Sharpe: The Cranial Deformity of Oxycephaly: Its Operative Treatment, with a Report of Cases, Am. Jour. Med. Sc., 1916, **151**, 840.

1. The exophthalmos is probably the result of the shallow orbits, and is usually accompanied by divergent strabismus and nystagmus.

2. The poor vision results from secondary optic atrophy following increased cranial pressure.



Fig. 1.—Father: Normal head; no divergence.



Fig. 2.—Mother; marked divergence; gross facial expression.



Fig. 3 (Case 1).—Patient at age of 3.

3. The cranial deformity is mainly shown by the high forehead and shallow orbits. Roentgenograms show sulcine impressions and bulging anterior fontanel.

Many other malformations, including webbed fingers and cardiac murmurs, have been noted.

My experience is unique. Three members of one family were afflicted; the youngest one showed optic atrophy, the middle one optic neuritis, and the oldest was free from optic nerve lesion.



Fig. 4 (Case 1).—Full face view of patient, showing normal fingers.

The father of these children died at the age of 38, after having been in an insane asylum for two years. Necropsy proved that he had general paresis. The Wassermann reaction of his spinal fluid was positive. From Figure 1 it is seen that his head was without marked change.

The mother died at the age of 30, probably from acute alcoholism. She was said to have had scars on her corneae, and Figure 2 shows that she had marked divergent strabismus with facial expression suggesting acromegaly.

The paternal grandmother died at the age of 49, from cancer of the uterus, and the paternal grandfather at the age of 78. One uncle and four aunts are living and well. The paternal great-grandparents died of old age, but it is especially noted that their heads tended to be small and the eyes closely set.

The maternal history was unobtainable.

The patients now recorded were all brought on the same day, Oct. 17, 1916.

CASE 1.—A well nourished, intelligent girl, aged 11 years, with a clear skin excepting a few freckles, had normal mucous membranes; the tongue was clean, and protruded mesially with a slight tremor. The teeth, of which there were twenty-five, were well kept,



Fig. 7 (Case 1).—Roentgenogram of profile, showing depressions; deep sella turcica.

eleven in the upper and fourteen in the lower jaw. There was a high palatal arch; the tonsils were not enlarged; the patient had chronic pharyngitis. The shoulders were high, the right more so than the left; the chest was comparatively short, and the patient was round shouldered. The supraclavicular and infraclavicular fossae were not depressed. The chest was flattened anteroposteriorly over the upper part. The circumference at the sixth rib was 59 cm., on forced expiration 57 cm., and on forced inspiration 62 cm. Right side 31 cm., left side 30 cm., anteroposterior diameter 17 cm., lateral diameter 22 cm. There was free and equal movement on both sides. There was slight scoliosis in the upper dorsal region.

The heart was normal in position. The apex beat was in the fifth interspace within the nipple line. Palpation revealed nothing abnormal. There were no abnormal pulsations or thrill; pulmonary resonance over the right side was normal; over the left side of the chest below the fourth rib, resonance was slightly impaired. The respiratory murmur over both sides was normal; there were no rub and no râles. The spleen and the liver were not palpable. The abdomen was 56 cm. in circumference, and not prominent. There were

no herniae. Examination of the nervous and osseous systems revealed nothing abnormal excepting that the left elbow joint resisted full extension, and when forcibly extended deflected outward with the inner condyle especially prominent.

The head was somewhat square shaped, with a definite ridge over the bregma; the forehead was low. The patient



Fig. 8 (Case 1).—Practically normal fundus; slight indistinctness of the nasal margin of the nerve with slight increased vascularization.

had abundant brown hair. There were dilated superficial veins over the left frontal and temporal region. The circumference was 48.5 cm. From the root of the nose to the occipital protuberance, the distance was 30 cm. Biaural, 33 cm. The transverse diameter was 16.5 cm.

Right eye: vision $^{20}/_{30}$ with $+1.25 = +.75$ ax $90 = {}^{20}/_{20}$. The pupil, about 4.5 mm., was irregularly quadrate, presenting no adhesions; it was active to light and accommodation; the media were clear; the disk, with a suggestion of yellowish tinge about its margin and a small shallow central excavation, was distinctly outlined. Several small vessels passed from the temporal side of the nerve, at which part pigmentation was greatest. There were no pathologic changes, exudate or hemorrhage.

Left eye: vision $^{20}/_{30} = +1.25 = +1.00$ ax $105 = {}^{20}/_{20}$-1? The same irregularly quadrate 4.5 mm. pupil, promptly reacting to light and accommodation, and the same fundus detail were observed. There were 8 degrees of exophoria. With the Hertel exophthalmometer, both eyes 16.5 degrees.



Fig. 9 (Case 2).—Patient when 2 years old: prominent frontal region.

The only illness this patient had had was a mild attack of diphtheria when 9 years old. Figure 3 shows her condition when 3 years old. Her birth was said to have been easy, not instrumental.

CASE 2.—Boy, aged 8 years, born without difficulty, not instrumental, had never had any illness. His head was of odd shape practically from the time of his birth. The earliest photograph, taken when 2 years old, revealed a peculiar face and the suggestion of frontal swelling.

He was 114 cm. in height, with a dull, distant, vacant, stupid expression, and he was a decidedly noisy mouth breather. The skin and mucous membranes were normal. His nose was of the Roman type. The palate was decidedly arched and very high. The nasal septum deviated to the right; the turbinates were large. The ears were negative. The teeth were good, though irregular, fairly clean and not decayed, ten in the upper and twelve in the lower jaw. The lower jaw protruded, with prominent lower canines. The superficial veins of the neck were prominent. The posterior cervical glands were palpable. The chest was long, narrow and rather thin, with supraclavicular and infraclavicular fossae not remarkable; the interspaces were narrow, and the angle of the ribs more marked than normal. The epigastric angle was very acute. Breathing was of the abdominal type. The chest movement was good, and equal on both sides; there were no abnormal pulsations. The shoulders were rounded, the scapulae prominent and the spine straight. Palpation confirmed all signs of inspection. There was no evidence of early rachitis. The spleen and the liver were not palpable. There was normal pulmonary resonance on percussion. The heart outline was normal. The apex beat was in the fifth intercostal space one-half inch to the left of the nipple. Respiratory and heart sounds were normal; there were no murmurs. There were no herniae; the testicles had descended;



Fig. 10 (Case 2).—Full face view of patient: high forehead; tendency of left eye outward.

the prepuce was adherent. The osseous system was apparently normal. Examination of the nervous system revealed nothing abnormal. The urine was negative. Blood examination revealed: hemoglobin, 95 per cent.; red cells, 4,900,000; white cells, 6,300. The forehead was high, sloping upward to the vertex, with a bony ridge at the bregma. The circumference measured 51 cm. From the root of the nose to the occipital protuberance the distance was 34.5 cm.; from the root of the nose to the bregma, 15 cm.; bitemporal, 28 cm.; anteroposterior diameter, 21.5 cm.; from bregma to tip of mastoid, 17.5 cm.; transverse diameter, 16 cm. There was an abundant growth of dark brown hair.

Right eye: vision $^{20}/_{70}$. The pupil, 3.5 mm., was not perfectly round because of a straight nasal margin; it reacted to light and accommodation; the media were clear, the disk irregularly round with whitish nerve head, vessels overfull, in parts blurred because of the swelling of the nerve, which was + 3.00 D. There were no areas of hemorrhage, exudate or pigmentation.

Left eye: vision 20/30. The pupil was irregularly oval, 4.5 by 5 mm., with straight nasal side, and reacted to light and accommodation. The same whitish swelling of the nerve head



Fig. 11 (Case 2).—Profile of patient: bulging frontal region.

was present, with obstruction of veins and blurred outline of disk swelling = + 3.00 D.

Retinoscopic findings for each eye + 1.50. There was marked bilateral exophthalmos, by the Hertel instrument 20 degrees; nystagmus and tendency to divergence were present.

Dec. 20, 1916, the patient was operated on. A large subtemporal decompression was made on the right side. There was considerable intracranial pressure, with annoying dural hemorrhage. The patient died in a few hours. On necropsy the following was found:



Fig. 15 (Case 3).—Patient at age of about 10 months; normal shaped head.

The skull was irregularly elongated, measuring 21.5 cm. anteroposteriorly and 16 cm. transversely. The frontal region was unusually prominent. The inner surface of the calvarium and base of the skull showed unusually well marked depressions separated by sharp ridges. The bones of the skull were thicker than normal, measuring in the temporoparietal region 0.3 cm. in thickness and from 0.4 to 0.8 cm. in the frontal and occipital regions. The petrous portions of the temporal bones were negative. The middle ears and ear drums also were negative.

The brain weighed 1,380 gm. The general volume of the brain was rather considerable. It was elongated, but the two hemispheres were of equal length. The convexity appeared flattened. The left hemisphere was apparently smaller than the right. The base presented nothing unusual. There was very definite atrophy of both optic nerves.

CASE 3.—Girl, aged 7 years, well built and nourished, expression not intelligent, was delivered with forceps. The skin and mucous membranes were normal. The hair was light brown and abundant. The patient was a mouth breather. There were twenty-two teeth, which were clean and decayed. The palatal arch was high, with the nasal septum deviated to the

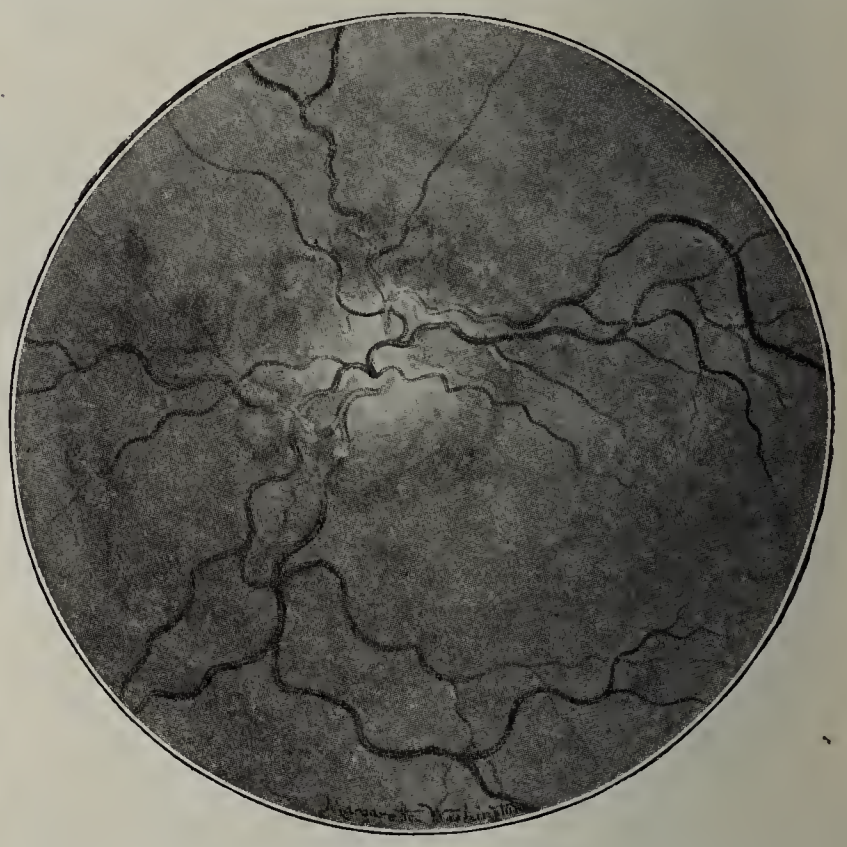


Fig. 14 (Case 2).—Fundus: blurred indistinct outline of the disk with partial obscuration of the inferior temporal vein; swelling = to 3 D.; papillitis.

left. The tonsils were not enlarged or cryptic; there was moderate pharyngitis with adenoids. The posterior cervical glands on the right side were enlarged and palpable. The



Fig. 16 (Case 3).—Full face view of patient: tower skull; extreme divergence; rapid nystagmus.

chest measured 56.5 cm.; on thorough physical examination, nothing abnormal was found in it. There was no sign of

present or past rachitis. The circumference of the abdomen was 55 cm. Nothing abnormal was noted. Examination of the nervous system revealed the deep reflexes sluggish, the



Fig. 17 (Case 3).—Profile of patient: adenoid expression.

superficial reflexes active. The urine was negative. Blood examination revealed: hemoglobin, 95 per cent.; red cells, 5,280,000; white cells, 6,000. The forehead was high, sloping upward in conical form to a point at the bregma. The super-

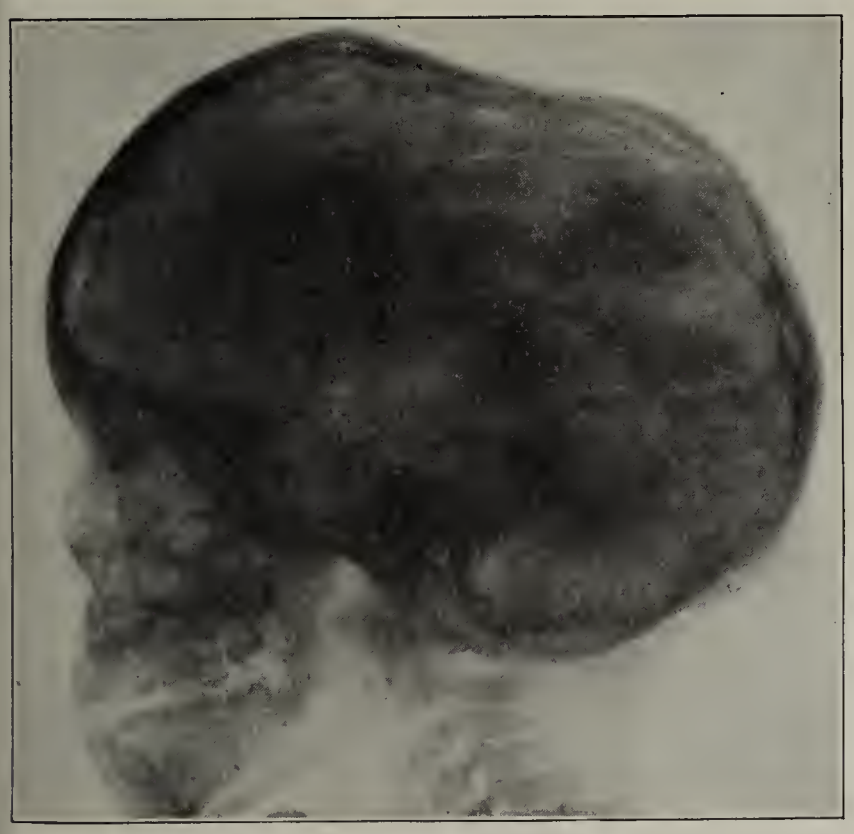


Fig. 19 (Case 3).—Roentgenogram of profile: very large sella; distinct ridge forward.

ficial veins were prominent in the frontal region. At the bregma, there was a distinct bony ridge. The circumference of the head measured 48 cm. From the root of the nose to the bregma the distance was 12.5 cm.; anteroposterior diameter, 20 cm.; from the bregma to the tip of the mastoid, 17 cm.; transverse diameter, 15.5 cm.

Right eye: pupil, 5 mm., slightly irregular, reacted to light and accommodation; the media were clear, the disk irregular in outline with marked pigmentation, decidedly pale, bluish white; the blood vessels were of irregular caliber. Hertel exophthalmometer, 10 degrees.

Left eye: pupil 5 mm. slightly irregular, reacted to light and accommodation; the media were clear; the disk irregular in outline with marked pigmentation, decidedly pale, bluish white; the blood vessels were of irregular caliber. Hertel exophthalmometer, 8.5 degrees.

Retinoscope + 1.25 in each eye. There was divergence of 30 degrees with short excursive rapid lateral nystagmus. It was impossible to test the vision although she was able to get around unassisted.

The patient had never had any illness, and it was positively known that the head was without change when the patient was 2 years old. It was impossible, however, to state when alterations began.

In all of these cases, the Wassermann reaction was negative.

Fletcher divides oxycephaly into three classes: those in whom cranial deformity is present at birth, those in

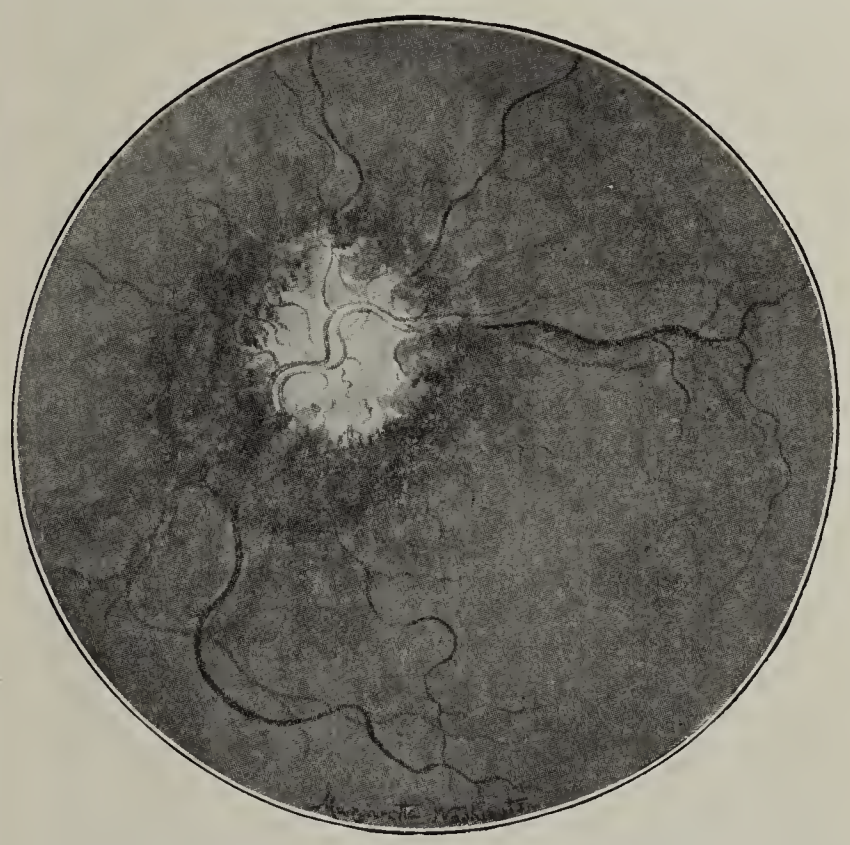


Fig. 20 (Case 3).—Fundus: disk decidedly pale, with marked obscuration and irregularity of its border, with considerable surrounding pigmentation; both arteries and veins more prominent than normal; post-papillitic atrophy.

whom the head is normal up to 2 years of age, and finally those in whom the change takes place between the second and third year of life. This classification, although to a certain extent arbitrary, offers a suggestion as to etiologic factors. Many writers consider rachitis a necessary preexistent element; but more numerous are the reporters who do not consider it an agent. Whether the syndrome be the result of meningitis, of too early closure of the fontanel, of connective tissue or even bony compression of the optic foramina is as yet undetermined. Our cases which came to necropsy showed no closure of the optic foramina, no thickening of the meninges and no sign of rachitis.

In the cases here reported, it would seem that the disease in Case 2 probably was present at birth; the only apparent fact militating against this is that although the boy was 8 years old, both optic nerves were swollen, whereas Case 3 presented optic atrophy far advanced, although it is known that the child's head was normal until she was past 2 years of age. This is

a point of considerable interest in the etiologic study of the condition; for if the head in Case 2 was deformed from the beginning and the patient was only in the nerve swelling stage and the head in Case 3 did not change until after the patient was 2 years of age and she was in the optic atrophy stage, we should be forced to look for a cause in something other than just the head deformity. Furthermore, at the time of necropsy in Case 2, there was no narrowing of the optic foramina, nor were there changes about the nerve or in the dura.

Oxycephaly should be considered a condition easy of diagnosis and amenable to surgical relief.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Concluded from page 1911*)

THE KIDNEYS IN PREGNANCY

It has long been recognized that in pregnancy the function of the kidneys is easily disturbed and that their ability to excrete properly during this period of increased metabolism is frequently more or less impaired. The circulation of the kidneys is readily disturbed by the enlarging uterine tumor. A previously loosened kidney may have its ureter twisted, and interference with the circulation of the kidney may cause passive congestion, and the appearance of albumin in the urine.

Wilson[140] has recently found that normally pregnant women begin to store nitrogen early in pregnancy, though this reserve may be used up in the puerperium and during lactation, and Werner,[141] after extensive tests, found that the functional capacity of the kidneys of healthy pregnant and parturient women is somewhat impaired. Hence any interference with kidney excretion is more dangerous in a pregnant woman than in other persons. Consequently, temporizing with an albuminuria, with or without casts, and with retained nonprotein nitrogen during pregnancy is apparently inexcusable, unless the patient is near the termination of her pregnancy, and she is under careful observation.

The thyroid gland normally hypersecretes during pregnancy. If for any reason it does not perform this office, and undersecretes, or does not secrete sufficiently for the double metabolism of mother and child, nitrogen or possibly ammonia poisoning readily occurs, and such patients may become eclamptic, although albumin or casts may not appear in the urine. When the ammonia nitrogen of the urine, which is normally about 5 per cent., reaches 16 per cent. or more, as in pernicious vomiting and consequent starvation, the uterus should be emptied unless starchy food in some form can be given and retained.

A woman who has shown a previous insufficiency of the thyroid or disturbance of the kidneys, or who has given birth to children who have shown subthyroid conditions, should receive thyroid from the beginning of a new pregnancy, the dose depending on its effect and her need for such treatment. Frequently with this careful thyroid medication such a woman will go through pregnancy normally and give birth to a normal child.

140. Wilson: Bull. Johns Hopkins Hosp., May, 1916.
141. Werner: Arch. f. Gynäkol., 1915, **104**, No. 3.

NEPHRITIS IN PREGNANCY

Of course all forms of nephritis may occur in pregnancy, owing to any of the usual causes; hence an acute nephritis or a subacute nephritis may occur, and cannot be distinguished from the same condition when due to pregnancy; or pregnancy may revive a supposedly cured nephritis. There is also no doubt that a woman who has had nephritis during pregnancy is more liable to have a recurrence in subsequent pregnancies. Some kidneys, possibly because of their position, mobility, or the position of their blood supply, are readily impaired by the abdominal pressure of the enlarging uterus. A chronic nephritis is intensified with pregnancy.

The occurrence of albuminuric retinitis in a pregnant woman is very serious, and the disturbance may be permanent, even if the uterus is immediately emptied, although the patient may completely recover.

Even if a patient with nephritis is apparently doing well and is allowed to go to normal time for labor, the exertion of labor, which throws more nitrogen, especially creatin and acids, into the circulation may cause rapid development of convulsions and coma. She is on the borderline of uremic poisoning, and the extra muscular exertion is the last straw needed to cause the uremic attack.

Nephritis may cause abortion, and the child is often born dead; but if a child is born of a seriously nephritic patient, it is liable to be anemic and of low vitality.

To summarize: albumin and casts do not occur normally in pregnant women, although they may occur accidentally, as in any other person. If they persist, the prognosis is bad. Functional tests may be made, and the nonprotein nitrogen of the blood noted; but the future is doubtful, even when all these tests are normal. At parturition, labor will often be sluggish, especially if there is edema of the parts involved. The uterus does not well contract, and postpartum hemorrhage is frequent.

While it is generally advisable to give an anesthetic so that the patient will not use her muscles so strongly and not force as much urea and creatin into her blood, the anesthetic is an added irritant to the kidneys. The period of anesthesia should, therefore, be as short as possible, and the uterus should be emptied as rapidly as possible.

If nephritis occurs early in the pregnancy there is no question of the necessity for immediate cleaning out of the uterus; postponement is dangerous. If nephritis occurs in the latter stages of pregnancy, if there is no retinitis and no anasarca, and if the circulation is good, with rest, proper diet and constant study of the nonprotein nitrogen of the blood, "watchful waiting" is permissible, but it is always a question necessitating careful decision, and consultation should be sought, to divide the responsibility. A woman with chronic nephritis should not marry, or be allowed to become pregnant if nephritis should occur after marriage.

If the symptoms do not improve after the uterus is emptied decapsulation should be considered, and should be seriously considered during eclampsia.

URINARY STASIS

This condition occurs more frequently than has been recognized, and when urine is retained, bacilluria readily follows. While normally the female bladder empties itself completely, it does not do so in many

pelvic conditions. This is especially true in pregnancy, which probably accounts for the frequency of genito-urinary infection during and after that condition. Colon bacilli seem frequently to be found in the urine in pregnancy. A pyelitis may occur during pregnancy from an ascending bladder infection or from lymphatic absorption of any pelvic infection. This is one more reason for a frequent examination of the urine during pregnancy. If the kidney functions are found normal, a bacilluria should immediately suggest a bladder insufficiency.

Vesical irritation and urinary symptoms may be caused by rectal disturbances, as shown by Zobel.[142]

INCONTINENCE OF URINE IN CHILDREN

This condition is generally nocturnal, although it may in some instances occur in the daytime, and is one of the most troublesome conditions to treat. No treatment will be successful until the cause of the trouble in the individual case is discovered. These causes may be enumerated as: a long or adherent prepuce in a boy; an adherent clitoris or a vaginitis in a girl; rectal irritations; pinworms or other parasites; irritation of the skin in the genital regions; too acid or prolonged alkaline urine; bacilluria; irritations from gravel or from a calculus; bladder irritability; cystitis and pyelitis. All localized skin irritations and inflammations may be either a cause or a consequence of the condition. Indirect causes are digestive disturbances, overloading the little patient with rich, nitrogenous foods, or with too much water at night; disturbances caused by adenoids and enlarged tonsils, or more general disturbances, such as chorea or an unsuspected nocturnal epilepsy.

This nocturnal enuresis is more frequent in boys than in girls, and may continue into childhood, even after the child has been educated to retain the urine.

This affliction may cease suddenly, without any treatment whatever, or it may persist well into youth, and may even occur in maturity. Many of these cases become cured at puberty, if not before, probably because of the normal development of the genito-urinary organs, and hence improved functioning or stronger sphincter of the bladder.

The treatment consists of removing, if possible, all or any of the causes suggested, a proper regulation of the diet, and prohibition of coffee and tea, and of large amounts of even the simplest drinks after the evening meal. Examination of the urine may suggest treatment devoted to disturbances it reveals, such as potassium citrate for hyperacidity, hexamethylenamin in bacilluria, phenyl salicylate when the urine is too alkaline or dilute hydrochloric acid, after meals. If for any reason hexamethylenamin causes irritation or is not advisable, phenyl salicylate in small doses (and all dosage carefully arranged according to the age of the patient) is sometimes successful in curing a bacilluria or an increased secretion of mucus from the bladder; it may also be curative in a mild cystitis. A temporary milk and cereal diet may be effective.

If these treatments fail in a child who has no assignable excuse for such incontinence, atropin may be given to stop the irritability of the neck of the bladder. It should be given at night, and the dose for a child aged 5 years is from $\frac{1}{400}$ to $\frac{1}{300}$ grain, given one or two hours before bedtime.

Sometimes the fluidextract of ergot, given in 20 drop doses to a child aged 5 years, two or three times a day (as it seems to be a stimulant to smooth muscle fiber) may aid in increasing the power of the sphincter.

Hindering a child from lying on his back by a knot tied in the sacral region, or by elevating the foot of the bed, may prevent the urine from as readily forcing itself into the posterior urethra and causing involuntary urination.

At times the passage of cold sounds seems to stimulate the sphincter of the bladder to better tone. Electricity, with the electrode placed so as to cause the sphincter to contract, has frequently been tried, sometimes with considerable success, the faradic current being the most valuable. Various electrodes are made especially for this purpose, for insertion into the urethra or vagina or into the rectum, with a large pad for the other electrode placed over the pubis.

Sometimes this troublesome condition is cured immediately and permanently by freeing adhesions of a prepuce or of a clitoris.

ACUTE CYSTITIS

The cause of this condition should be sought, and if possible, removed, but it may occur without apparent cause.

The treatment is rest in bed, a milk diet, the administration of alkalies in sufficient amount to cause alkalinity of the urine, and just enough morphin or belladonna to stop unendurable pain. This is not often necessary. Sometimes hot sitz baths are of value. In simple acute cystitis such treatment is generally curative in a few days.

CHRONIC CYSTITIS

This is a surgical condition with some tangible cause, and the treatment primarily is of that cause. The condition is frequently not cured without more or less washing out of the bladder.

142. Zobel, A. J.: Genito-Urinary Symptoms Arising from Anal, Rectal and Colonic Diseases, and Vice Versa, THE JOURNAL, A. M. A., Feb. 12, 1916, p. 496.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

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SATURDAY, JUNE 30, 1917

ALTITUDE AND THE AVIATOR

Several years ago[1] we remarked that the conquest of the air has brought problems bordering on the field of the physiologist and the physician as well as on the domain of engineering. The unanticipated usefulness of the aeroplane in connection with the present war has given an added significance to this statement. The aviator has become an indispensable adjunct to every well organized military unit, so that his personal well-being must form a topic for consideration in military hygiene. The expression "mal des aviateurs," or aviator's sickness, has already found its way into medical literature.

The most fundamental physiologic problem with which the navigator of the upper atmosphere is concerned involves the effects of the lowered barometric pressure that comes with altitude. In a famous balloon ascent in 1871, Tissandier reached a height of more than 28,000 feet. The two companions with him perished, and the survivor barely escaped with his life. At the altitude of Pike's Peak in Colorado, many a tourist experiences intense symptoms of mountain sickness as the result of the ascent to 14,100 feet above the level of the sea, representing a barometric pressure of only 450 mm. of mercury. Distress is not uncommon at considerably lower levels.

Such facts call for a clear exposition of the unusual influences which play on the organism at higher altitudes. In an illuminating review of the effects of altitude on aviators, Henderson[2] has called attention to a possible confusion between the results of a sudden fall in atmospheric pressure, such as is the case in the production of caisson disease or diver's palsy, and the lowered barometric pressure that attends an ascent into the upper air. When a person who has been surrounded by compressed air in a diving device at the depths of the sea or in a caisson under water emerges, the nitrogen which has been dissolved in the body fluids begins to diffuse out as soon as the pressure is lowered. Henderson properly points out that this does no harm and has no effect unless the pressure under which the man has been working is so high, and the lowering of the external pressure so rapid, that the dissolved nitrogen separates in the form of bubbles. Such bubbles may form in the blood, in the synovial fluid of the joints, and even in the brain. They induce intense pain, and even paralysis and death.

What is less well understood, however, is that in order for bubbles to be formed it is essential that the pressure with which the tissues are in equilibrium should have been lowered more than half its absolute amount in a few minutes. Henderson insists that in the present state of the art of flying it is scarcely possible for an aviator to rise to a height of 20,000 feet, at which the barometer would be about half of that at sea level, in a period sufficiently short to allow bubbles of nitrogen to form in this way. The disorders from which aviators suffer, therefore, are of a different class from those to which workers in compressed air are exposed.

The respiratory difficulties of aviation, then, center in the diminished partial pressure of oxygen as the ascent is made. We are told that "by breathing a mixture of gases deficient in oxygen one can get an aviator's headache without ever leaving the ground." The dangers of rarefied air are those of oxygen deficiency. Acidosis attends the severer stages of this.

The organism responds to these unfavorable conditions of respiration in a variety of interesting ways. The acidosis induces a compensatory readjustment of respiration which increases the rate of breathing. An augmented volume of breathing subsequently ensues. In the course of more time the oxygen-carrying capacity of the blood becomes enhanced by an increment in the number of red corpuscles and its content of hemoglobin. This adaptative response has frequently been referred to in connection with the physiology of altitude.

Haldane and his collaborators have long insisted on the existence of another type of acclimatization which is of the greatest importance if it is substantiated. According to them the pressure of oxygen may be higher in the arterial blood than in the alveolar air, and at high altitudes always is. Ordinarily it is of course assumed that the respiratory gases pass so readily by diffusion through the thin cell wall of the lungs and blood vessels that complete equilibrium between the gas pressure in the alveolar air and that in the blood has occurred before the blood leaves the lung. During rest at sea level this is certainly what happens. But under the necessity established by altitude, Haldane assumes an active secretion of oxygen into the lungs. To quote his words:[4]

> At high altitudes the moist albuminous material suddenly reminds us that it is alive: for it begins to do something

1. The Human Body and the Conquest of the Air, editorial, THE JOURNAL A. M. A., Feb. 1, 1913, p. 371.
2. Henderson, Yandell: Effects of Altitude on Aviators, Aviation, March, 1917, p. 145.
4. Haldane, J. S.: Organism and Environment as Illustrated by the Physiology of Breathing, Yale University Press, 1917, p. 61.

which at once recalls living things when it delivers oxygen at a higher pressure than that at which it receives it. The passage of oxygen molecules is accelerated in the inward direction, and this acceleration applies to them alone, and not to other molecules, so it is selective. It does not occur in a nonliving membrane, and its presence is evidently dependent, firstly upon the peculiarities of the living membrane, and secondly upon the presence of a special stimulus acting on the membrane. We know, also, that the specific peculiarities of living tissues depend upon the maintenance of their external environment. Hence we can say that the acceleration depends, not only upon the factors just mentioned, but upon the integrity of the general environment of the membrane—in more familiar words, upon its nutrition, temperature, etc., and upon the regulated removal of so-called waste products.

Henderson looks on this peculiar example of alleged vital activity on the part of the lungs under duress as paramount in gaining a mastery over the respiratory difficulties at considerable heights. The practical conclusions, he says, are that if time is allowed for a gradual acclimatization, or if for some time before the ascent, mountaineers or aviators are subjected to a gradually increasing degree of oxygen deficiency, the capacity of the lungs to secrete oxygen will develop to a degree sufficient, in most cases, to afford protection against any altitude that a heavier than air machine has yet attained. This point of view is worthy of serious consideration at a time when success in warfare demands that performance in every direction shall be guided by the most intelligent advice.

MERCURIAL POISONING

The growing prominence of mercurial poisoning has attracted attention to the need of better therapy in the management of what is at best usually a serious situation. It is not only in the rapidly increasing number of cases of suicide by mercuric chlorid that the symptoms of poisoning by this drug have forced consideration; they have been recognized as a possible complication of surgical operations and in obstetric practice ever since the more widespread introduction of mercuric chlorid a generation ago as an antiseptic agent. The striking peculiarities of the course of the intoxication are not only the more immediate effects, including the initial toxic gastritis and the stomatitis when the drug is swallowed, or the subsequent intensive and often fatal ulcerative colitis, but also the later manifestations, particularly the development of a more or less complete anuria, which may persist. The anuria usually arises on or about the fourth day after the poison is introduced, and the patients progress to subsequent death, from lesions of the liver or colon, with or without the reestablishment of the urinary secretion.[1]

It is certainly of preeminent importance to recognize the pathogenesis of each of the series of symptoms that occur early and late in the course of the intoxication. The gastro-intestinal symptoms, even when the mercury salt is absorbed from some region remote from the alimentary tract, seem to be associated, in part at least, with the efforts of the organism to excrete the poison through the channel of the bowel. Mercury may be found in the stomach for several days after the introduction of the poison. Hence the attempt to facilitate the removal of the latter by gastric lavage as well as uninterrupted colonic irrigations is justified on the basis of the physiologic facts now known with respect to the migrations of the metal. These current procedures seem, indeed, to have attained a considerable degree of success in promoting recovery when they have been instituted early.

MacNider,[2] of the Laboratory of Pharmacology at the University of North Carolina, has investigated extensively the nature of the kidney injury and the physiologic manifestations with which this seems to be associated in acute mercuric chlorid intoxications. These elaborate studies show that the acute kidney injury which develops late in poisoning by mercuric chlorid does not show any dependence, in the frequency with which it occurs, on the severity of the mercury enteritis. The delayed kidney injury in acute mercuric chlorid intoxications has been constantly associated with the development of an acid intoxication. The severity of the damage to the cells of the convoluted tubules and the extent of fatty infiltration in the cells of the ascending limb of Henle's loop show a correlation with the degree of acid intoxication.

The parellelism between these acidosis phenomena and the intensity of the symptoms in MacNider's report is as suggestive as it is marked. Thus many of the animal subjects died early, in the stages of collapse attending the familiar early and intense gastro-enteritis. Apparently the fatal outcome was due to the shock associated with the intense local action of the mercuric chlorid. Urinary symptoms were not prominent, nor was there any depletion of the alkali reserve of the blood or any variation in the tension of the alveolar carbon dioxid to indicate a disturbance of acid-base equilibrium. In the cases with the delayed symptoms, during the subsidence of the enteritis or several days after the symptoms of the enteritis had disappeared, the alkali reserve of the blood usually showed depletion. Following the indications of a mild acid intoxication and an associated kidney injury, the acid-base equilibrium of the blood has gradually returned to the normal, the albumin has disappeared or has been reduced to a trace, and all of the animals have recovered. In still other cases, signs of severe acid intoxication become manifest in every detail. Death may even occur with typical "air hunger." With the development of an acid intoxication, the output of urine is greatly reduced or the animal is rendered anuric.

1. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment., Arch. Int. Med., November, 1915, p. 865.

2. MacNider, W. deB.: A Study of the Acid-Base Equilibrium of the Blood in Acute Bichloride Intoxications, Proc. Soc. Exper. Biol. and Med., 1917, **14**, 140.

Evidently the causes of the more immediate and the delayed symptoms need individual consideration. The danger of the acid intoxication with its necrotic effects on the kidney (and presumably other glandular organs) — results rarely seen in congested kidneys of individuals that succumb during the height of the gastro-enteritis from mercuric chlorid poisoning — gives the clue to the continued liberal use of alkaline fluids until the possibility of further harm is averted. It is perhaps the alkali rather than the diuretic that saves the day.

PERIODIC FUNCTIONS OF THE ORGANISM

One of the biologic manifestations of many organisms, particularly of the lower type, is a rhythm of function which expresses itself in successive alternations of activity and rest. A comparable phenomenon is constantly presented to us in the performances of the heart. Professor Boldyreff[1] of the University of Kasan has lately maintained that there are instances of such periodic activity of the organism heretofore unappreciated. Thus, he holds that the current belief that the glands and muscles which serve the purposes of digestion and alimentation in general become quiescent as soon as the obvious work of the gastro-intestinal digestive functions is completed is erroneous. Observations on man and other animals have led him to the impression that soon after digestion there occurs a new secretion of pancreatic and intestinal juices, a discharge of bile into the bowel, accompanied by periodic muscular contractions of the distinctly rhythmic character on the part of the stomach and small intestine. The salivary and gastric glands are said to take no part in this "periodic function" of the remainder of the apparatus of digestion. In man this glandular and muscular activity occupies more than half an hour at each onset, followed by a longer period of alimentary repose.

The older ideas of a continuous secretion of some of the digestive juices were succeeded by the conclusion that no secretion whatever takes place without an appropriate chemical or nervous stimulus, usually associated with food or its digestion products. If the views which find expression in Boldyreff's latest contribution are substantiated, they will establish for the secretory apparatus some of the manifestations of periodic activity which have been described, in this country by Cannon and Carlson in particular, for the muscular responses of parts of the empty alimentary tract.[2] According to Boldyreff, the pancreatic juice which is thus secreted periodically is even richer in enzymes than the secretion which pours into the chyme during the digestive cycle.

The statements of facts derived from the careful observation of experimental subjects must be divorced clearly from the theory which Boldyreff has constructed to interpret the phenomena. He maintains that the glandular secretions discharged periodically in the nondigestive intervals are absorbed along with their dissolved enzymes from the bowel. Simultaneously an increase of proteolytic and lipolytic enzymes, as well as an increment in the number of leukocytes, is said to appear in the blood. A rise in temperature also attends these phenomena, so that, quoting Boldyreff, one is justified in speaking of the existence of a "periodic functioning of the entire organism," and not merely a rhythm of the digestive apparatus.

What physiologic use can such activities serve? According to Boldyreff's hypothesis, by distributing suitable reabsorbed enzymes at appropriate intervals to all parts of the organism they furnish the tissue cells with indispensable factors for the assimilation, that is, the breaking down or building up, of proteins, fats and carbohydrates. In other words, the pancreas thus indirectly becomes a prominent agent in the cellular metabolism.

It is untimely to follow the Russian physiologist farther into the consequences which may be drawn from his unique hypothesis. It will be observed that what has long been recognized as essentially a digestive function of the pancreas is converted in turn into the source of an "internal secretion" whereby the activities of the gland extend their efforts within distant tissue cells. The theory of the reabsorption of pancreatic enzymes paves the way for many deductions applicable to clinical diagnosis and therapy. All of these will be far fetched, however, until the justification for the underlying hypothesis is more rigorously examined.

CLIMATE AND HUMAN LIFE

Medical climatology, which deals with the hygienic effects primarily associated with the geographic location of a region or attributable to it, is still far from being anything like an exact science. Many of the health-controlling factors formerly ascribed to the residence of persons or races in special parts of the earth are now known to be incident to causes other than those dependent on what may properly be called climate. Thus the once magnified dangers of the tropical climate have been minimized in many respects by the recognition of their dependence on remediable conditions. The meteorologic difficulties and the upsets in the heat regulation and comfort of the individual have been largely overcome by the introduction of suitable modes of clothing, by appropriate distribution of the periods of rest and work, and by other personal adjustments. The menace of tropical diseases has been met by the measures of sanitary science and preventive medicine. The beneficent effects of

1. Boldyreff, W.: Fonction périodique de l'organisme chez l'homme et les animaux d'ordre supérieur (pancréas comme principal agent du processus de l'assimilation dans tout le corps), Quart. Jour. Physiol., 1916, **10**, 175.

2. The Stomach in Hunger, editorial, THE JOURNAL A. M. A., Feb. 8, 1913, p. 448; The Gastric Movements in Hunger, Sept. 27, 1913, p. 1044.

such innovations have become apparent in the more favorable mortality statistics of places in which the hygiene of today has found a footing.

Nevertheless there is a widespread conviction that human efficiency is best exemplified in the more temperate zones and that a deadening lethargy is the ultimate consequence of prolonged residence in the hot countries. In view of this there is a peculiar interest in the recent studies of Ellsworth Huntington[1] directed to a more exact determination of climatic optima for man. He has selected for his preliminary investigation the relation of temperature to the death rate, the amount of work done by piece workers in factories, and the strength of persons as measured by the dynamometer.

Obviously there are many interfering variables which may upset the validity of statistics for particular regions. Local differences arise from humidity, epidemics, the seasons at which vacations are taken so that the data for population become less accurate, and other minor causes. Despite this, however, the averages of optimum temperature on the basis of the death rate in four groups, namely, northern, central and southern cities of the United States, and six foreign countries differ surprisingly little, the range being only from 62.7 to 65.8 F. This seems to indicate, according to Huntington's interpretation, that whether we are dealing with northwestern Europe, the northern, central or southern United States, or an Asiatic country such as Japan, deaths are least numerous at about the same temperature. When allowance is made for the effect of summer vacations in the American cities, it appears that the optimum is probably about 63 F. Since we are dealing with the mean temperature of day and night, such an optimum means that man is physically at his best when the temperature rises to about 70 at noon, but not when it stays all day at that level.

Likewise the factory work of thousands of persons, as shown by Huntington's statistics, points to the same temperature as the best for human activity. Tests of the strength of individuals suggest a slightly lower optimum, at about 60, but the number of cases is small. The investigations of Rosenau and Thompson also indicate an optimum at 62 or 63. Since Finns, Japanese, Germans and Americans all show essentially the same response, Huntington adds, it seems probable that the optimum temperature for physical activity among people in all sorts of climates does not vary far from 63 F. Even a long residence in a given climate apparently has little effect in causing people to become adjusted to their environment. The Finn still seems to find his climate always too cool, while the Cuban finds his too warm.

It might naturally be supposed that in the process of evolution an adjustment of races to their temperature environment had taken place. From the new statistics the negroes, indeed, seem to be at their best at a temperature 4 or 5 degrees F. higher than that which is best for white people. In Huntington's estimate, however, this is insignificant in comparison with the difference of 40 degrees between the mean temperature of the Baltic home in which the white race probably developed and the African home of the negroes. Moreover, the average optimum temperature in northern, middle and southern cities is almost identical. One can thus appreciate the intent of Huntington's conclusions. There is not the slightest hint, he writes, that either the white or the colored people by residing in the north or the south have become adjusted to a particular temperature. So far as these facts go, therefore, they suggest that man's adaptation to temperature is so deep seated and of such remote origin that it changes very slowly. Untold thousands of years of the contrasted environments of northwestern Europe and central Africa appear to have produced a permanent racial difference of no more than 5 degrees, and possibly less, while the short time that the American people have been in their surroundings appears to have caused no differentiation.

1. Huntington, Ellsworth: Temperature Optima for Human Energy, Proc. Nat. Acad. Sc., 1917, **3**, 127.

Current Comment

THE WAR AND SCIENTIFIC INVESTIGATION

The commendable patriotic ambition of every right-minded American to render his best help in the time of his country's need has raised questions of choice for many citizens. The spirit of service is rife throughout the country, and one's first impulse frequently urges him to enter those avenues of activity that lead nearest to the combat. A sane, calm review of the situation indicates, however, that there are many fields which require profound attention, even though they often seem quite remote from the trenches. The chemist in the munitions works, the bacteriologist who is testing the efficiency of the latest antiseptics, the agriculturist who is striving to solve the immediate difficulties of farm practice or aiding in the "speeding up" of the production of staple crops, live stock and other food products — all of these workers are an indispensable part of the great human organization that must cooperate to lead the way to victory. Frequently many workers, particularly younger men engaged in important investigations, gain the uncomfortable feeling that they are not doing their full duty when they plod along so far removed from the noise of the conflict. Such persons need encouragement at the present moment. They must not all be permitted to withdraw from the less conspicuous though highly important labor of productive investigation which may anticipate the needs of the hour. The war has already directed attention as never before to the intimate relations between science and industry, as well as to the vital necessity of fostering these relationships.[1] Two generations ago, Dr. Lyon

1. See for example, The Experiment Stations and the War, Expt. Sta. Record, 1917, **36**, 601.

Playfair deplored the holding "to mere experience as the sheet anchor of the country, forgetful that the molds in which it was cast are of antique shape, and ignorant that new currents have swept away the sand which formerly held it fast, so that we are in imminent risk of being drifted ashore." Despite the brief period full of the enormous difficulties of organizing a great military campaign and instituting active defenses as well as naval warfare, substantial headway has already been made in the mobilization of scientific investigation. Researches cannot be manufactured on command or completed over night. Nevertheless the National Research Council has already made a commendable beginning in a movement that will enlist some of the best scientific minds of the nation and encourage them to continue the work for which they are specially trained and best equipped. In our enthusiasm for the more apparent helps to success we must not forget these potent silent forces, nor allow the leaders of the nation to overlook the need of supporting and stimulating them. Even war thrives through the fundamental discoveries of science.

WILL CANADA TOLERATE TANLAC?

Tanlac, the latest "patent medicine" success of the "bracer" type, is "to be introduced in Canada." It was inevitable. With practically nation-wide prohibition in the Dominion the shrewd exploiters of this alcoholic nostrum were bound to have their attention drawn from the arid regions of the southern United States to our northern neighbors. In introducing Tanlac through Toronto newspapers it is emphasized that the Tanlac concern is going to erect a plant in Canada. Half-page advertisements in metropolitan dailies advise Canadians that 7,000,000 bottles of Tanlac have been sold in two years. Telegrams are reproduced from druggists in cities and towns of the southern states showing that the stuff is ordered in carload lots — and a carload consists, according to the same advertisements, of 12,720 bottles! Tanlac has all the qualifications for a successful "patent medicine": enough alcohol (about four times that found in beer) to give it a decided "kick," plus bitters and not too much laxative. To the thoughtful it must seem little less than a crime that the Dominion of Canada, staggering under the financial burdens thrown on it by the war, should be further subjected to the monstrous waste represented in the sale of such products as Tanlac. Canadian druggists and Canadian newspaper owners will be direct beneficiaries of the sale of Tanlac. The Dominion as a whole will be a distinct loser, financially and physically. Yet, we venture to say that there is not an intelligent druggist in Canada (or in the United States either) but knows in his heart that Tanlac is a piece of unmitigated quackery, and there is not, we are sure, a newspaper publisher in the entire Dominion (or in the United States) who, if his family were sick, would attempt to rely on Tanlac. "Seven Million Bottles Sold in Two Years" — and it sells for a dollar a bottle! Seven million dollars taken from the pockets of a class that can least afford it — and one third of this sum goes to the retailer! Does Canada wish to drain further her financial and physical resources for no other purpose than putting a certain amount of money in the pockets of Canadian druggists and newspaper publishers and a much greater amount in the pockets of an Ohio quack? If not, she will not tolerate Tanlac.

"THE DOCTOR DASHED HIS HOPES"

Apropos of our comment "Physicians on the Exemption Boards," the New York *Times* for June 23, under the above caption, relates how a New York physician had had under treatment a young man who was suffering from some minor ailments but not severely or from maladies easily diagnosed. The young man was apprehensive that the surgeon into whose hands he might come for selective draft might not discover what he pretended to regard as a serious condition, and therefore wrote to his own physician and asked for what would virtually be a certificate of physical disability. His physician's reply was to the effect that he was determined not to give any such certificates to any one, but to let the regularly appointed examining board assume the responsibility, he being confident that these boards would not pass for enlistment persons incapable of service. "In addition, the doctor told his patient — who must have been sadly disquieted thereby — that 'so far as your particular case is concerned, I am not at all sure that you might not be very much benefited by a course of good, rugged training in some camp,' and then he proceeded to point out that the patient's professional work had been such as would specially qualify him for certain duties of much value in modern warfare." Another instance of this form of "preparedness" has been called to our attention. A mother who evidently thought her son too precious to be a soldier recently related to a neighbor, in confidence, that she had taken her son to several specialists and had finally secured certificates that would keep her boy at home, giving a hint to her neighbor, who also had a son, that she could do likewise. It is not at all improbable that a large amount of petty "preparedness" of this character is going on.

PHYSICIANS ON THE EXEMPTION BOARDS

By the time this issue of The Journal reaches its readers thousands of civilian physicians will have been appointed on the local Exemption Boards which are composed of two laymen and one physician. As regulations governing the jurisdiction of these boards have not been promulgated by the Provost-Marshal's Office at this writing, the details of the duties of the members of these boards are not known. We do know, though, that on the medical member will rest the major part of the responsibility of deciding whether claims for exemption on account of physical disability are just. Considering the fact that the members of a board must be residents of the district over which it has jurisdiction, the position of the medical member will not be an enviable one. He will have to resist the pleas not only of his friends and neighbors, but also of his patients, which may mean loss of practice in

some instances. Even bribery may be attempted. To resist these importunities will simply require common honesty of purpose and the ordinary courage to do one's duty. All kinds of schemes will probably be attempted to mislead the physician. Malingering will be practiced in its perfection; young men may present certificates from the family physician certifying to physical disability; similar certificates will be presented from specialists who have through thoughtlessness accepted the statements of parents or others without verification by critical examination. The duties of physicians on these boards, therefore, require not only honesty of purpose and courage to do right, even at the sacrifice of private practice, but also professional alertness to detect the various forms of malingering and misrepresentation that will be attempted.

BILLINGS COMMISSION TO RUSSIA

As announced in the next column, a commission under the chairmanship of Dr. Frank Billings of Chicago is about to leave for Russia. This body of men goes as a military commission under the War Council of the American National Red Cross. As will be noticed, the list of members includes specialists in sanitary science, general medicine, tuberculosis, bacteriology, and other branches of medicine, engineering, on foods, transportation, business, etc., as well as stenographers, moving picture operators, interpreters and other attachés. The object of the commission is to make a general survey of the needs of Russia, military and civil; what the conditions and needs are as regards physicians, nurses, medical and surgical supplies, ambulances, motor trucks, etc.; and to investigate sanitary conditions in all their phases, as well as business and social conditions in their broadest aspects. There are many problems in Russia which need solving and which this commission will investigate. As an example of serious practical problems is the fact that in parts of Russia there are millions of tons of wheat in stock, and have been for years, while in other parts people are starving for the need of this food. The reason probably is the lack of transportation, but there may be many other underlying causes peculiar to Russia that account for such condition. The central idea — the principal object — of this commission is to show that America, the oldest republic, is in hearty sympathy with Russia, the newest republic, and desires to show that sympathy with material and tangible help and with such cooperation as may be needed. The probability is that this commission will extend its survey to Roumania, if necessary. We understand that Mr. William B. Thompson of New York, who had already given a quarter of a million dollars to the Red Cross, is assuming all the expense connected with this commission.

Why Living Organisms Must Die.—The question why living organisms should die is a biological question just as truly as is the question why or how they live. Evolution could not take place without death, because the higher forms of life are so specialized that they cannot change much in a single lifetime. Death, therefore, is an adaptation for the benefit of the species.—F. H. Pike, *Jour. Heredity,* May, 1917.

Medical Mobilization and the War

A Red Cross Commission to Russia

A commission of sanitary, social, medical and food distribution experts has been appointed to proceed at once to Russia under the auspices of the Red Cross to make a survey of the social needs of the people, particularly as to sanitary and health problems. This commission is headed by Dr. Frank Billings, Chicago. Dr. William S. Thayer, professor of clinical medicine in Baltimore, and Dr. Wilber E. Post, assistant professor of medicine at Rush Medical College, will investigate the general medical problems which may arise. Dr. D. J. McCarthy, Philadelphia, will act as tuberculosis expert. Mr. Harold H. Swift of Swift and Company, Chicago, goes as the food expert of the commission, and Prof. Henry C. Sherman, professor of food chemistry, Columbia University, New York, will have charge of the scientific aspects of the food problem. Prof. George C. Whipple, professor of sanitary engineering, Harvard University; Prof. C. E. A. Winslow, professor of public health at Yale University, and Dr. Malcolm Pirnie, assistant to Professor Winslow, will be concerned with the sanitary and hygienic problems. Mr. Raymond Robins, Chicago, will investigate sociologic questions, representing the social labor group. Dr. William Groh, Philadelphia, is medical attaché, and Dr. O. F. Whitman of New York will act as moving picture director. The business director of the commission will be William B. Thompson, banker of New York City. Among the remaining personnel are: Allen Wardwell, New York, secretary; James W. Andrews, New York, treasurer; H. F. Brown, New York, publicity; Henry J. Horne, New York, transportation; William C. Nicholson, Chicago, secretary to Mr. Swift; Thomas B. Thatcher, New York, secretary to Mr. Thompson; Robert I. Barr, New York, assistant to Mr. Thompson; William Cochran, New York, assistant to Mr. Horne; Cornelius Callaher, New York, stenographer to Mr. Thompson; Harry B. Redfield, New York, stenographer; Harold M. Wycoff, New York, motion picture operator; Lawrence C. Houghteling, Chicago, attaché. There will also be several attachés who are versed in the languages of the far east, as well as in Russian, French and German; valets, etc. The commission leaves Chicago, June 30, and a Pacific port during next week.

Overseas Forces to Be Vaccinated Against Paratyphoid Fever

In addition to the vaccination against typhoid fever prescribed by the War Department, all officers and enlisted men of the United States Army and all other persons associated with the military forces of the United States, designated for service overseas, are to be completely vaccinated against paratyphoid fever prior to their arrival in Europe. The vaccination against paratyphoid fever will be given in the same manner, in the same dosage and with the same intervals as are now prescribed for the vaccination against typhoid fever. The only vaccine used for this purpose will be the mixed paratyphoid "A" and paratyphoid "B" vaccine prepared in the Army Medical School, Washington, D. C.

Commission Not a Commission Until Accepted

Regularly commissioned officers of the Medical Reserve Corps were exempt from registration and are therefore exempt from conscription. This exemption will apply also to those officers of the Reserve Corps who have been commissioned since the day of registration. But it must be remembered that no one is regarded as commissioned until he has completed his enlistment by formally accepting the commission and forwarding to the Adjutant General's Office his acceptance with a signed oath of allegiance. To represent oneself as commissioned in any department of the government service before regularly accepting a commission is definitely an act of misrepresentation.

Sons of Dr. Victor C. Vaughan Leave for Duty Abroad

Major J. Welles Vaughan and Capt. Victor C. Vaughan, Jr., sons of Major Victor C. Vaughan, dean of the University of Michigan, Medical School, left for duty abroad last week. Major J. W. Vaughan has had previous military experience, as he served on the Mexican border for three months during 1916.

The Royal Society of Medicine Offers Gratuitous Fellowship to Visiting American Physicians

To the Editor:—We are anxious to let it be known as widely as possible that we offer the heartiest welcome to the American doctors who are coming over to help in the war. During their stay on this side we offer them all the privileges of Fellowship gratuitously. We have the finest medical library in this country, and many comforts in the house which make it almost a club, and nothing would please us better than to see it crowded with our American friends. I have communicated this to some of the leading doctors who have already arrived and gone to France, and have sent cards like the enclosed to your embassy and consulate, but I still find, when I meet some of your doctors socially, that they have not heard of our offer, and I should be very grateful if you would take an opportunity of calling attention to it in your pages. J. Y. W. MACALISTER, Secretary.

The Royal Society of Medicine, 1 Wimpole Street, London, W.

The following special notice has been issued:

The council of this society offers a cordial invitation to the commissioned officers of all the naval and military medical services, when in London, to make free use of the society's rooms (which include writing, conference, smoking, tea, and dressing rooms) and to use the library for reading and reference. They are also welcome to attend the meetings which are held for the reading of papers, clinical demonstrations, and for discussions. These are announced in the weekly medical journals. The society's house is open every day except Sunday from 11 a. m. to 6:30 p. m.



The Royal Society of Medicine.

Promotions in the Army Medical Corps

During the past two weeks the Surgeon General's Office has been preparing lists showing the changes in the Medical Corps which will result in the addition of the four remaining increments to this branch of the service. It can be officially forecast that the 102 first lieutenants of the regular Medical Corps now on the rolls will be made captains. The House of Representatives, during the past week, passed a bill which will enable the Surgeon General's Office to promote medical officers from first lieutenants to captains before the term of five years, during which a medical officer ordinarily serves as first lieutenant, has elapsed.

Physical Qualifications for Medical Officers

A Pennsylvania physician writes: "I have been hearing from many sources of the severity of physical examination of men applying for commission in the Medical Reserve Corps, and I would like very much to know whether a condition that I have at present, i. e., deviated nasal septum and hypertrophied turbinates, would be considered as cause for rejection."

ANSWER.—According to G. O. No. 66, W. D., 1910, "Rules for the Examination of Recruits":

> "Nasal obstruction due to septal deviation, hypertrophic rhinitis, or other causes, if irremediable and sufficient to produce mouth breathing, is cause for rejection. Nasal polypi, when operable and not associated with sinus disease, are not disqualifying."

Qualifications for Service on Exemption Boards

Several queries have been received as to the qualifications for appointment as physician on exemption boards, especially whether the physician must be a member of the Medical Reserve Corps in order to obtain such an appointment. Exemption boards consist of three or more members, none of whom can be connected with the military establishment. Therefore no officer of the Medical Reserve Corps is eligible for appointment to these boards. Physicians who have been appointed on the boards are not officers of the Medical Reserve Corps.

Prevention of Infectious Diseases

A conference of health experts summoned by Dr. Simon Flexner, director of the Rockefeller Institute, New York, was held in New York, June 5, to prepare instructions for medical officers regarding the prevention of infectious diseases in camps. This commission is composed of Dr. Flexner, Dr. Charles V. Chapin, Providence, R. I.; Col. Frederick P. Reynolds, M. C., U. S. Army; Dr. William H. Welch, Baltimore; Dr. Herman M. Biggs, New York, and Dr. Victor C. Vaughan, Ann Arbor, Mich.

Position of Physicians Under the Selective Conscription

A physician inquires: "As I am just within the upper conscription age limit I would like to know whether, if I did not apply for commission in the Reserve Corps, and if I should be selected by the draft, I could then make application for the Reserve Corps. I ask this because I have been hearing that medical men in the conscription limits who do not join the reserve will, on being drafted, be put in as hospital orderlies and given no chance of joining the reserve."

ANSWER.—It has not yet been determined what will be the position of the physician who is drafted. No doubt, however, the War Department will avail itself of any special knowledge which the conscripted man may possess. We know of no reason why a physician who is drafted may not ask to be transferred to the Medical Corps.

Physician Detailed on Pershing's Staff

Major Fred T. Murphy, St. Louis, second in command of U. S. Base Hospital No. 12, has been detailed to duty on the staff of General Pershing.

American to Fight Tuberculosis in France

Mr. Homer Folks, New York, president of the National Association for the Study and Prevention of Tuberculosis, has been asked by the government to assist in the antituberculosis work in France.

Medical Students and Conscription

The following are typical of numerous inquiries which have been received from medical students regarding exemption from the draft.

> "I am a student in the University of Illinois Medical School. I read in your journal that it was the duty of the medical students to continue in school. I wrote the War Department in regard to whether medical students would be drafted. I received very little satisfaction, and I believe that medical students will not be exempt."

> "Would you be so kind as to write me, if possible, the status of medical students under this Conscription Law; whether they will be allowed to continue in school or whether they will be drafted?"

These two letters are simply samples. We regret to say that no action has thus far been taken by the government in regard to premedical students, medical students or physicians.

The probability is, however, that the secretary of war will recognize the needs of the Medical Department and grant the requests that have been made to him that medical students, if not premedical students, be exempt from year to year; in other words, allowed to proceed with their studies.

Commissions in the Reserve Corps

During the week ending June 23, 1917, seventeen majors, 105 captains and 1,030 lieutenants were recommended to the adjutant-general of the army for commission in the Medical Reserve Corps.

Acceptance of a Commission Should Indicate Willingness to Serve

The Surgeon General's Office urges that physicians who cannot be spared from medical faculties or hospital staffs for active service shall not apply for or accept commissions in the Medical Reserve Corps.

Roentgen-Ray Tests for Recruits

Health Commissioner Biggs has made plans for the Roentgen-ray examination for tuberculosis of New York state recruits. At least 1,000 men are to be so examined and it is believed that the results will determine whether an examination of this nature is necessary in order to make a diagnosis of tuberculosis. In France 150,000 men have returned from the front with active tuberculosis and it is hoped that by rigid examination before enlistment, the spread of the diseases in a serious form among our new armies may be prevented.

Doctors to Fit Men Physically for Service

On June 20, a session was held at the College of Physicians and Surgeons, Philadelphia, at which physicians past the age for medical service organized for the reclamation of men physically unfit for the United States Army or Navy. Major W. W. Keen was elected president of the organization and the vice presidents, Drs. John B. Deaver and James M. Anders. Physicians more than 55 years of age, doctors who cannot pass the reserve corps medical examination and physicians who for other reasons cannot go to the front, will form the membership of the organization which will include also dental surgeons, pharmacists and chiropodists. The plan is to have a camp where men who have been refused service in the army or navy for minor defects may have these defects cured or so remedied that they will be able to enlist later. This is carrying out the plan of Dr. William Duffield Robinson, which won the approval of the surgeon-general. The entire equipment of the Germantown Hospital has been offered.

Reeducation and Rehabilitation of Maimed, Crippled, and Otherwise Disabled Soldiers

A conference on the reeducation and rehabilitation of maimed, crippled, and otherwise disabled soldiers was called by the General Medical Board of the Advisory Commission of the Council of National Defense on June 22. The conference was organized from among groups of specialists having knowledge of the various problems likely to arise. The membership of the conference was as follows: Dr. James Bordley, Jr., Baltimore, representing ophthalmology; Dr. John Staige Davis, Baltimore, plastic surgery; Mr. C. R. Dooley, Pittsburgh, vocational education; Dr. S. I. Franz, Washington, D. C., neurophysiology; Mr. F. B. Gilbreth, Providence, R. I., management engineer; Dr. R. W. Lovett, Boston, orthopedic surgery; Dr. Harris P. Mosher, Boston, otologist; Dr. T. H. Weisenburg, Philadelphia, neurology; Dr. W. A. White, Washington, psychiatry, and Dr. Edwin W. Ryerson, Chicago, orthopedic surgery. The findings and recommendations of the conference were submitted by the chairman, Dr. Franz, to the general board on June 24.

The recommendations of the conference were as follows:

1. It is believed that the work of a committee on reeducation and rehabilitation of the maimed and crippled will be most effectively performed if one or more medical officers be designated to cooperate with it.

2. Activity with respect to reeducation work should begin as early as possible. This should be by intensive instruction of medical officers, in medical specialties, at the present and future army medical camps or by sending selected squads to establish medical schools for short terms of special instruction.

The medical specialties that have direct bearing upon the problems of reeducation are: orthopedic surgery, plastic surgery, neurology, psychiatry, ophthalmology, and otology.

3. If reeducation is to be carried out with the best results, it is desirable that special treatment of the wounded should be carried out under the direction of specialists as early as possible.

4. The establishment of reconstruction hospitals, or hospital schools, for the repair of cripples and disabled persons is essential. These institutions should preferably be widely distributed, and should be large rather than small. It is preferable to utilize existing institutions, when suitable or adaptable for the work, rather than to build others.

Hospital schools for crippled are particularly adapted for such use, having beds, instrument shops, and industrial schools. To supplement the three state institutions, Massachusetts, Minnesota, and Nebraska, now available, and such similar private institutions which may later be offered is unnecessary. Public hospitals and other public institutions may be utilized for the purpose.

Convalescent homes which may be separate from hospitals will also be required. Large country places, vacant country hotels, etc., would be suitable. The institutions should be under military control.

The conference would recommend a census of suitable institutions, which would be available in different parts of the country.

In France in April, 1916, there were about 50,000 amputated and otherwise disabled soldiers needing medical reconstruction and reeducation. Biesalski has estimated that in Germany 40,000 cripples were produced in the first few months of the war. From 70 to 80 per cent. of the wounded returned to Canada have needed reconstruction and reeducation work.

5. Relatively few of the cripples can return to their former occupations because of their disabilities, and they must be taught new ones.

The experience of other countries now at war shows that careful examinations, physical and mental, must be made of the crippled and maimed as a basis for the determination of the individual capabilities for reeducation. The conference believes that careful analysis should be made of different occupations to determine the anatomical characteristics necessary for them, as a guide for those who will have charge of vocational education. Careful attention should also be given to the matter of modifying the occupation to fit the individual.

In England scientific examination of the men was not made at first, and many cripples were permitted to undertake to learn occupations for which they were not fitted physically, mentally, or by previous experience. France has also had the same experience.

6. The conference believes that every disabled soldier, whether or not unable to follow his former occupation, should be kept under military discipline until the completion of physical reconstruction and reeducation.

It has been found that many disabled soldiers in European countries would not undertake reeducation, and apparently preferred to be permitted to remain helpless and, thus, a social liability. Every man should be compelled to undertake to learn an occupation that will enable him to be self-supporting or partly self-supporting. This is quite apart from the consideration of pensions, a matter which the conference was not called upon to discuss.

7. Reeducation must be a cooperative endeavor of all the special interests involved; medical, educational and social.

8. A committee on vocational education has been formed under the auspices of the Council of National Defense. The work of that committee and that of a committee on the reeducation and rehabilitation of the maimed and crippled where they meet should be intimately correlated.

9. The conference feels that as great publicity as is consistent with public policy should be given to the work of reeducation and rehabilitation of the maimed and crippled. The public should be taught that the cripple is not to be considered a total economic loss, but should realize that if suitably trained he will be an economic asset.

10. That a permanent Committee be appointed to carry out whatever plan that may be adopted, and

11. That this committee should contain representatives of the various medical, educational, and social interests concerned, and should comprise in its membership representatives of the Army, the Navy, and Public Health Service, and the American Red Cross.

In presenting the recommendations of the conference, the chairman, Dr. Franz, made the following statement on conditions abroad and work already done in this connection. (On account of lack of space Dr. Franz' address will be published in the Miscellany department of THE JOURNAL next week.)

The report and recommendations of the conference was taken under consideration by the General Medical Board.

Conference on Child Welfare in War Time

At a conference called by the General Medical Board of the Council of National Defense, in Washington, June 15, to consider and report on child welfare work during the present emergency, the following resolutions were adopted:

1. We urge the Council of National Defense to direct that, so far as practicable, physicians teaching obstetrics and pediatrics and those devoting themselves exclusively to problems of maternity and of infant and child welfare, continue in such service either at home or abroad.

2. Realizing that public health nurses are essential to the carrying on of child-welfare work, we recommend that every possible effort be made to prevent these especially trained nurses from being withdrawn from

such work, and that public health nursing be officially recognized as war service.

3. Recognizing the increasing need for trained nurses and the inadequate number available for military and home service, we recommend especially efforts to enlist graduates of colleges and high schools and other suitable candidates for hospital training courses.

4. Organized volunteer aids should be enlisted to assist public health nurses and other social workers through all practicable methods of personal service. We advise appropriate courses of training for such volunteers.

5. We recommend that the Council call upon all committees to see to it that there is no abatement, but, on the contrary, a decided increase in their activities along the lines of maternal, infant, and child welfare, —this to apply to all public and private agencies.

6. We deplore the breaking up of the home and recommend that everywhere special provision be made to keep the mother and her young children together in the home; but this does not imply the endorsement of the home work system. Mothers of nursing infants should be provided for through mothers' pensions or otherwise. Day nurseries should be especially supervised, and reference should be had to the standards of the National Federation of Day Nurseries. The highest standards should be required of all children's institutions.

7. We urge that the Council of National Defense recommend the prompt enactment of model laws for the registration of births and deaths and the reporting of preventable diseases in the States in which such laws do not exist, and we strongly urge their complete enforcement throughout the country.

8. We urge that every effort be made not only to prevent the repeal or relaxation of any of the existing child labor laws, but we urge on the contrary their more rigid enforcement and the enactment of such further laws as may be needed. We recommend a plan of supervision similar to that adopted by the National Child Labor Committee in pamphlets 276 and 277.

9. For the sake of obtaining the highest possible development of child life and as one of the best means of conserving the character and moral tone as well as physical development of the growing child we recommend the extension and use of all sound recreational facilities.

10. Appreciating that no plan for real child conservation in war time can be developed without a serious consideration of the mentally defective child and the juvenile delinquent, and especially because of the great increase in juvenile delinquency in Europe since the war we urge the Council of National Defense to recommend to the various States that greater facilities be created for the recognition and handling of these problems, through the schools, medical teaching, juvenile court work, and children's institutions.

11. We recommend proper medical examination and supervision for boys and girls entering volunteer organizations involving physical exercise.

12. We urge as particularly important the medical examination of boys and girls before they enter industries, also subsequent medical oversight for them.

13. We recommend systematic publicity and free circulation of accredited literature on maternal, infant, and child welfare. Since many organizations are distributing pamphlets and literature broadcast, some good and some poor, we recommend that a committee of obstetricians, pediatricians, sanitarians, and nurses be appointed to review and standardize such literature for wider distribution.

14. We strongly endorse the measures taken by the Army and Navy authorities for the moral protection of the military forces and endorse also liberal recreational facilities as an indispensable measure to that end.

15. We urge that immediate steps be taken to secure the adoption of a Governmental plan to assure adequate support for soldiers and their families. This plan should include financial and medical provision, facilities for the reeducation of the injured soldier, and the reestablishment of the family. Such a plan promptly put into operation would have more effect in promoting child welfare than any other measure which the Government could adopt on behalf of the dependents of men in service.

16. This country should be warned by the mistake of the European countries which have allowed their milk supplies to become impaired. It should therefore take the necessary steps to prevent a milk shortage. We protest against the indiscriminate slaughter of milch cows.

17. We urge the Council of National Defense to ascertain whether there is need among the Allied Nations for maternity care and infant and child welfare work that can properly be performed by Americans, and if this be the case, that the Council confer with suitable persons or organizations with a view to rendering such service.

18. We recommend that the Council of National Defense organize a national committee representative of maternal, infant, and child welfare associations, to keep in touch during the present emergency with national problems of maternal, infant, and child welfare, and to advise the Council of National Defense from time to time of such features of the then existing situation as may call for remedial action. We recommend further that the Council of National Defense, through the several State Councils of Defense, cooperate with local organizations interested in maternal, infant and child welfare and establish an agency or appoint an existing agency to secure information as to the specific needs of each community and to show how such needs can be adequately met. We recommend that so much of this report as may be approved by the Council of National Defense be transmitted to the State Councils of Defense and to the proposed national and state committees recommended above, if such committees be created, or designated, to guide them in their respective actions looking toward the conservation of maternal, infant and child welfare during the present emergency.

These resolutions were presented to the General Medical Board on June 24, and were taken under advisement.

Orders to Officers of Medical Reserve Corps

ALABAMA

To Fort Oglethorpe, Ga., Lieuts. Burr Ferguson, Fairfield; James R. Hudnall, Coalmont; and William J. Robbins, Ensley.

To Washington, D. C., Lieut. Drayton G. Doherty, Selma.

The resignation of Lieut. Thomas H. Scott, Ft. Morgan, has been accepted.

ARIZONA

To Fort Oglethorpe, Ga., Lieut. H. Reese, Bisbee.

ARKANSAS

To Fort Oglethorpe, Ga., Lieut. Harry C. King, Ft. Smith.

CALIFORNIA

To Calexico, Cal., Capt. John J. Kyle, Los Angeles, and report to commanding officer of camp, John H. Beacom.

To Chicago, Capt. George H. Evans, San Francisco, about June 30; Lieut. Col. Lionel D. Prince, San Francisco; Lieut. Bruno F. Sandow, Oakland. With Ambulance Company, No. 2, Lieut. Cyril E. Lewis, Calistoga; and Lieut. F. W. Kroll, San Francisco.

To Fort Myer, Lieut. George C. H. Franklin, San Francisco.

To Letterman General Hospital, Presidio of San Francisco, Major Walter C. Chidester, and Lieut. Albert Cohen, San Mateo; Capt. Julian M. Wolfsohn, San Francisco.

So much of Par. 69, S. O. 122, May 26, War D, as relates to Capt. George H. Evans, San Francisco, is revoked.

So much of Par. 74, S. O. 103, May 4, War D., as relates to Lieut. George C. H. Franklin, San Francisco, is revoked.

DISTRICT OF COLUMBIA

To Army Medical School, Washington, D. C., Lieut. Earle G. Breeding, Washington.

To Gettysburg, Lieut. Rudolph Bloom, Washington.

To Fort Oglethorpe, Ga., Lieut. Charles E. Ralph, Washington.

FLORIDA

To Fort Oglethorpe, Ga., Lieut. Percy H. Brigham, Alton; Lt. Samuel G. Hollingsworth, Bradentown; Lieut. G. W. Sherouse, Campville; Lieut. Raymond Howe, Daytonia; Lieut. George C. Tillman, Gainesville; Capt. Harry A. Peyton, and Lieuts. James B. Parramore, Archie R. Parrot, and Turner Cason, Jacksonville; Capt. Frank R. Maura, Myakka City; Lieut. Joel W. Hood, Ocala; Lieut. John W. M'Clane, St. Petersburg; and Capt. Andrew R. Bond, Tampa.

To Canal Zone, Capt. Henry Hanson, Jacksonville, and Report to Governor.

GEORGIA

To Fort Benjamin Harrison, Ind., Major William A. Powell, Cairo.

To Fort Oglethorpe, Ga., Lieut. Walter A. Miller, Arabia; Capt. Montague L. Boyd, Atlanta; Lieut. William W. Jarrell, Thomasville; and Lieut. Heber J. Morton, Waynesboro.

To New York, Lieut. Charles A. Hodges, Dublin.

To Syracuse, N. Y., Lieut. John W. Lee, Porterdale.

To Washington, D. C., to join the 6th Engineers, Lieut. Ferdinand H. Herrmann, Eastman.

IDAHO

To Fort Oglethorpe, Ga., Capt. Francis H. Poole, and Lieut. Leo F. Castle, Pocatello; and Capt. Julius L. Arntzen, Paris.

To Fort Riley, Kansas, for instruction, Capt. Curtis Bland, Preston.

ILLINOIS

To Army Medical School, Washington, D. C., Capt. H. H. Pillinger, Algonquin; Capts. John E. Kelley and Frederick W. Moeller, Chicago; Lieut. Roswell T. Pettit, Ottawa; and Lieut. Samuel H. Richman, Oak Forest.

To Fort Oglethorpe, Capt. Albert E. McEvers, Chicago.

To Fort Riley, Kans., Lieut. James R. Williams, Danville.

To Gettysburg, Lieut. Anthony H. Bennewitz, Cicero.

To Syracuse, Capt. George E. Hilgard, Belleville.

INDIANA

To Army Medical School, Washington, D. C., Lieut. Jesse L. M'Elroy, Indianapolis.

To Fort Benjamin Harrison, Lieut. L. H. Redman, Elizabethtown.

To Fort Oglethorpe, Lieut. W. W. Harris, Ellettsville.

To New York, Lieuts. Arthur E. Guedel, Indianapolis; and Ulysses G. Goodwin, Monticello.

To Syracuse, Lieut. Edward G. Brandenberger, Rockville.

IOWA

To Army Medical School, Washington, D. C., Lieuts. Samuel Miller, Des Moines; and Frederick C. Smith, Keokuk.

To Fort Riley, Kansas, Lieut. Edward S. Parker, Idagrove.

To New York, Lieut. Theodore W. Kemmerer, Davenport, for a course in Medical Research work at Rockefeller Institute.

To Fort Oglethorpe, Ga., Lieut. E. J. Lambert, Ottumwa.

KANSAS

To Fort Oglethorpe, Ga., Lieut. Alonzo Woodford Little, Jr., Kansas City.

KENTUCKY

To Fort Oglethorpe, Ga., Lieuts. Arthur C. Henthorn, Garrison, and William L. Carman, Paint Lick.

LOUISIANA

To FORT OGLETHORPE, GA., Capts. Cyriaque J. Gremillion, Alexandria; James J. Robert, Baton Rouge; and Randell Hunt, Shreveport; Lieuts. Edward J. Huhner, New Orleans; and Thomas Ragan, Shreveport.

MAINE

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Paul S. Hill, Biddiford.

So much of Para. 59, S. O. 112, May 15, War D., as relates to Capt. Charles H. Hunt, Portland, is revoked.

MARYLAND

To BALTIMORE, Major Frederick H. Baetjer, Catonville, designated instructor in roentgenology at Baltimore.

To NEW YORK, Lieut. James A. Duff, Westport.

To FORT OGLETHORPE, GA., Lieuts. Bartus T. Baggott, C. W. Hoffmann, James J. O'Connor, and Hugh W. Sweeny, Baltimore; William D. Cawley, Elkton; Maynard I. Simmons, Indian Head.

MASSACHUSETTS

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieuts. William M. Dobson and P. R. Withington, Boston; Henry L. Davis, Lynn.

To NEW YORK, for course of instruction in Medical Research at Rockefeller Institute, Lieuts. Charles H. Bailey, Gardner; Homer L. Conner, Haverhill; George L. Schadt, Springfield; and George C. Lincoln, Worcester.

To FORT OGLETHORPE, Capt. Walter R. Weiser, Springfield.

To 12TH FIELD ARTILLERY, Lieut. James B. Pascoe, Fort Revere.

MICHIGAN

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Harry H. Hammell, Ann Arbor.

To DETROIT, Lieuts. W. H. Browne and G. L. Coan, Detroit.

To FORT OGLETHORPE, Lieut. Paul B. Bender, Caro.

To SYRACUSE, Lieut. Ward F. Seeley, Detroit.

To 9TH ENGINEERS, NATIONAL ARMY, Capt. W. W. Manton, Detroit.

Lieut. Dean W. Myers, Ann Arbor, honorably discharged.

Resignation of Lieut. Roscoe G. Leland, Kalamazoo, accepted.

MINNESOTA

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Raymond W. Whittier, Morton, to report to commanding officer of that school as assistant to professor of sanitary tactics.

To FORT OGLETHORPE, GA., Lieut. Henry L. Stickney, Rochester.

MISSISSIPPI

To WASHINGTON, D. C., Lieut. W. C. Brewer, Columbus.

To NEW YORK, Lieuts. Wythe M. Rhett, Columbus; and James E. Dunlap, Muldon.

MISSOURI

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieuts. Wallace A. Belsey, William I. Smith, Philip M. Stimson and Nicholas A. Young, St. Louis.

To FORT BENJAMIN HARRISON, Lieut. Pierre I. Chandeysson, St. Louis.

To FORT LEAVENWORTH, KANSAS, Lieut. Arthur A. Hobbs, Kansas City; and Capt. Stuart L. Baysinger, Rolla.

To FORT RILEY, KANSAS, Lieuts. Robert R. Glynn, Springfield; and Joseph C. Hynes, St. Louis.

To GETTYSBURG, Lieut. Charles L. Munson, St. Louis.

To NEW YORK, Lieuts. Ernest L. Coffin and Howard M. Foster, St. Louis.

To FORT OGLETHORPE, GA., Capt. Vilray P. Blair, St. Louis.

To ST. LOUIS, Lieut. William E. Leighton, St. Louis, to conduct examination of applicants for appointment in M. R. C. On completion of this duty Lieut. Leighton will stand relieved from further active duty.

The resignation of Lieut. Harry B. Davis, Kansas City, has been accepted.

MONTANA

To FORT RILEY, KANSAS, Lieut. Harry J. Huene, Forsyth.

NEW HAMPSHIRE

To FORT ETHAN ALLEN, Capt. Amos G. Straw, Manchester.

NEW JERSEY

To FORT OGLETHORPE, GA., Lieuts. Robert W. Rodman, Allendale; Livingstone L. Lewis and Henry T. Von Deesten, Hoboken; Capts. Nicholas F. Feury and Richard Hirsch; and Lieuts. Jacob Rosenberg and Julius Sobin, Jersey City; Samuel W. Dodd, Montclair; Carmine G. Berardinelli, James J. L. Young and Anthony C. Zehnder, Newark; George H. Richards, Orange; Murray B. Kirkpatrick and Lawrence H. Rogers, Trenton; and Frederick J. Quigley, Union Hill.

To GETTYSBURG, Lieut. Richard Bew, Atlantic City.

To NEW YORK, for course of instruction in Medical Research, at Rockefeller Inst., Lieuts. Frederic H. Thorne, Greystone Park; and Dundas R. Campbell, Newark.

To SYRACUSE, Lieut. John T. English, Newark.

To WASHINGTON, D. C., Capt. E. J. G. Beardsley, Spring Lake Beach; and Lieut. J. W. Rice, New Brunswick.

NEW MEXICO

Lieut. Louis H. Pate, Carlsbad, honorably discharged.

NEW YORK

To ALLENTOWN, PA., Lieut. Samuel William S. Toms, Nyack.

To FORT BENJAMIN HARRISON, IND., Capt. G. B. Lee, New York.

To FORT OGLETHORPE, GA., Capts. William E. Butler, Brooklyn; Charles W. Haverkampf, Ft. Jay, as surgeon and charge of general hospital; Howard Fox, from Ft. Slocum, for course of instruction; Lieuts. Royden M. Vose, Ithaca; Robert E. Seibels, New York City; and Elmer B. Shaul, Richfield Springs.

To FORT PORTER, N. Y., Maj. George H. Scott, Ft. Jay; and Capt. John G. Stowe, Buffalo.

To GETTYSBURG, Lieut. Joseph Price, New York.

To NEW YORK, Lieuts. Hugh Chaplin, New York; and Walter D. M'Kenna, Troy. For course of instruction in Medical Research at Rockefeller Institute, Capt. Howard L. Van Winkle, Albany; Lieuts. Stephen H. Curtis, Albany; William L. Aycock, New York City; and Donald J. McPherson, Palmyra.

To PLATTSBURG BARRACKS, Lieut. Harold A. Benson, Kings Park.

To SYRACUSE, Lieuts. Laurent G. Feinier, Henry E. Marks and Alexander Milean, Jr., New York City; Reginald Ducat, New Rochelle.

To WASHINGTON, D. C., Lieuts. Thomas M. Holmes, Delmar; Nathaniel P. Brooks, New Lebanon; Capt. W. D. Anderson, Lieuts. James L. Cobb, Thomas K. Davis, Linwood M. Gable, and Gilbert S. Osincup and Charles H. Watt, New York City; Sidney W. Thompson, Oswego; Capt. Max A. Almy, Rochester; Lieuts. Francis T. Duffy, Troy; and George S. Silliman, Westbury. For duty with 6th Engineers, Lieut. Thomas E. Cooney, New York.

NORTH CAROLINA

To FORT OGLETHORPE, Lieuts. Julius N. Hill, Murphy; John A. Winstead, Nashville; and Alexander F. Thompson, Troy.

Lieut. Frank R. Ruff, Duke, to report by telegraph to commanding general Southeastern Department for assignment.

To NEW YORK, Lieuts. Glenn Long, Catawba; Booton S. Compton, Greensboro; and Russell S. Beam, Lumberton.

NORTH DAKOTA

To WASHINGTON, D. C., Lieut. R. M. Deming, Mercer.

So much of Par. 55, S. O. 121, May 25, War D, as relates to Lieut Theo. Braturd, Grand Forks, is revoked.

OHIO

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieuts. Fred S. Wright, Bellaire; Herbert A. Brown, Cincinnati; William T. Fenker, Columbus; and Charles W. Maxson, Steubenville.

To FORT OGLETHORPE, GA., Lieut. Charles H. Young, Ashtabula; Capts. R. W. Holmes, Chillicothe; William H. Leet, Conneaut; Lieuts. Gilbert W. Brehm, Columbia; John R. Wolfe, Delphos; W. E. Hart, Elyria; and Thomas M. Wood, National Military Home.

To NEW YORK, Lieuts. Virgil H. Danforth, Byesville; Louis A. Querner, Cincinnati; and Harry R. Wahl, Cleveland.

To HOME, Lieut. Leroy B. Sherry, Cleveland.

OKLAHOMA

To FORT OGLETHORPE, GA., Lieut. Robert R. Sellers, Westville.

OREGON

Lieut Joseph A. Pettit, Portland, has been honorably discharged.

PENNSYLVANIA

To ALLENTOWN, PA., Capt. Henry M. Hall, Pittsburgh; Lieuts. Roscoe F. Mauser, Fountain Springs; J. E. Marshall, Lebanon; Frank N. Greene and Sidney J. Repplier, Philadelphia; T. G. Killeen, Scranton.

To FORT OGLETHORPE, GA., Capts. William W. Babcock, Ferdinand L. Benz and Henry K. Gaskill, Philadelphia; Lieuts. Fred. H. Bloomhardt, Altoona; Robert A. Kilduffe, Chester; James L. Junk, Connellsville; Roscoe L. Perkin, Harrisburg; Frederick P. Simpson, Mapleton Depot; Richard R. Spahr, Mechanicsburg; Henry A. Gormand, and Jacob S. P. Makler, Mount Alto; Charles W. Vates, Mount Oliver; Carlton H. Davidson, New Salem; Arthur E. Davis and Leo P. Gibbons, Scranton; Homer P. Prowitt, Washington; John A. Farrell, West Chester; Clyde W. Sample, Wilkinshurg; Henry S. Monroe, Wind Ridge; Louis S. Weaver, York; Herman E. Albrecht, James H. Arnett, Charles Bowne, William R. Bready, Henry P. Brown, Clifford B. Farr, Albert McConaghy, Allen H. Moore, William S. Newcomet, Charles B. Reynolds, Charles H. Tait, Stephen W. Tunnell, Charles C. Watt, Jr., and Howard K. White, Philadelphia; Moses H. Baker, John C. Calhoun, Milton B. Katzenstein, Edward A. Pitcairn and Maurice S. Redmond, Pittsburgh.

To FORT SCHUYLER, N. Y., Lieut. John G. Archer, Jr., Philadelphia.

To GETTYSBURG, Lieuts. Bartholomew M. Allen and Theodore Melnick, Philadelphia; Thompson McD. Baird, Wilkes-Barre; and Clyde L. Curl, Pittshurgh.

To NEW YORK, Lieuts. Michael W. Stofer, Chambersburg; Norman J. Quinn, Conshohocken; George A. Poux, Meadville; John Berry, Mont Alto; Andrew A. Flannagan, Jr., Philadelphia; and Alfred W. Duff, Pittsburgh.

To ROCKEFELLER INSTITUTE for course in Medical Research, Lieuts. Charles B. Reitz, Allentown; and George R. Moffitt, Harrisburg.

To WASHINGTON, D. C., Capt. J. H. Austin, Ardmore; Lieuts. James H. Austin, Ardmore; Charles C. Crouse, Derry; Kenneth A. Allen, and J. E. McDowell, Philadelphia; Joseph B. Gold and Maurice S. Redmond, Pittsburgh; George H. Robinson, Uniontown.

To 9TH REGIMENT ENGINEERS, NATIONAL ARMY, Lieut. H. C. Flood, Pittsburgh.

Resignation of Lieut. William M. Workman, Mt. Joy, has been accepted.

To HOME, Lieut. Thomas W. Penrose, Philadelphia, and upon arrival report by telegraph to Adjutant General.

So much of Par. 52, S. O. 121, May 25, War D, as relates to Lieut. Clarence F. Bernatz, Pittsburgh, is revoked.

So much of Par. 83, S. O. 136, June 13, War D, as relates to Lieut. James L. Junk, Connellsville, is revoked.

SOUTH CAROLINA

To ARMY MEDICAL SCHOOL, WASHINGTON, D. C., Lieut. Robert H. Crawford.

To ALLENTOWN, PA., Lieut. Benjamin F. Wyman, Aiken.

To GETTYSBURG, Lieut. Lawrence R. Craig, Dillon.

To WASHINGTON, D. C., Lieut. Robert H. Crawford, Rock Hill.

TENNESSEE

To FORT OGLETHORPE, GA., Lieuts. Gilbert M. Roberts, Chattanooga; Homer Reese, Galatin; Joseph W. Bauman, Nashville; Robert B. Underwood, and Arthur R. Porter, Memphis.

To MEMPHIS, Lieut. Edward C. Ellett, Memphis, to examine applicants for commission in aviation section, Signal O. R. C.

TEXAS

To FORT DES MOINES, IA., Capt. George W. Cook, Harlingen.

To FORT MCPHERSON, Major Louis C. Duncan, Ft. Bliss.

To FORT OGLETHORPE, Lieut.-Col. Thomas J. Kirkpatrick, Brownsville, as vice surgeon and manager of the general hospital. Capt. John T. Halsell, Laredo; Lieuts. Knight W. Field, Dallas; J. E. Boyd, Hillsboro; Robert L. Dinwiddie, San Antonio; Jorn A. Lightfoot, Texarkana; and George H. Stagner, Waco.

To WASHINGTON, D. C., Lieut. Ernst W. Bertner, Houston.

UTAH

To FORT OGLETHORPE, GA., Lieut. Howard T. Wickert, Huntsville.

VIRGINIA

To FORT MYER, Lieut. Minor C. Lile, University.

To FORT OGLETHORPE, GA., Lieuts. Alvah Ramsey, Burkeville; John B. Halligan, Petersburg; Lonsdale J. Roper, Portsmouth; William L. Peple and Henry S. Stern, Richmond; and Robert B. Shackleford, The Plains.

To GETTYSBURG, Capt. Reading L. Williams, Norfolk.

To NEW YORK, Lieuts. George H. Musgrave, Boykins; and Baxter L. Crawford, Richmond.

WEST VIRGINIA

To FORT OGLETHORPE, GA., Lieut. Morris I. Mendeloff, Charleston.

To HOME, Lieut. E. T. Lake, Nuss.

WISCONSIN

To NEW YORK, Lieut. Frank X. Pomainville, Grand Rapids.

PHILIPPINE ISLANDS

To CHICAGO, Lieut. Donald P. McCord, Manila, for assignment to duty and station.

To FORT BENJAMIN HARRISON, IND., Capt. Samuel J. Turnbull, Manila.

To FORT OGLETHORPE, GA., Capt. George B. Angle, Manila.

Orders to Officers of the Medical Corps

Lieut. Col. Frederick P. Reynolds, M. C., to duty in office of Surgeon General.

Lieut. Col. George A. Skinner, Major J. B. Huggins, Capts. George B. Foster, Jr., M. C.; Robert Skelton, M. C., and Adna G. Wilde, M. C., to report at Nogales, Ariz., for examination for promotion.

Lieut. Col. Edward R. Schreiner, M. C., to New York, N. Y., for investigating the Columbia University War Hospital, with a view to its use as a receiving and forwarding hospital for the Medical Service.

Major James I. Mabee, M. C., to Fort Niagara, N. Y., and will join.

Major Guy V. Rukke, M. C., to Plattsburg training camp for duty.

Major George H. Scott, M. C., to Fort Porter, N. Y., for station.

Major Wilson T. Davidson, Capts. T. L. Ferenbaugh and John G. Ingold, M. C., to Laredo, Texas.

Major Louis C. Duncan, M. C., to Fort McPherson.

Major William R. Eastman, M. C., to report for examination for promotion.

Medical officers to report at Douglas for examination for promotion: Major Robert Thornburg; Capts George H. McLellan, Wayne H. Crum, Frederick H. Foucar, Benjamin B. Warriner and John R. Barber.

Officers of Medical Corps to report at El Paso for examination for promotion: Lieut. Col. James M. Kennedy, M. C.; Majors T. S. Rhoads, P. H. McAndrew and Arthur W. Morse; Capts. J. S. Lambie, Jr., R. W. Kerr, L. C. Garcia, A. D. Davis, C. C. Demmer, J. P. Fletcher, J. S. Fox, F. Kramer, F. X. Strong, A. von Schrader, T. S. Scott, T. E. Harwood, Jr., H. S. Purnell and J. D. Whitham.

Medical officers to report at Marfa, Texas: Capts. P. B. Connolly, George E. Pariseau and Michael A. Daley.

Capt. George B. Lake, M. C., to report at Eagle Pass for examination for promotion.

Capt. James F. Johnston, M. C., to Columbia, S. C., for duty as camp sanitary officer.

Capt. T. H. Johnson, M. C., to Gettysburg, Pa., for duty.

Capt. William S. Shields, M. C., from Omaha to station at New York.

Medical officers to report at Brownsville, Texas, for examination for promotion: Capts. Thomas W. Burnett, Norman T. Kirk, Sanford W. French and Neal N. Wood.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Higher Preliminary Requirements.—The Medical Department of the University of Arkansas reports that after Jan. 1, 1918, the entrance requirements will be increased to two years of college work, including courses in physics, chemistry and biology. The state medical board of the Arkansas Medical Society has also adopted that standard, which will apply to all graduates after Jan. 1, 1922.

CONNECTICUT

Personal.—Dr. Milton C. Winternitz, formerly associate professor of pathology in Johns Hopkins University, Baltimore, has been elected professor of pathology in the School of Medicine of Yale University.——Dr. Frederick N. Sperry, New Haven, has been elected president and Dr. Charles E. Sanford, New Haven, secretary of the Yale Medical Alumni Association.

State Board Reorganized.—The new public health board authorized by the recent general assembly, which replaces the state board of health, has been appointed by the governor. Dr. John T. Black, New London, has been appointed commissioner of health for a six-year term. The council is composed of Dr. Edward K. Root, Hartford; E. W. Brown, Bridgeport; Prof. C. E. A. Winslow, New Haven; Mr. J. A. Newlands, West Hartford, and Mr. J. Frederick Jackson, New Haven.

Connecticut Adopts Maryland Plan.—The Connecticut State Medical Society has adopted the Maryland plan and appointed Drs. D. Chester Brown, Danbury, and John E. Lane, New Haven, a committee for carrying out the details of its application. Letters have been sent to all the physicians of the state and there has been a gratifyingly large number who have signed the agreement to turn over one third of the income received from patients of physicians who have entered the Medical Reserve Corps.

IDAHO

Personal.—Dr. Tracy R. Mason has been elected mayor of Kellogg.——Dr. William R. Hamilton has been reelected mayor of Weiser.——Dr. Berton O. Clark, Payette, has been appointed a member of the state board of health, to succeed Dr. Oscar B. Steely, Pocatello, term expired.

Society Meetings.—The joint meeting of the Whitman County Medical Society and North Idaho Medical Society was held in Moscow, June 12. The principal addresses were made by Charles W. Shaff, Lewiston, and W. R. Palmonton, Colfax.——The physicians of Minidoka and Power counties have organized at Rupert. Dr. John J. B. Kenagy, Rupert, was elected president; Dr. Vincent R. Killen, Rupert, secretary.

ILLINOIS

Chicago

Women Elect Officers.—The Medical Women's Club of Chicago had its annual meeting, June 13, and elected the following officers: Dr. Clara P. Seippel, president; Drs. Louise Acres and Helga Ruud, vice presidents; Dr. Mary Agnes B. Mulcahy, secretary, and Dr. Grace H. Campbell, treasurer.

Personal.—Dr. Willis O. Nance, Chicago, was appointed a member of the consulting staff of Cook County Hospital, June 25, to succeed the late Dr. John B. Murphy.——Dr. Norman Bridge, Los Angeles, spoke, June 20, before the Intercollegiate Club.——Dr. Wallace C. Abbott, Chicago, has been elected president and Dr. George H. Searle, Chicago, secretary-treasurer of the American Association of Pharmaceutical Chemists at its annual meeting in Atlantic City, June 13.

INDIANA

Medical Units Ordered Into Service.—To Field Hospital No. 1, Indianapolis, commanded by Major Larue D. Carter, and Ambulance Company No. 1, Frankford, Ind., commanded by Lieut. John P. Nicodemus, Logansport, have been ordered

to immediate duty at Fort Benjamin Harrison, Ind., in connection with the training camp of the Medical Officers Reserve Corps.

MAINE

Personal.—Dr. Pearl T. Haskell was elected superintendent of the Bangor State Hospital, June 13, succeeding Dr. Frederick L. Hills, resigned.——Dr. Lester F. Norris has been promoted to first assistant superintendent and Dr. Roy A. Thornley to second assistant superintendent of the Bangor State Hospital.

MARYLAND

Criticism of Rural School System.—Surg. James A. Nydegger, U. S. P. H. S., who is appealing to physicians of Maryland to enforce medical inspection of children under 12 years of age in the rural schools, states that, if the rural school system of Maryland and other states is corrected, 75 per cent. of the physical defects which today are barring men from service in the United States forces, will disappear. Dr. Nydegger found that defective eyes, ears, teeth and throats are due largely to rural school conditions and that the improper desks and seats have caused much spinal curvature.

Personal.—Dr. Robert W. Johnson, Jr., Baltimore, has sailed for France.——Dr. Ernest W. Watson, Baltimore, has resigned from the staff of the Brady Urological Institute, Baltimore, and opened offices in Buffalo.——Drs. Harry C. Algire, Charles R. Parker, William G. Coppage, Jacob Fisher and L. Ridgely Wilson have been appointed surgeons to the Baltimore park board.——Dr. John W. Sanderson, Baltimore, who has been under treatment for several weeks in the Maryland General Hospital on account of injuries received in a fall, is reported to be convalescent.——Dr. Joseph W. Roberts, Salisbury, has been appointed medical superintendent of the Maryland General Hospital.——Drs. William G. Clopton and Charles Norton have been appointed health wardens of Baltimore.——Dr. Joseph Irwin France has been elected to the United States Senate from Maryland.

MASSACHUSETTS

Hospital Opens Private Ward Building.—The Massachusetts General Hospital has opened a private ward building on Charles Street, Boston, eight stories in height, of fireproof construction and with accommodation for 122 patients.

Camp for Crippled Children.—A donation of $50,000 by an anonymous benefactor has made possible a camp for crippled children in Berkshire, about five miles from Pittsfield, where a farm has been leased. The camp will be under the general direction of Dr. W. Russell MacAusland, Boston, and will accommodate at the outset about twenty children.

Conservation of Child Life.—The state health commissioner has appointed as a committee on the conservation of child life, Drs. David L. Edsall and William J. Gallivan, members of the public health council, and Dr. Lyman A. Jones, director of the division of hygiene of the state health department. As consulting members he has named Drs. Fritz B. Talbot, pediatrist and chief of the children's medical department, Massachusetts General Hospital; Richard M. Smith, Boston, pediatrist, assistant in pediatrics, Harvard Medical School; Walter E. Fernald, psychiatist, superintendent of the Massachusetts School for the Feebleminded, and William Healy, psychologist, director of the psychopathic institute of the Chicago Juvenile Court, and Miss Mary Beard, director of the Instructive District Nursing Association.

Hospital Items.—The mayor of Boston has issued a call for contributions for the Orthopedic Hospital to be established on Parker Hill, Roxbury, under the direction of Dr. Joel E. Goldthwait. The total cost of the first equipment of the Hospital will be $12,000. The institution will be operated in conjunction with the Peter Bent Brigham Hospital, Boston, and will be used during the war as a physical repair shop.——The city council of Boston has authorized the mayor to borrow $75,000 for the reconstruction of the ward buildings of the City Hospital, which were damaged by explosion and fire two months ago. The reconstructed buildings will provide 100 additional beds for the institution. ——The Winchester Hospital was formally opened last week. The institution represents an outlay of about $75,000 and will accommodate fifty patients.

State Society Meeting.—The one hundred and thirty-sixth annual meeting of the Massachusetts State Medical Society was held in Boston, June 12 and 13, under the presidency of Dr. Samuel B. Woodward, Worcester. A motion favoring national prohibition was adopted, and the society agreed to subscribe $5,000 to the Liberty Loan Bonds. The Shattuck lecture was by Dr. Walter B. Cannon, George Higginson, professor of physiology in Harvard Medical School, and was on the subject of "The Physiological Factors Concerned in Surgical Shock," and in the absence of the author in Europe, was read by Dr. Austin W. Cheever. The following officers were elected: president, Dr. Samuel B. Woodward (reelected), Worcester; vice president, Dr. George P. Twitchell, Greenfield; secretary, Dr. Walter L. Burrage, Boston (reelected); treasurer, Dr. Arthur K. Stone, Boston; orator, Dr. Myles Standish, Boston, and librarian, Dr. H. Brigham, Boston.

Personal.—Dr. George B. Wislocki has been appointed to the Arthur Tracy Cabot Fellow chair, in charge of the laboratory of surgical research of Harvard University. William E. Brown has been made instructor in public health administration in Harvard University.——Dr. Townsend W. Thorndike, clinical assistant in dermatology, and Dr. Theodore W. Ely, assistant in pediatrics in Harvard Medical School, have resigned.——Dr. Edward W. Brown, Northampton, has been appointed medical examiner (coroner) for the first Hampshire district.——Dr. Arthur K. Stone and Simon Swig have been reappointed trustees of the Boston Hospital for Consumptives.——Dr. Lewis M. Palmer, Framingham, has been appointed trustee of the Massachusetts Training School.——Dr. Matthew T. Mayes, Springfield, has been reappointed a member of the Board of Registration in Medicine.——Dr. John A. Peterson, Hingham, has been reappointed medical examiner (coroner) for Plymouth County.——Dr. Paul H. Provandie, Melrose Highlands, while driving in his automobile over a grade crossing at Wyoming Avenue, Melrose, was struck by a train and severely injured.——Dr. Loring Grimes, Swampscott, has been appointed associate medical examiner (coroner) for the Ninth Essex District.——Dr. Albert J. McCrea, Southbridge, has been appointed medical examiner (coroner) for the Eighth Worcester District.——Major-Gen. Leonard Wood, U. S. Army, has been nominated for a position on the Board of Overseers of Harvard University.

NEW YORK

Personal.—Dr. Edward Clark, Buffalo, sanitary supervisor for western New York of the state department of health, has been designated to take charge of the division of child hygiene of the department.——Drs. Benjamin Arnold, Albany, and Walter B. James, New York, have been appointed members of the Hospital Development Commission, the purpose of which is to develop the facilities for caring adequately for the insane population of the state.——Dr. Irving M. Snow has been elected president, Dr. Herbert A. Smith, secretary, and Dr. Bernard F. Schreiner, treasurer of the Buffalo Academy of Science.

New York City

Physician Vindicated.—In a suit brought against Dr. Philip G. Manecke, Brooklyn, by Mrs. Agnes Stutterer, in which she claimed $50,000 damages, the supreme court decided, June 15, in favor of Dr. Manecke.

Summer Courses at New York University.—In compliance to a request from the students themselves, the third year men in the University and Bellevue Hospital Medical College are to continue their courses of study during the summer so that they will be prepared to receive their degree of Doctor of Medicine about the middle of February. All the junior class, consisting of ninety men, have pledged themselves to take the continuous summer course.

Baby Health Stations Give Instructions in Dietetics.—The city health department has arranged to give lessons in cooking and dietetics to mothers at its baby health stations. This will provide sixty centers of instruction, all located in congested parts of the city. As a sufficient number of trained dieticians did not volunteer for this work, a course in practical dietetics was given to nurses in charge of the health stations through the assistance of Teachers College and Pratt Institute.

Personal.—Dr. Samuel G. Gant has resigned as profcssor of rectal diseases in the New York Post-Graduate Hospital and has taken charge of a special clinic in Hospital for Deformities and Joint Diseases.——Dr. Harry Finkelstein has been appointed instructor in orthopedics at the Post-Graduate Hospital.——Dr. Charles Rosenheck has been appointed instructor in neurology in the College of Physicians and Surgeons in the City of New York.——Dr. Cornelius G. Coakley suffered a fracture of the right leg in a fall from his

horse in Central Park, recently.——Dr. Edward Horace Cleveland has been appointed superintendent of the Hospital and House of Rest for Consumptives at Inwood-on-Hudson.

Chief Medical Examiner Needed.—The Municipal Civil Service Commission announces an examination to be held for chief medical examiner. The examination is open to all citizens of the United States and the annual compensation is $7,500 for full time service. The candidates must be at least 30 years of age, must have a degree from a recognized institution and must present evidence of having done at least ten years' work in the pathological laboratory of a recognized medical school, hospital, asylum or public morgue, or in other corresponding official capacity. They must have performed at least 1,000 autopsies. Special consideration will be given to administrative experience, preparation and presentation of evidence in court, and definite published contributions to the science of legal medicine. The examination will include a practical test in which the candidates will be required to perform an autopsy and to report their findings in writing; an experience statement and an oral test. Full particulars and applications may be obtained at Room 1400, Municipal.

PENNSYLVANIA

Field Hospital Mustered Into Service.—Field Hospital No. 4, Pennsylvania N. G., Pittsburgh, was mustered into service June 13, and Ambulance Company No. 3, Coraopolis, Pa., June 14.

Philadelphia

Hospital Tablet Unveiled.—A tablet in memory of Miss Elizabeth Anderson was unveiled, June 22, at the American Oncologic Hospital. Miss Anderson, who died in 1906, was a patient at the hospital and left the general fund of the institution, $40,000.

Personal.—Dr. Frank C. Abbott, who has been in France since the beginning of the war, was specially mentioned for service on the occasion of the distribution of medals at Vendome.——Dr. Ernest La Place has been selected as one of the orators at the Independence Day celebration, Independence Hall.

Weir Mitchell Tablet Unveiled.—A feature of the class day exercises of the University of Pennsylvania, June 19, was the unveiling of a bronze tablet in memory of Dr. S. Weir Mitchell. It is a reproduction of the one in the Franklin Inn by Dr. R. Tait McKenzie, and the gift of Joseph Rosengarten, trustee of the university. Two of Dr. Mitchell's colleagues and friends spoke words of eulogy, Dr. C. C. Harrison, ex provost of the university, and Dr. William W. Keen.

RHODE ISLAND

New Health Officer.—Dr. John Hillman Bennett has been appointed superintendent of health of Pawtucket, succeeding Dr. Charles H. Holt, who has been ordered to duty with the Medical Officers Reserve Corps at Fort Benjamin Harrison, Indiana.

New State Board Officers.—At the annual meeting of the state board of health held in Providence, June 14, Dr. John Hillman Bennett, Pawtucket, was reelected president, Dr. R. Morton Smith, River Point, vice president, and Dr. Byron U. Richards, Pawtucket, secretary, succeeding Dr. Gardner T. Swarts, who had been secretary of the board for twenty-three years.

State Society Meeting.—The annual meeting of the Rhode Island Medical Society was held, May 31, in the Rhode Island Medical Library, and was followed by a dinner in the evening at the Narragansett Hotel. The Fiske fund prize of $200 was awarded to Dr. Joseph F. Hawkins, Providence, for his essay on "The Role of Tonsils and Teeth in Arthritis." The presidential address by Dr. Edmund D. Chesebro, Providence, was on the topic "Thirty Years in the Study and Practice of Medicine"; and after the presidential address Dr. John C. Champlin, Westerly, the newly elected president, was inducted into office.

WISCONSIN

State Board Appointments.—The governor, on June 19, reappointed Drs. Oscar Lotz, Milwaukee; Frederick C. Haney, Watertown, and Fay T. Clark, Waupun, members of the State Board of Medical Examiners, and appointed Edward Murphy, Eau Claire, a member of the same board, to succeed Dr. William L. Thompson, Sheboygan.

Personal.—State Senator A. J. Pullen, North Fond du Lac, first lieutenant, M. O. R. C., U. S. Army, has been notified of his assignment to base hospital service in France.——Dr. Edward Evans, LaCrosse, has been elected a nonresident fellow of McGill University, Montreal.——Dr. Willibald J. Wehle, West Bend, dislocated his right shoulder in a automobile accident, June 3.——Dr. Wesley L. Boyden, Seymour, has been commissioned first lieutenant, M. C., Wis. N. G., and assigned to the Second Infantry.

Million for Medical School.—The Carnegie Foundation for the Advancement of Teaching has offered one third of a million dollars to Marquette University of Milwaukee on condition that the university raise the other two thirds of a million. The fund is to be used in the development of the Marquette University School of Medicine. The arrangement allows the university a year in which to raise the additional funds to make the amount offered available. A committee of citizens of Milwaukee has the campaign in charge.

CANADA

Personal.—Lieut.-Col. Charles Carter, Hamilton, Ont., is to succeed Lieut.-Col. Cameron A. Warren as assistant A. D. M. S., Toronto Military District.

Wounded Medical Officers.—The *Lancet* reports that the following officers of the Canadian Army Medical Corps have been wounded: Lieut.-Col. James J. Fraser, Walkerton; Capt. Ronald H. MacDonald, Saskatoon; Albert H. Wallace, Hazleton, and Harry C. Wallace, Lumsden.

Annual Meeting Canadian Medical Association.—In his presidential address before the Canadian Medical Association, Dr. Alexander D. Blackader, Montreal, said that so many of the members were overseas that the annual meeting had not been held for three years, and this one was held as it marked the fiftieth anniverstry of the founding of the association. The Canadian Medical Association, in that time, had taken a pronounced part in raising a high standard of medical education in Canada, and now it was intended to raise the standard still higher and extend the medical course. The day of the general practitioner and family physician is passing and he is being replaced by the specialist. Health insurance will be a tremendous benefit to the country and will incidentally raise the standard of rational living and prolong human life. Dr. Charles J. C. O. Hastings, M. O. H., Toronto, delivered the address on public health in which he advocated strongly for public propaganda and practical organization for the education of the general public in regard to health organization for the education of the general public in regard to health matters. Any city which does not provide pure water, or any municipality, as well as pure milk, should be held criminally responsible for such neglect. It is the first duty of statesmen to provide for public health, as the value of man power is of more moment now than at any other time in history. A symposium on tuberculosis, as a national problem, was opened by Dr. James Third, Kingston, Ont. Lieut.-Col. J. N. Roy, M.D., who has been attached to the Canadian General Hospital, St. Cloud, France, stated that hospital conditions were greatly improved in France. He gave an interesting account of the work of the Canadian hospital at St. Cloud which now has 550 beds and looks after French wounded only. Dr. Joseph D. Page, superintendent of the Immigration Hospital, Quebec City, addressed the meeting on the physical examination of immigrants. He stated that 80 per cent. of the soldiers returning from the front were infected with tuberculosis and that of the 100,000 defectives admitted into Canada ten years ago, only five had been rejected. The examination of immigrants required immediate action on the part of the government of Canada. Dr. Elzear Relletier, Montreal, advocated the appointment of a permanent medical officer of health in every municipality in Canada who should devote all his time and energies to the public health of the community. This was put in the form of a resolution and passed by the meeting. Dr. Francis J. Shepherd, Montreal, delivered the address in surgery, and Dr. Theodore C. Janeway, Baltimore, the address in medicine.

GENERAL

Baltimore and Ohio Surgeons Elect.—At the annual meeting of the Baltimore and Ohio Association of Railway Surgeons, held in Cleveland, June 22, Dr. William H. Morrison, Philadelphia, was elected president; Dr. Edmund B. Fittro, Salem, W. Va., vice president, and Charles Johnson, Baltimore, was continued as secretary.

Special Campaign Against Yellow Fever.—The Cuban government and the International Health Commission are

cooperating in a new movement against yellow fever. Leave of absence has been granted to Dr. Juan Guiteras, director of sanitation of Cuba, so that he may inaugurate a vigorous campaign to stamp out the disease in other countries. Gen. William C. Gorgas has given to Dr. Guiteras full authority to investigate yellow fever conditions wherever they may be found in other countries, and to make any suggestions that he may see fit toward the extermination of the disease. As most of the members of the International Health Commission are officers of the United States Army Medical Corps, the Cuban government is signally honored in the appointment of Dr. Guiteras, a Cuban. Director Taylor of Las Animas Hospital in Havana is cooperating in the work. It is proposed to begin the scientific researches on the island of Martinique and in Maracaibo.

FOREIGN

Rockefeller Foundation Builds Hospitals in China.—The Rockefeller Foundation has awarded contracts for the building of two hospitals to cost $3,000,000. One of these will be located in Pekin and the other in Shanghai, and both will be for the work of the China Medical Board.

Yale Mission Seeks Workers.—The Yale Mission ("Yale in China") at Changsha seeks the services of an emergency teacher of pathology for one or two years for its medical school; also a permanent teacher in physiology and a specialist in eye, ear, nose and throat for permanent service. High professional quality is demanded and earnestness of character. The New Haven office is 5 White Hall.

Medical Missionary Ordered to French War Front.—The American Board of Commissioners for Foreign Missions has announced that leave of absence for the duration of the war has been granted to Dr. James F. Cooper, Foochow, China, that he may go to France as medical officer to the Chinese Labor Battalion. Dr. Cooper will have charge of the Base Hospital and will take to France four Chinese nurses from the American Mission Hospital, Foo Chow.

Honors for French Physicians of the Army and Navy Medical Departments.—The *Bulletin Médical* has published six large special numbers to date, each devoted entirely to the official mentions of the exceptional gallantry and devotion of individual members of the medical corps, with the appointments to the Legion of Honor, the awarding of the médaille militaire and other honors. Each contains an alphabetical list of those thus decorated. Many of the accounts specify "efficiency in organization" and "coolness in danger," but practically all mention the "absolutely devoted services and brilliant gallantry," of the physicians and surgeons in question.

PARIS LETTER

PARIS, May 31, 1917.

The War

REORGANIZATION OF THE MEDICAL CORPS ON A SELF-GOVERNING BASIS

If it is true that in the course of this war important improvements have been effected in the military medical service, notably in that which pertains to the evacuation of the wounded, the last offensive movement has brought to light certain weaknesses in its organization. These weaknesses were the outgrowth of the strict and jealous tutelage which the general staff exercised over the army medical service. Indeed, it is only proper to state that up to the present time the military medical service has been far from self-governing; for instance, for the construction of temporary hospitals the medical corps depended on the corps of engineers. In deciding on the location, the number and the capacity of the evacuation hospitals it followed the advice of the staff officers. The hospital train service was taken entirely out of the hands of the medical corps, and placed under the authority of the railway commissary. The secretary of war has deemed it wise to remedy these defects in the system. The last offensive movement showed him the need of a readjustment of the relations of the medical corps to the military officers, so as to put in the hands of the medical service the disposition of its means of action, and to allow it to cooperate in the elaboration of military operations. The staff, which all too often ignored the medical corps, will be obliged from now on to consider it as a necessary collaborator. The purpose which the secretary of war had in mind in adopting these measures was to bring the assurance to all ranks that the most complete collaboration existed between the general staff, the various divisional staffs and the military medical service. Under this plan every army corps has its chief administrative medical officer who collaborates with the general officer in command of the corps. The latter will keep this chief surgeon informed of his plans, will acquaint him with the objects to be accomplished, the front decided on for the battle and the hour set for the engagement. Having been enlightened by this precise information, the rôle of the chief surgeon will begin at once. With his mind illumined as to the significance of the battle to be fought, he will know what it involves for the medical corps. He will proportion his effort to the probable needs and make all the dispositions necessary for the best hospitalization and for the most rapid evacuation of the wounded. The reserves in personnel and medical equipment are at his disposal and under his control. He apportions the personnel according to their competency and the army's needs. He approves requisitions for medical supplies, and provides for the carrying out of all hygienic and prophylactic measures.

The same organization found in the army corps is also established in the divisions, and in the administration of rations. The control of the motor ambulances used in transporting the wounded will now pass entirely into the hands of the divisional surgeons; and the commanding officer, often more interested in the conservation of his equipment than in the fate of the wounded whom he was convoying, will no longer rise up as a sole judge of the conduct of affairs. The surgeon will base his decision on the condition of the wounded and the capacity of the hospital units. In the controlling railway stations a surgeon with the relative rank of battalion commander is associated with every railway commissary. He exercises technical control of all the hospital trains passing through the controlling stations. He decides on the hospitalization of patients or wounded unable to continue their journey. Acting in concert with the railway commissary, he determines the destination of trains in the zone of the armies and the zones of the interior. He remains in touch, on the one hand, with the chief administrative medical officers, and on the other hand with the undersecretary of state for the military medical service.

MUTUAL RELATIONS BETWEEN FRENCH AND AMERICAN UNIVERSITIES

Professor Finley, president of the New York state university, in a reunion held at the Sorbonne, May 26, presented before an assembly of professors of the University of Paris communications and letters emanating from more than 100 institutions of learning in the United States which gave expression to the sympathy that unites American universities to our own, and emphasized the necessity for the development of mutual relations between the universities of the two countries.

TYPHOID BACTERIURIA

At the medicochirurgical reunion of the fifth army corps, Drs. Tanon and Dumont communicated results of some practical researches on the urine of patients convalescing from typhoid fever which had been confirmed clinically and bacteriologically. From March, 1915, to January, 1917, a period of twenty-one months, 1,500 specimens of urine were examined and gave twenty-nine positive results. Out of these twenty-nine cases the typhoid bacillus was found in ten, the paratyphoid A in fifteen, and the paratyphoid B in four. All of these specimens of urine were examined as soon as the patients became convalescent, that is to say, the second week of complete apyrexia. The specimens were always clear, and rarely contained traces of albumin. There was no clinical evidence of any renal or bladder trouble, and the cytologic examination showed few leukocytes. This small proportion of 2 per cent. out of so large a number of cases indicates that the danger from carriers of urinary germs must not be exaggerated as far as typhoid fever is concerned. The treatment, moreover, had a beneficent influence on almost all the patients. Those recognized as carriers at an examination were, in fact, immediately subjected to treatment with hexamethylenamin, dosage 1.5 gm. per day, and the bacteriuria disappeared at the end of eight or ten days. In only three cases did it last a month. These were two cases of typhoid bacillus and one of paratyphoid A. Of these three patients, only one failed to recover. This patient had to be transported to the interior, and was pronounced a carrier of the typhoid bacillus. The practice of subjecting all patients convalescing from typhoid or paratyphoid fever to a treatment with hexamethylenamin seems to be recommended in order to expedite the evacuation of convalescents.

Marriages

MAJOR PERRY L. BOYER, M.C., U. S. Army, to Miss Shirley Doe of Ottawa, Ont., June 20.

LIEUT. EDWARD JOHN DAVIN, M. O. R. C., U. S. Army, New York, to Miss Alice Ayleward of Goshen, N. Y., in New York, recently.

LIEUT. PRESCOTT STEARNS TUCKER, M. C., U. S. Army, to Miss Dickie Mae Tennant of Oskaloosa, Iowa, at Aiken, S. C., February 25.

SURG. JAMES CHAMBERS PRYOR, Lieut.-Com., U. S. Navy, to Miss Frances Pierpont Siviter of Pittsburgh, June 9.

CHARLES WILLIAM HUTCHINSON, M.D., Framingham, Mass., to Miss Ethel Fay Warfield of Springfield, Mass, June 11.

EDWARD LOUIS ROBBINS, M.D., Syracuse, N. Y., to Miss Margaret Theresa Coughlin of Albany, N. Y., June 16.

Deaths

Thomas Carroll Hoover, M.D., Columbus, Ohio; Starling Medical College, Columbus, 1873; aged 67; formerly a member of the American Medical Association; a member of the Ohio State Medical Association; professor of surgery in his alma mater, and later professor of clinical surgery in the Ohio Medical University, Columbus; surgeon to St. Francis Hospital and consulting surgeon to the Children's Hospital, Columbus; who had been ill for two years; died in West Bedford, Mass., June 2.

Richard Eli Holder, M.D., Columbus, Ind.; Medical College of Ohio, Cincinnati, 1879; Bellevue Hospital Medical College, 1884; aged 65; a Fellow of the American Medical Association and a member of the American Association of Anesthetists; died suddenly of heart disease, June 6, while in New York, in attendance at the meeting of the American Medical Association.

Charles Boyd Williams, M.D., Sharon, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; aged 41; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died in his apartment, June 4, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Charles W. Houghton, M.D., Wynnewood, Pa.; Pennsylvania Medical College, Philadelphia, 1859; aged 80; a Fellow of the American Medical Association; a verteran of the Civil War in which he served as medical director; a member of the board of managers of the American Stomach Hospital, Philadelphia; died at his home, June 5.

George Henri Mathiott, M.D., Mars, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1887; aged 64; formerly a Fellow of the American Medical Association; for many years a druggist of New Haven, Pa.; secretary of the Mars Board of Health; died at his home, May 28, from cerebral hemorrhage.

Felix Edgar Baldridge, M.D., Huntsville, Ala.; Tulane University, New Orleans, 1894; aged 50; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama, and Southern Surgical and Gynecological Association; died at his home, June 7, from pneumonia.

Albert T. Poffenberger, M.D., Sunbury, Pa.; Jefferson Medical College, 1879; aged 54; a member of the Medical Society of the State of Pennsylvania; for twenty-eight years chief medical examiner for the Williamsport-Harrisburg district of the Pennsylvania System; died at his home, June 1.

Edward Michael McCabe, M.D., New Haven, Conn.; Yale University, New Haven, 1887; aged 53; a Fellow of the American Medical Association; instructor in ophthalmology in his alma mater; ophthalmologist to the St. Francis Hospital Asylum, New Haven; died at his home, June 7.

Laura Marie Reville, M.D., Plaquemines, La.; Woman's Medical College of Pennsylvania, Philadelphia, 1890; aged 78; formerly a member of the Medical Society of the District of Columbia and a practitioner of Washington, D. C.; died at her home, June 6, from acute dysentery.

Elias Sloan, M.D., Marietta, Ohio; Eclectic Medical Institute, Cincinnati, 1875; aged 68; formerly a member of the Ohio State Medical Association; for several years president of the school board of Williamstown, Ohio; died at his home, May 23, from cerebral hemorrhage.

Jarrett T. Benbrook, M.D., Rockwall, Texas; Missouri Medical College, St. Louis, 1878; aged 76; formerly a Fellow of the American Medical Association and president of the North Texas District Medical Association; died at his home in East Rockwall, May 30.

Albert Taylor Chapman, M.D., Old Mystic, Conn.; College of Physicians and Surgeons in the City of New York, 1864; aged 77; a member of the Connecticut State Medical Society; who had been blind for more than thirty years; died at his home, May 11.

William Davis McConnaughey, M.D., Prairie City, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1883; aged 66; formerly a Fellow of the American Medical Association; for twenty-five years township physician; died at his home, June 17.

Harriet Foster Pillsbury, M.D., Oakland, Calif.; Woman's Medical College of the New York Infirmary for Women and Children, 1880; formerly a member of the Medical Society of the State of California; died at the home of her son in Oakland, May 30.

John O. Hobbs, M.D., Chicago; Northwestern University Medical School, Chicago, 1872; for several years professor of anatomy in the Northwestern University Woman's Medical School, Chicago; died at his home, June 21, from heart disease.

Edward Nealley Mayo, M.D., Orono, Maine; George Washington University, Washington, D. C., 1860; aged 80; formerly a member of the Maine Medical Association and president of the Penobscot County Medical Society; died at his home, May 27.

James A. Winter, M.D., Detroit; Detroit College of Medicine and Surgery, 1887; aged 53; a Fellow of the American Medical Association and a member of the Detroit Academy of Medicine, and its president in 1914; died at his home, June 4.

Percy Larkin, M.D., Athens, Texas; Kentucky School of Medicine, Louisville, 1890; aged 55; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Texas; died suddenly in Dallas, Texas, May 29.

John Charles O'Brien, Jr., M.D., Greenfield, Mass.; Tufts Medical School, Boston; 1915; aged 26; who was operated on in the Franklin County Hospital, three weeks before, for appendicitis; died at his home, May 23, from pneumonia.

Thomas Benton Barnes, M.D., Spruce Pine, Ala.; Memphis (Tenn.) Medical College, 1873; aged 61; a member of the Medical Association of the State of Alabama; died at his home, May 28, from cerebral hemorrhage.

Francis Asbury Norman, M.D., Washington, D. C.; Cincinnati College of Medicine and Surgery, 1871; aged 74; for more than thirty years a practitioner of Columbus, Ohio; died at his home, June 3.

William De H. Reeder, M.D., Chicago; University of Nashville, Tenn., 1865; aged 75; surgeon of the Fifteenth Pennsylvania Volunteer Cavalry during the Civil War; died at his home, May 19.

Oliver Glenn Bruner, M.D., Fort Deposit, Ala.; University of Alabama, Mobile, 1884; aged 65; a member of the Medical Association of the State of Alabama; died suddenly at his home, May 31.

Robert E. Davies, M.D., Petty, Texas; University of Mobile, Ala.; 1872; aged 69; formerly a Fellow of the American Medical Association; a Confederate veteran; died in Dallas, Texas, May 21.

William D. Maddox, M.D., Denver; Keokuk (Iowa) Medical College, 1892; aged 53; a member of the Colorado State Medical Society; also a druggist; died in Mercy Hospital, May 29.

Harry Chester Justice, M.D., Columbus, Ohio; Ohio Medical University, 1898; aged 49; died at his home, May 31, from acute dilatation of the heart.

Andrew Fuller Harris, M.D., Chicago; Hahnemann Medical College, Chicago, 1884; aged 61; died at his home, June 15, from cerebral hemorrhage.

George B. Abbott, M.D., Chicago; Northwestern University Medical School, Chicago, 1878; aged 60; died at his home, June 15.

Thomas A. Wood, M.D., Dexter, Ga.; University of Georgia, Augusta, 1886; aged 69; died at his home, May 22.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BROM-I-PHOS

Report of the Council on Pharmacy and Chemistry

Brom-I-Phos (National Drug Company, Philadelphia) was submitted to the Council with a label bearing the following statement:

"'ALCOHOL 25 PER CENT.'
COMPOSITION—Per Fluidounce.

Iodin	1 gr.
Bromin	1 gr.
Phosphorus	8-100 gr.
Aromatic Base	q. s."

A request for further information in regard to the composition of Brom-I-Phos was sent to the National Drug Company. It was suggested that since the preparation cannot contain the stated amounts of free bromin, free iodin and free phosphorus, the form of combination in which these elements are present should be set forth. In reply, the firm said, first, that "Brom-I-Phos consists of Bromin, Iodin, Phosphorus, Glycerin, Wine, Water and Volatile Oils. The Iodin is rubbed up with a small percentage of Potassium Iodid and 95 per cent. Alcohol, which solution is mixed with a solution of Bromine and Spirits of Phosphorus which are combined with the base and aromatics." The manufacturer also admitted that phosphorus reacts with bromin and iodin and that other reactions might occur, but maintained that it was "justified in assuming the greater part, if not all of these elements, are actually existent in the nascent state," and asserted that its "printed formula complies with our working formula in point of quantities involved as well as existence of elements in an uncombined state."

The A. M. A. Chemical Laboratory reported, on the contrary, that no free phosphorus, free bromin or free iodin could be found in Brom-I-Phos, and that no bromate or iodate could be found; bromid and iodid were present. The addition of silver nitrate to an acidulated portion, diluted with water, gave an amount of silver halid roughly agreeing with that which would be obtained had the claimed amount of bromin and iodin (together with some potassium iodid) been used in the preparation of Brom-I-Phos and in the process of manufacture become converted to bromid and iodid.

The statement of composition is unsatisfactory and misleading in that it suggests that the preparation contains bromin, iodin and phosphorus in the free (elementary) state. The presence of the potent elementary phosphorus is especially suggested by the small amounts of "phosphorus" declared.

The following claims are therapeutic exaggerations:

"The Ideal Alterative"
". . . indicated in all cases where an alterative is desired . . ."
"The association of Bromin with Iodin in Brom-I-Phos materially enhances the product in the treatment of chronic affections of the skin, depraved conditions of the mucous membranes, tertiary syphilis, glandular enlargements, etc."

In that it suggests that the phosphorus in Brom-I-Phos is more readily assimilated than ordinary phosphate, the following is misleading:

"The Phosphorus contained in Brom-I-Phos is readily assimilated and at once acts as a nutrient to the nervous and osseous structures of the body, stimulates metabolism and increases mental activity."

The recommendation: "Your specification of Brom-I-Phos in the treatment of Syphilitic cases will immediately prove beneficial to the patient" is not supported by evidence. The name does not indicate that Brom-I-Phos is an alcoholic preparation with iodid as its essential constituent, but suggests that phosphorus is an important constituent, whereas the amount of phosphate or phosphite, produced by the action of iodin on elementary phosphorus (if the amount of phosphorus used in making the preparation is correctly stated) is insignificant.

The combination of bromin, iodin and phosphorus, or bromid, iodid and phosphate, is irrational because these elements are not of mutual assistance to each other in the conditions for which Brom-I-Phos is advertised.

The Council's report was submitted to the manufacturer of Brom-I-Phos for comment; the reply contained nothing to permit a revision of the previous conclusions.

The Council declared Brom-I-Phos inadmissible to New and Nonofficial Remedies.

Correspondence

THE CHIMERA OF COMPULSORY HEALTH INSURANCE

To the Editor:—"If the forces of autocracy can divide us they will overcome us." These momentous words were being sent to a European nation by the President of the United States, and almost simultaneously in the United States a group of men who should stand for all that is sound, high and noble were formulating sentiments favorable to the establishment of an autocratic form of government among us.

This is a sad commentary on Americanism.

Will you publish this? Is the cost of paper too high? Will it conflict with the policies of the mighty Association of which I have been a proud member for the past ten years? If you can resist the temptation of the blue pencil, my respect for you will go up by leaps and bounds. Let us see what you will do.

Any fool can start a fire, but it may take a good many wise men to put it out. Allow me to congratulate the House of Delegates on its resolution authorizing its Council on Health and Public Instruction to study further the subject of compulsory health insurance et al., before proceeding to the extremity of endorsing that monstrous chimera. Pray God it may study long and decide wisely.

The word "compulsion" has an ugly sound to freemen. It suggests the click of handcuffs, the clank of gyves, the treadmill, the knout, the dungeon and the rack. It smacks of the Inquisition and all that goes with it.

To thinking men the whole propaganda should suggest the iron hand, or rather the mailed fist, in the velvet glove, for it is that and its source proves it. From every standpoint except the political, it is a vicious delusion. To the politician it is a prospective gold mine—a land of milk and honey soon to be opened up—perhaps.

To aid the Council in its deliberations, permit me to quote a little from the writings of Charles Mackay, penned in the first half of the last century, but which might almost have been written yesterday:

In reading the history of nations, we find that, like individuals, they have their whims and their peculiarities; their seasons of excitement and recklessness, when they care not what they do. We find that whole communities suddenly fix their minds upon one object, and go mad in its pursuit; that millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first. We see one nation suddenly seized, from its highest to its lowest members, with a fierce desire of military glory; another as suddenly becoming crazed upon a religious scruple; and neither of them recovering its senses until it has shed rivers of blood and sown a harvest of groans and tears, to be reaped by its posterity. At an early age in the annals of Europe its population lost their wits about the sepulcher of Jesus, and crowded in frenzied multitudes to the Holy Land; another age went mad for fear of the devil, and offered up hundreds of thousands of victims to the delusion of witchcraft. At another time, the many became crazed on the subject of the philosopher's stone, and committed follies until then unheard of in the pursuit. It was once thought a venial offense, in very many coutries of Europe, to destroy an enemy by slow poison. Persons who would have revolted at the idea of stabbing a man to the heart drugged his pottage without scruple. Ladies of gentle birth and manners caught the contagion of murder, until poisoning, under their auspices, became quite fashionable. Some delusions, though notorious to all the world, have subsisted for ages, flourishing as widely among civilized and polished nations as among the early barbarians with whom they originated,—that of duelling, for instance, and the belief in omens and divination of the future, which seem to defy the progress of knowledge to eradicate them entirely from the popular mind. Money, again, has often been a cause of the delusion of multitudes. Sober nations have all at once become

desperate gamblers, and risked almost their existence upon the turn of a piece of paper. Men, it has been well said, think in herds; it will be seen that they go mad in herds, while they only recover their senses slowly, and one by one.

How appropriate at the present time!

Also, let the Council be sure that it fully grasps the significance of the words of the honored President of our Association, Charles H. Mayo, when he said in his address that the state does not exist for the good of the individual, but that the individual exists for the good of the state. Epoch making words, these! As I interpret them they exalt the state and sound the death knell of individualism in our democracy if they shall crystallize into legislation. If I understand anything of the relation of state and individual, it is that the individual antedated the state, which he created for his good; the state, then, is his servant, in a democracy at least, and when it presumes to become his absolute master, despotism, in my humble opinion, is not far away. And as he came before it, I prophesy that the individual will survive the state.

A few years from now, unless in the meantime some degree of sanity shall return to the brain of man, the great Third Estate of Medicine—the bourgeoisie—will either be in a state of active rebellion or else will lie decently buried under the Mountain of Compulsory Health Insurance, which will be a most magnificent tombstone.

When that time shall have arrived, you have my full permission to write my name as my only epitaph on it as "one whose name is writ in water." I would rather die than live to witness the undermining of the principles on which my government is founded, the pauperization and prostitution of my profession, and the exploitation of my patients by this kultured beast of prey cloaked in the garb of philanthrophy. This is what compulsory health insurance has been elsewhere, and what it would be here, all the fervid assertions of its proponents notwithstanding.

I share the President's hope that the world may be made safe for democracy.

RALPH S. CONE, M.D., Westwood, N. J.

SURGERY AND THE WAR

To the Edtior:—Sincere appreciation of the beautiful and high minded enthusiasm which prompts many hundred surgeons to vie with each other for the privilege of following our troops "on the continent" is my excuse for calling attention to one phase of our state of medical unpreparedness, and to suggest a partial remedy therefor. A great part of surgery —that of the chest, abdomen, joints, fractures and blood vessels particularly—is being rewritten in the present war, but with rare exceptions our American journals have contented themselves with the publishing of an occasional rambling letter from a passing Red Cross surgeon or unattached medical tourist. No one has given us in English a true picture of the present surgical conditions prevailing in Europe. Likewise our universities and our special societies have made no provision for the presentation of this newer and all important surgery. What a glorious occasion the American Medical Association has missed in failing to devote this year's program to the topics germane to the war, and how different in European societies, where everything unrelated to the care of the wounded is considered trivial, and where scientists and specialists in all lines strive to contribute their "bit." With his usual vision and promptness to act, Carrel recently returned to this country in order to demonstrate the complete and essential technical details of a revolutionary surgical therapeutic method of which the great majority of us possess only a certain yellow press knowledge.

I deem it humiliating and inexcusable that our young surgeons should go abroad in ignorance of the tremendous advances already made in war surgery. Perhaps the study of some foreign journals may prove efficient remedy. In addition to the *British Journal of Surgery,* I would most strongly urge the careful perusal of the files of the weekly journal published by the Paris Surgical Society (*Bulletins et mémoires de la Société de chirurgie de Paris,* Masson et Cie, 120 Boulevard Saint Germain, Paris), a veritable mine of information thoroughly representative of the French school of surgeons. For breadth and honesty of purpose, independence of thought, scientific form and literary culture, the latter publication is unquestionably the world's model; and its value has been greatly enhanced of late by innumerable contributions from a brilliant group of younger war surgeons. From the postgraduate educational standpoint I know of nothing more useful than the close, continuous study of the lengthy analytic reports by members and the accompanying discussions contained in this weekly journal. No military surgeon can afford to dispense with it. Some weight must attach to the opinion of a member based on experience with 10,000 fracture cases during the past thirty months, or to that of another member who reports over 600 chest wounds, or to the masterly analysis of thousands of abdominal wounds. The remarkable results following immediate excision and closure of extensive wounds (Gaudier-Chaput method) have revealed a totally new field of surgery with extremely wide possibilities. The same may be said of the plastic surgery now being done in Paris. Few congresses can show such memorable results as those attending the recent joint meetings of the Paris neurologic and surgical societies. To one interested in medical education the forthcoming advent of numerous American surgeons in France bears a message of hope. Contact with the best of a nation of idealists must surely tend to develop what we are rapidly losing sight of in our country: the human side of medicine. Contact with the only school (excepting the Scotch) that has remained faithful to clinical medicine cannot fail to restore to us the much needed type we lost with Osler's departure: the master clinician, the maker of clinicians. On the eve of the great French Renaissance in science and literature, let our young surgeons understand that nowhere in France are its unimpeachable and unselfish love and admiration for our country more manifest than in the medical profession. A grateful nation awaits our men "on the continent."

F. DUDLEY TAIT, M.D., Fellow of the American College of Surgeons, San Francisco.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PRIVILEGED COMMUNICATIONS

To the Editor:—Is a physician permitted to refuse to give the parent or the legal guardian information received from a minor? This is an actual case. The patient, a woman, aged 20, pledged a physician, whom she consulted without knowledge of her guardian, to secrecy. She will not inform her guardian about her condition, and the doctor refuses all information on the ground of professional ethics. What is the guardian to do? A. E. F.

ANSWER.—Under "Privileged Communications," it is stated in the "American and English Encyclopedia of Law" that: "Communications from a patient to his physician were not privileged at common law; but on considerations of public policy statutes have been enacted in most jurisdictions forbidding disclosure in evidence against the will of the patient of information acquired by physicians in their professional capacity.

"In order for such statutes to apply, it is necessary that the relation of physician and patient should exist, or at least that the circumstances should be such as to impress the patient with the belief that it does.

"Who Are Patients?—The term 'patient' in a statute prohibiting physicians from disclosing information acquired in attending a patient includes persons under a disability such as infancy, lunacy, etc. (See *Corey* v. *Bolton,* Supm. Ct. App. T., 31 Misc. N. Y. 138, affirming N. Y. City Ct. Gen. T., 30 Misc. N. Y. 836.)"

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, Montgomery.

ALASKA: Juneau, July 3. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, July 2-3. Sec., Dr. John W. Thomas, 306 Goodrich Bldg., Phoenix.

COLORADO: Denver, July 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular: New Haven, July 10-11. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Eclectic: New Haven, July 10. Chairman, Dr. John W. Fyfe, Saugatuck.

CONNECTICUT: Homeopathic: New Haven, July 10. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 10. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

INDIANA: Indianapolis, July 10-12. Sec., Dr. W. T. Gott, 84 State House, Indianapolis.

MAINE: Augusta, July 5-6. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 10-12. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, July 2. Sec., Dr. E. Arthur Carr, 516 Bankers Life Bldg., Lincoln.

NEW MEXICO: Santa Fe, July 9. Sec., Dr. R. K. McClanahan, U. S. Naval Hospital, Las Animas, Colorado.

NORTH DAKOTA: Grand Forks, July 3. Sec., Dr. George M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 10-11. Sec., Dr. R. V. Smith, Tulsa.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 10-12. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

PHODE ISLAND: Providence, July 5. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

SOUTH DAKOTA: Deadwood, July 10. Sec., Dr. Park B. Jenkins, Waubay.

UTAH: Salt Lake City, July 2-3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 10-12. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 3-5. Sec., Dr. C. N. Suttner, Walla Walla.

WEST VIRGINIA: Charleston, July 10. Sec., Dr. S. L. Jepson, Capitol Bldg., Charleston.

Rhode Island April Examination

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, April 5-6, 1917. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. Five candidates were examined. of whom 4 passed, and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Atlanta Medical College	(1915)	86.2
University of Maryland	(1915)	93.8
University and Bellevue Hospital Medical College	(1915)	81
University of Vermont	(1911)	80
FAILED		
University of Naples	(1912)	74.5

Kentucky License Reports

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports that one candidate was licensed by examination and one through reciprocity from April 17 to May 10, 1917. The following colleges were represented:

College	Year Grad.	Total No. Licensed
LICENSED BY EXAMINATION PASSED		
Meharry Medical College	(1916)	1

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University and Bellevue Hospital Medical College	(1905)	New Hamp.

Water Filtration.—The first effective filter to be put into use in the United States was installed at Poughkeepsie, N. Y., about 1875. The development of water purification in the United States since that time has been rapid, especially during the latter part of the period, as may be illustrated by some statistics cited by Mr. George A. Johnson, who estimates that in 1900 somewhat less than 2,000,000 people in the United States were supplied with filtered water, while in 1911 the population supplied was approximately 8,000,000, and is at present about 20,000,000.—W. H. Frost, M.D., *Public Health Report,* Sept. 15, 1916.

Social Medicine, Medical Economics and Miscellany

Standardizing Milk

Much progress has been made in the methods of production of clean milk, and conditions have been improved in almost every community, yet definite standards of quality have been established in only a few of the larger cities. The National Commission on Milk Standards in its latest report (*Public Health Reports,* Feb. 16, 1917) advocates the practicability of standards and grades of milk for small cities and towns.

The commission has consistently worked to establish standards for milk production and grading, and its two former reports have been taken as the basis for recent municipal and state regulations. The latest report is a continuation and practical extension of the milk grading and labeling system heretofore advocated, and as now developed provides for three classes of milk—A, B and C—which the commission urges should be regarded as the minimum standard. If the local conditions of a community permit, however, higher requirements should be adopted.

As set forth in the report, Grade A, raw milk, must come from cows free from disease as determined by tuberculin tests and physical examinations by a qualified veterinarian, produced and handled by employees free from disease as determined by medical inspection by a qualified physician, under sanitary conditions such that the bacterial count shall not exceed 10,000 per cubic centimeter at the time of delivery to the consumer, and the dairy shall score at least 80 on the U. S. Bureau of Animal Industry score card. Grade A, pasteurized milk, must come from cows free from disease, must be produced and handled under sanitary conditions, and the bacterial count must at no time exceed 200,000 per cubic centimeter. Milk of this class must be pasteurized under official supervision, and the bacteria must not exceed 10,000 per cubic centimeter at the time of delivery to the consumer. Dairies producing this class of milk must score at least 65.

Grade B milk must come from cows free from disease as determined by an annual physical examination, and must be produced and handled under sanitary conditions such that the bacterial count shall at no time exceed 1,000,000 per cubic centimeter. This milk must be pasteurized under official supervision, and the bacterial count must not exceed 50,000 per cubic centimeter at the time of delivery to the consumer. It is recommended that dairies producing Grade B milk be scored, and that efforts be made to improve the sources of supply as rapidly as possible.

Grade C milk must come from cows free from disease, as determined by physical examinations, and includes milk having a bacterial count in excess of 1,000,000 per cubic centimeter. This milk must be pasteurized, or subjected to a higher degree of heat, and must contain less than 50,000 bacteria per cubic centimeter when delivered to the consumer.

As milk is one of our most valuable foods and one universally used, chemical standards should be established defining its nutritive value. After a most careful consideration of this subject the commission proposes a food value standard of 3.25 per cent. fat and 8.5 per cent. solids not fat as being a fair requirement to make of the producer and a standard of food value to which the consumer is entitled.

It will be seen that the bacterial count is still made the primary basis of sanitary milk. Milk produced and handled under conditions conforming to the prescribed grades, if kept cold, will always have a low bacterial count. The number of bacteria mentioned under each grade is not, however, to be regarded as inflexible for all communities. It is said that in establishing bacterial standards for a city milk supply, the age of the milk, the distance hauled, the methods employed in handling and the sanitary condition of the milk at its source may all be taken into consideration. Cities requiring a limited supply, coming from a few dairies within their own limits, or within a transportation distance of not over twelve hours from its source, may require a higher bacterial standard than a large city.

Approximation to uniformity in the sanitary and chemical standards of milk and milk products is undoubtedly most desirable. The grading and labeling of milk react to the benefit of producer and distributor as well as consumer. The former, whose product comes up to standard requirements, should receive a better price for his milk, and the latter, in addition to the safety feature, is enabled to make an intelligent selection of milk for his various uses. New York City first adopted the system of the national commission. Practically, it has worked well, and neither dealer nor consumer would go back to the old methods. New York State and California have state regulations based on the recommendations of the commission. In Boston and Philadelphia the milk dealers themselves have started agitation for the grading and labeling of milk. The effect is undoubtedly to improve the quality of the supply in every respect, and recommendations coming from an authoritative source, such as the National Commission on Milk Standards, should have the most careful consideration.

Periodic Examination of Health Department Employees

For two years employees of the health department of New York City have been obliged to undergo annual medical examination, in addition to that required on admission to the department service. Up to June, 1916, 2,104 employees had been examined, but in order to retain a convenient starting point for future investigations, only the first 2,000 are included in the statistical records; of these 1,325 are women and 779 are men. During the past year nearly 1,000 reexaminations have been made, and of these 194 are men and 779 are women. Of those examined, 22.8 per cent. showed an albuminuria of greater or less extent. As many as 2.5 per cent. showed albuminuria combined with high blood pressure, and five cases of unsuspected glycosuria were discovered. Uncorrected defects of vision were found in 15.1 per cent. of the cases, and 17.71 per cent. showed abnormality in hearing. Acute or chronic pharyngitis and hypertrophied tonsils were present in 29.3 per cent., and impairment of nasal breathing, due to some form of rhinitis or to deflected septum, existed in 17.2 per cent. of those examined. The number of organic heart lesions differed little between the sexes, the figures being 8.8 per cent. for men and 6.7 per cent. for women. In the vast majority of instances the individuals were not aware of any existing abnormality in the heart. Pulmonary lesions existed in proportionately the same numbers, about 8.7 per cent. for men, and 5.5 per cent. for women. Of the men, 18.9 per cent. showed excessive weight, while 21.2 per cent. of the women showed this condition. Those who show overweight receive careful warning and advice as to their habits and the regulation of their daily lives. A relatively large number of women were underweight, 18.9 per cent. of those examined, but only 4.4 per cent. of the men were underweight. Overweight and hypertension coexisted in forty-six men and twenty-seven women; underweight and high blood pressure were found in five women and one man; low weight and low blood pressure in one man and in thirty women. Forty-four women were markedly anemic, while only eighteen men suffered in a similar way. Nearly twice as many women as men complained of indigestion; indigestion and constipation coexisted in a surprisingly small number. Though more women suffered from indigestion than men, their teeth were cleaner and otherwise in a better condition. Of the men, 8.8 per cent. were constipated, and of the women 17.5 per cent. Nearly 24 per cent. of those examined showed defective teeth; only 4.9 per cent. of these were women. The examination disclosed more women suffering from hernia and from nervousness than men. Exaggerated knee jerks were very common in women, 137 showing this symptom, often combined with a fine tremor of the hands. Twice as many women as men complained of headache and more women than men complained of insomnia. Hypertrophied glands were found in fifty-one women and in two men. Women of foreign birth were more often affected with goiter than native women. On reexamination, about 10 per cent. of the persons examined showed very decided improvement over their previous condition. The results in this series of timely advice and periodic examinations showed that such a method may be made an important aid in correcting the alarming mortality of middle age in this country. The health department suggests that this plan should be adopted by all city departments because of the economic value to the employer as well as to the employee.

Control of Poliomyelitis

The committee on poliomyelitis of the Conference of State and Provincial Boards of Health, which met in Washington, D. C., April 30, reported that it had examined the epidemiologic data prepared in Massachusetts, New York, New Jersey and Minnesota, and those from the winter epidemic in West Virginia in 1916-1917, and that former statements as to the incubation period of the disease were confirmed, namely, that the incubation period varied from four to fourteen days, but was commonly seven days. These data tend also to confirm the opinions that poliomyelitis is widely prevalent, but is generally of the nonparalytic type, and that the disease is transmitted chiefly by contact with a patient or carrier. The committee suggested certain minimum requirements for the control of the disease, which were unanimously adopted, as follows:

First: That an isolation period for a patient of not less than two weeks nor more than three weeks from onset be required unless the temperature has not returned to normal in the meantime.

Second: That children of the same household in contact with a patient be excluded from places of public assembly for a period of 14 days from last date of contact as determined by the health officer.

Third: That an adult of the household, if the patient is properly isolated, may continue his vocation, provided it does not bring him into contact with children at any time.

DISINFECTION

First, the discharges from the nose, throat and bowels of the patient be disinfected promptly; second, the caretaker shall wash her hands with soap and hot water promptly after handling said discharges; third, the caretaker shall wash her hands similarly before leaving the room occupied by the patient; fourth, isolation shall be terminated by a thorough washing of entire body and hair of the patient, and the room cleaned with soap and hot water, aired and sunned; fifth, sick room precautions should include the usual attention to cleaning and disinfection of eating utensils, personal and bed clothing, rugs, door knobs and other things handled by the patient or caretaker.

PRECAUTIONS FOR PHYSICIANS AND NURSES

Unless a special covering and gloves be worn (a) the physician and nurse shall so handle the patient that discharges will not soil their clothing, special care being taken to avoid droplet infection; (b) the physician and nurse shall thoroughly wash their hands before leaving the premises.

HOSPITALIZATION

The removal to hospitals of patients affected with poliomyelitis when proper isolation and satisfactory care for the patient cannot be secured in the home; during the early stage of the disease the patient needs rest in bed and transfer to a hospital may be detrimental to his welfare.

OTHER SUGGESTED MEASURES DESIGNED TO CONTROL THE DISEASE

(a) Travel and contact with children should be discouraged.

(b) Surveillance for persons coming from infected districts is not necessary unless the person has been definitely exposed to infection.

(c) The most effective agency in the control of this disease is the employment of public health nurses who, in cooperation with the physician, will teach sick room precautions, the necessity for rest in bed, and the need of proper support for affected parts.

(d) Expert diagnosticians should be provided and the use of lumbar puncture urged.

(e) Food, especially such as is consumed uncooked, should be considered as a possible means of transferring the infectious agent, and appropriate measures should be instituted to protect the public during an outbreak.

(f) Where poliomyelitis occurs in a school, the school need not be closed, but daily medical supervision should be instituted.

(g) Efficient screening and the use of approved insecticides should be employed so that insects shall not have access to the patient or his excretions.

(h) Household pets should be excluded from the sick room.

(i) In the presence of poliomyelitis a search for, and a careful examination of, all ill children should be made. All children having fever should be isolated pending the diagnosis.

(j) Prompt reporting of all recognized or suspected cases, personally or by telegraph, or by telephone, is essential, in addition to the written report required by law.

(k) Weekly reports by state and territorial health authorities should be made to the United States Public Health Service.

Medicolegal

Compensation Same for Loss of a Defective Eye or of an Only Good Eye

(Purchase vs. Grand Rapids Refrigerator Co. (Mich.), 160 N. W. R. 391)

The Supreme Court of Michigan affirms an award by the industrial accident board in favor of the claimant as for the loss of an eye, although the eye had been previously injured leaving just enough vision in it to distinguish daylight from dark, or to tell an approaching object. It was contended that by the last injury while the claimant was in the employ of the refrigerator company, on account of which the eye was removed, he did not lose an eye, and that the period of actual disability resulting from the injury was the measure of weekly compensation to which he was entitled. The argument in support of this contention was based principally on the premises that the injured eye did not contribute to the claimant's earning capacity, and its loss had not diminished it. In deciding against this contention, the court says that Nature has generously furnished some organs of the body in pairs. A man can get along pretty well with one of them, as with one good eye, or ear, or lung, or kidney, and it is probable that most men, in most vocations, could and would earn quite as much with one of either of these organs removed. If a man with one good eye is able to earn as much as he would if possessed of two eyes, and loses, by accident, the remaining eye, it is actually that injury which wholly disables him from pursuing his previous vocation, since the previous loss of the other eye did not so disable him. But the legislature has declared that the loss of both eyes (by the particular injury) shall constitute total and permanent disability, and that for the loss (by the particular injury) of one eye the compensation shall be 50 per cent. of the average weekly wages during 100 weeks. It will be perceived that a man with two eyes might lose one of them without affecting his capacity to earn wages except for a few days or weeks, and another, with but one good eye, might be by its loss totally disabled to earn anything in his usual vocation. In either case his compensation, under the law, would be the same. If such a result is regarded as unjust, in determining which the rights of the employer must be considered, the remedy must be administered by the legislature. The legislature has not attempted a definition, or made a declaration, applicable to the case at bar, except in terms of the loss of an eye. It has not specified a normal eye, although it may be concluded that the law refers to an eye which performs in some degree the functions of a normal eye. A mere sightless organ might perhaps be considered no eye at all. The claimant lost an eye, although an infirm one. It was not wholly useless as an eye. As a result of the injury, there was some disability, and the disability is "deemed to continue for the period specified, and the compensation so paid for such injury shall be as specified. . . ."

Evidence Where Liquor Has Been Prescribed—Not Regulation of Practice of Medicine

(People vs. Humphrey (Mich.), 160 N. W. R. 445)

The Supreme Court of Michigan sets aside a conviction of the defendant, and grants him a new trial, after he had been convicted of having prescribed a quart of whisky for one Carpenter having good reason to believe that the said Carpenter intended to use the whisky as a beverage. The court holds that the jury was erroneously instructed as to the effect to be given to the testimony of character witnesses for the defendant when it was told that when there is positive proof of the commission of an offense evidence of good character cannot avail to overthrow that proof. Not only is evidence of good character admissible in a case in which doubt otherwise exists, but also it may be offered for the purpose of creating a doubt. It must always be regarded as a miscarriage of justice when the trial court affirmatively denies to a defendant the benefit of an elementary rule favorable to him, on which, by the giving of testimony which invokes the application of the rule, he relies. But the court does not agree with the contention that new subject-matter was introduced into the statute which prohibits the manufacture, sale, etc., of intoxicating liquors when it was amended in 1911 by providing that any physician who prescribes any of the liquors mentioned for any person who he knows or has good reason to believe intends to use them in whole or in part as a beverage or in any other manner contrary to the provisions of this act or without a diagnosis showing that liquor is indicated shall be guilty, etc. It was contended that this amendment introduced new subject-matter into the statute, made that an offense which was not before an offense, attempted to regulate the practice of medicine, and subjected physicians, under certain circumstances, to a penalty, of none of which matters the title gives notice. But to the court it is clear that the object—the single object—of the amendment is to prohibit the sale and furnishing of intoxicating liquors to be used as a beverage; equally clear that that is the object of the law. This object is expressed in the title; and it is not apparent how the enforcement of the law as amended will at all interfere with, or regulate, the practice of medicine. Again, the court says that the question for the jury (no one disputing the fact that the prescriptions were given by the defendant) was whether, on the particular occasion, the defendant gave the prescription for a person he new, or had good reason to believe, intended to use the liquor, in whole or in part, as a beverage. It involved the mental attitude of the defendant, his knowledge, his information. Carpenter, a young man of 25 years, a stenographer, represented that he had a cold, lived at a hotel, and on his first visit said that he wanted a quart of whisky. No one would deny that if he had repeated the representation daily, securing a prescription for a half gallon of whisky each day, it would be some evidence that he or some one else was using it as a beverage. He did not so often secure a prescription, but often enough so that a jury might be satisfied beyond doubt that the defendant knew it was not procured for medicinal purposes. And as indicative of his mental attitude, it was competent to prove, not only the frequency of the applications made by Carpenter, but the ease with which another, by telephone, secured a prescription for a like amount of liquor.

Father Liable on Verbal Promise to Pay for Services

(Mitchell vs. Davis (Mo.), 190 S. W. R. 357)

The Springfield (Mo.) Court of Appeals, in affirming a judgment for the plaintiff, a practicing physician, says that he, at the special request of the defendant, rendered medical aid to the latter's son of the value of $107.50, for which he sued and recovered judgment as the result of a jury trial. The only defense was that of the statute of frauds, which requires promises to answer for the debts of others to be in writing; it being contended by the defendant that the testimony tended to prove no more than a verbal promise to pay the debt of another. The son had reached his majority and was afflicted with a disease for which the plaintiff refused to give a special treatment until after the former's father consulted him and agreed to pay for the services. The plaintiff testified that this agreement was entered into before and as a condition precedent to the rendition of the services. These facts were denied by the testimony of the defendant and his son, but the issues were properly submitted and passed on by the jury. The verdict must stand in the absence of error in ruling on the admission of testimony or the giving or refusing of instructions to the jury. The promise was an original one and was in no manner affected by the statute of frauds. There were no objections concerning testimony, but the defendant complained of instructions given for the plaintiff and of the refusal of instructions requested by him. But the court finds no reversible error. The defendant was properly refused a peremptory instruction, which he requested, to find for him. Two instructions were given for the plaintiff requiring the jury to find, before a verdict could be returned for him, that he rendered the services at the special instance and request of the defendant (the father), relying on his promise to pay therefor. It was contended that these instructions were defective because they omitted the essentials of a consideration. However, when the jury found the facts stated to

exist, a sufficient consideration was shown. Another instruction given in behalf of the plaintiff told the jury that no extrinsic or financial value was necessary to constitute a consideration, but if the defendant hired the plaintiff and the plaintiff rendered the services, the consideration was sufficient and the defendant was liable. Any trouble or labor, however slight, undertaken by one person at the request of another, will support a promise by such other person, although the trouble or labor be of no benefit to the promisor. An instruction requested by the defendant and refused stated that if the plaintiff gave the son any credit during the treatment and looked to him for payment or part payment for the services, then the plaintiff could not recover against the defendant. This instruction was properly refused, because the fact that the plaintiff had an agreement with the defendant on which he relied and which induced him to render the services did not thus release the son from liability therefor.

Need Not Negative Exemption

(State vs. Saak (Mo.), 190 S. W. R. 296)

The Supreme Court of Missouri, Division No. 2, affirms a judgment of conviction of the defendant of practicing medicine without a license, in violation of Section 8315 of the Revised Statutes of Missouri of 1909. The court says that the information did not charge that the defendant was "not a physician registered on or prior to March 12, 1901," and the defendant contended that by reason of this omission the information was fatally defective. But the court is unable to agree with this contention. The rule of law here applicable is that when an exception is contained in a statute defining an offense, and constitutes a part of the offense, an indictment for such offense must negative the exception; but when the statute contains a proviso exempting a class therein referred to from the operation of the statute, an indictment need not negative the proviso. The accused must make the exemption a ground of defense. The proviso in the case at bar merely exempted a class from the operation of the statute, and falls clearly within the above announced rule.

Valid Provisions of Medical Practice Act

(Louisiana State Board of Medical Examiners vs. Charpentier (La.), 73 So. R. 248)

The Supreme Court of Louisiana annuls a judgment maintaining an exception of no cause or right of action in this case brought, under Section 14 of Act 56 of 1914, to enjoin the defendant from practicing medicine without having obtained the certificate required by that statute, and to recover the pecuniary penalty thereby imposed because of his having so practiced. Because Section 15 in addition authorizes a criminal prosecution for practicing medicine without having obtained the required certificate, it was contended that the statute offends the constitutional provision that no person shall be twice put in jeopardy for the same offense. But the court says that the defendant had been put in jeopardy but once, and it would be time enough to consider the question of his being put twice in jeopardy should his conviction in this prosecution be affirmed and he be thereafter again prosecuted for the same offense. The court also holds that Act 56 of 1914, in declaring what persons, for its purposes, shall be regarded as practitioners of medicine, and in exempting from its requirements "farmers or planters when treating without compensation their families, employees or tenants exclusively, . . . attendants and plantation midwives; . . . opticians fitting glasses, or testing eyes in their own establishments, . . . water-cure establishments" and practitioners of Christian Science or the tenets of any church, does not contravene the provision of Article 48 of the constitution, which prohibits the granting, to any corporation, association or individual, of any special or exclusive right, privilege or immunity. The court says that the burden rested on the defendant to show that the classification of which he complained was unreasonable, and, in the court's opinion, he had not carried that burden. Farmers and planters, attendants and midwives, living on plantations, where access to those who are better qualified is difficult, and at times impossible, acquire, of necessity, a certain amount of information which enables them to act in emergencies and to deal with the simpler of the ailments which are common to humanity, when no other treatment is available, and when, in the absence of any treatment, serious consequences would result. The optician is often found where the oculist is not, and may be better qualified than he to fit glasses, if not to test the eyes, is likely to inflict little or no injury in either case, and he who performs those functions in his own establishment may be regarded as more responsible than the itinerant vender. The water cure is a known method of treatment from which many persons have, no doubt, derived great benefit, and which, for the protection of the public, may not require a medical education of those by whom it is administered. And "the practice of Christian Science, or the religious tenets of any church," is a spiritual or psychologic matter which should, perhaps, best be left to the practitioners and their patients.

Society Proceedings

COMING MEETINGS

Montana Medical Association, Kalispell, July 11 12.
Oregon State Medical Association, Portland, June 28-30.
Western Roentgen Society, Kansas City, Mo., July 20-21.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

June, XLIII, No. 3

1 *Return of Urea from Kidney to Blood. T. Addis and A. E. Shevky, San Francisco.—p. 363.
2 *Comparison of Effects of Breakfast, of No Breakfast and of Caffein on Athlete and Nonathlete. I. H. Hyde, C. B. Root and H. Curl, Lawrence, Kan.—p. 371.
3 *Effects of Epinephrin on Distribution of Blood. Effect of Massive Doses on Outflow from Muscle. R. E. L. Gunning, Chicago.—p. 395.
4 *Id. Volume Changes and Venous Discharge in Intestine. R. G. Hoskins and R. E. L. Gunning, Chicago.—p. 399.
5 Vascularity of Suprarenal Bodies. R. Burton-Opitz and D. J. Edwards, New York.—p. 408.
6 *Influence of Secretin on Number of Erythrocytes in Circulating Blood. A. W. Downs and N. B. Eddy, Montreal, Canada.—p. 415.
7 *Action of Ultraviolet Radiation in Killing Living Cells Such as Bacteria. W. E. Burge, Chicago.—p. 429.
8 *Effect of Thyroid Feeding on Catalase Content of Tissues. W. E. Burge, J. Kennedy and A. J. Neill, Chicago.—p. 433.
9 Rheotropic Responses of Epinephelus Striatus Bloch. H. Jordan.—p. 438.
10 *Further Evidence Regarding Rôle of Vagus Nerves in Pneumonia. W. T. Porter and L. H. Newburgh, Boston.—p. 455.
11 Orokinase and Salivary Digestion Studies in Horse. C. C. Palmer, A. L. Anderson, W. E. Peterson and A. W. Malcomson, St. Paul, Minn.—p. 457.
12 Application of Boyle's Law to Pulse Waves in Clinical Measurement of Blood Pressure. A. M. Bleile, Columbus.—p. 475.

1. Return of Urea from Kidney to Blood.—According to Addis and Shevky, when blood is taken from the renal vein so as to disturb the function of the kidney as little as possible, it usually contains less urea than the blood sent to the kidney in the renal artery. This is explained by the passage of urea from the blood to the kidney. When blood is taken from the renal vein at a time when the secretion of urine has stopped, it usually contains more urea than the blood sent to the kidney in the renal artery. This is explained by the passage of urea from the kidney to the blood. The return of urea from the kidney to the blood whenever the kidney ceases to secrete urine, is taken as indicating that the force or forces which store urea in high concentration within the kidney must remain in continued operation to hold that accumulated urea, and do not act through the medium of any physical or chemical mechanism which would passively maintain its hold on the urea even when the active concentration of new urea from the blood had ceased.

2. **Effect of Food and Caffein on Muscular Work.**—The general results of the experiments recorded by the authors are as follows: The working power of the untrained flexor muscles in a trained athlete may be increased at least three and one-half times, and the same muscle in a nonathlete three times, in one month of daily training. The lack of breakfast had at first a slightly less favorable effect on the amount of work done, although the athlete always felt less fatigued working without breakfast than when working one hour after the meal. After both subjects had had equal preliminary training for one month of the arm and trunk muscles on the ergometer, the athlete did more than twice the work done by the nonathlete in one and one-half the time without, and more than one and one-half as much work, after eating breakfast. The increase above their normal blood pressure after working either with or without breakfast was the same for both subjects, notwithstanding that the athlete did more work.

A weak dose of 1.42 grain of caffein, without work or breakfast, gradually increased the pulse rate during the first hour, but in the nonathlete, as a rule, only after a slight initial fall. In both subjects the pulse returned to the normal rate within three hours. With the larger dose, 2.24 grains, under the same conditions, the increase in pulse appeared more promptly, but in thirty minutes was depressed below normal in the nonathlete, and accelerated above the normal rate in the athlete. The blood pressure rose above the normal level in one hour and frequently had not returned to the level in three hours after taking either of the doses of caffein. The effects of caffein, taken at different intervals before work, varied with the dose and the individual. In the athlete the maximum of a dose of 1.42 grain was manifested in three-quarters of an hour, and in the nonathlete three hours after the dose was taken. The athlete did but little more work forty-five minutes after than he did twenty minues after taking the drug. But the nonathlete did two and one-half times as much work three hours after as he did twenty minutes after taking the dose.

3. **Epinephrin and Blood Flow from Muscle.**—Gunning found that epinephrin in massive dosages produces a diminished circulation in the skeletal muscles. There is a preliminary increase in the outflow due supposedly to the blood present in the vascular spaces being forced into the veins by the vasoconstriction. There is a maintained secondary dilatation due probably to a fatigue of the vascular musculature. The vasoconstrictor threshold was found to be lowered by an increase in the concentration of the epinephrin and by repetition of the injections.

4. **Effects of Epinephrin on Intestine.**—The effects of epinephrin in physiologic doses were investigated by Hoskins and Gunning as regards intestine volume and venous outflow in anesthetized dogs. There was no definite correlation between dosage and volume changes but dilatation predominated, particularly with larger doses. Often the dilatation was preceded by contraction. In some instances contraction alone occurred. Infusions frequently gave only enterodilatation in animals in which injections gave a preliminary contraction. The thresholds for changes in blood pressure and intestine volume were approximately the same. In some cases entero-contraction coincided with vascular hypertension, but there was no constant relation between blood pressure and intestine volume changes. The volume changes usually persisted after blood pressure returned to normal, indicating reflex compensatory adjustments among various organs. An after dilatation of the intestine was frequently noted when the primary epinephrin effect had worn off. In most cases Eck fistulas made no difference in the intestine reactions, hence the liver played no essential part. The outflow from a small cannulated intestine vein was augmented by epinephrin in all effective doses, irrespective of changes of blood pressure or intestine volume. This augmentation was not due to back pressure from the portal vein or vena cava. In most cases the augmentation was preceded by brief diminution in the outflow.

6. **Influence of Secretin on Number of Erythrocytes.**—Downs and Eddy were able to produce a considerable increase in the red corpuscle count per cubic millimeter of blood by the administration of secretin, even in small doses, and by subcutaneous injection. The most efficient dose is 1 c.c. of secretin per kilogram of body weight. The increase in the count appears quickly and is very transient. By repeating the dose of secretin at short intervals the increase in the erythrocyte count can be kept up for several hours, but drops promptly after the administration of the last dose. The administration of secretin over a period of five days, in daily doses of 1 c.c. per kilogram of body weight, has very slight, if any, lasting effect on the red corpuscle count in the normal animal.

7. **Action of Ultraviolet Radiation on Living Cells.**—Burge found that exposure of living cells to ultraviolet radiation of sufficient intensity to kill the cells does not decrease to any appreciable extent the activity of the intracellular enzymes. Evidence is presented to show that ultraviolet radiation kills living cells by coagulating their protoplasm.

8. **Effect of Thyroid Feeding on Tissue Catalase.**—The authors found that thyroid feeding increases the catalase of the blood and decreases it in the heart and probably in the fat and skeletal muscles. The increased catalase of the blood may account for the increased oxidation in animals to which thyroid is fed, while the decreased catalase in the heart, skeletal muscles and fat may account for the increased autolysis in these tissues; the idea being that when oxidation is decreased in these tissues a smaller amount of the autolyzing enzymes is oxidized and destroyed, resulting in an increase in the rate of autolysis.

10. **Rôle of Vagus Nerves in Pneumonia.**—The experiments recorded by Porter and Newburgh show that cocainizing the vagus nerves changes the violent dyspnea of pneumonia into quiet, normal breathing.

Archives of Pediatrics, New York

May, XXXIV, No. 5

13 *Morbidity and Mortality of Pertussis and Measles, with Particular Reference to Age. B. S. Veeder, St. Louis.—p. 321.
14 *Multiple Cartilaginous Exostoses. P. M. Stimson, St. Louis—p. 338.
15 Institutional Care of Infants. J. M. Brady, St. Louis.—p. 356.
16 *Frequency of Tuberculids in Infancy and Childhood and Their Relation to Prognosis. T. C. Hempelmann, St. Louis.—p. 362.
17 Periodic Variation in Rate of Growth of Infants. A. Bleyer, St. Louis.—p. 366.
18 Report of Infectious Meningitis Developing in Babies Twenty-Nine and Thirty-Nine Days Old. T. W. White, St. Louis.—p. 372.
19 St. Louis as Pediatric Center. G. M. Tuttle, St. Louis.—p. 377.

13. **Mortality of Pertussis and Measles.**—A study of the morbidity and mortality of measles and pertussis made by Veeder brings out certain factors. Perhaps the most important of these is that, on an average, between 9,000 and 10,000 deaths from each disease take place annually in the United States. While the death rate as a whole, and for certain diseases as tuberculosis, diphtheria, diarrhea and enteritis under 2 years, and typhoid, shows a decrease in the registration area in the past fifteen years, that for measles and pertussis has remained practically the same. A second point is found in the age distribution of the deaths in these two conditions. Nearly 80 per cent. of the pertussis and over half of the measles deaths occur in infants. The older the child the lower the case fatality rate. The mortality of the first year of life is greater than the combined mortality of the rest of childhood. A part of this—birth accidents, congenital malformations, etc.—may be termed fixed, and is irreducible, but far the larger part is preventable to a certain extent. Somewhere between 5 and 10 per cent. of the mortality which may be lessened is due to measles and pertussis.

14. **Multiple Cartilaginous Exostoses.**—Stimson's patient was a 9½ year old boy, who was prematurely born at the time of his mother's menopause, and following a severe nephritis during the last two months of her pregnancy. As an infant he was very weak, but after a year he appeared to be a fairly normal child except for epileptiform convulsions, which have occurred all his life, though only very infrequently of late. Irregularities in his bones were first noticed

at the age of 4, since when they have grown slowly and apparently become more numerous, finally involving all the long bones, the scapulae, the clavicles and the ilii. His extremities also show a marked distal hypotonia. His mental age is apparently about 5 years, and the development of his carpal bones and some of his ossification centers, about that of a 6 year-old. The mother and an older sister also have multiple exostoses.

16. **Tuberculids in Infancy.**—A study was made by Hempelmann of forty cases of tuberculosis in children showing papulonecrotic tuberculids. Thirty of these were infants under 2 years of age and the other ten were distributed through the period between 2 and 12 years. In a series of 130 cases of pulmonary tuberculosis in infants under 2 years of age, tuberculids occurred thirty times (23 per cent.). Sixty-two of these babies were in the first year of life, and of these, twenty-one showed tuberculids (33.8 per cent.). Sixty-eight were between 1 and 2 years of age, and nine of these (13.2 per cent.) showed tuberculids. In all but one of the forty cases there was evidence of lung or tracheobronchial lymph node involvement in addition to the tuberculids. Tuberculids seem to bear no direct relation to prognosis, as some children are now under observation who showed tuberculids three, four and five years ago.

Cleveland Medical Journal

May, XVI, No. 5

20 Past and Present in Abdominal Surgery. J. B. Deaver, Philadelphia.—p. 315.
21 Typhoid in Cleveland in 1916. M. E. Fulk and R. G. Perkins, Cleveland.—p. 326.
22 Syphilis of Nervous System without Characteristic Symptoms or Signs. T. S. Keyser, Cleveland.—p. 337.
23 Hemorrhagic Conditions of Mother and Child. W. D. Fullerton, Cleveland.—p. 342.
24 Extensive Perineal Hernia and Procedure for Repair; Report of Case. N. M. Jones, Cleveland.—p. 345.

Journal of Bacteriology, Baltimore

May, II, No. 3

25 Colorimetric Determination of Hydrogen Ion Concentration and Its Applications in Bacteriology. W. M. Clark and H. A. Lubs, Washington, D. C.—p. 191.
26 Use of Three Per Cent. Lactose Litmus Agar Plate for Demonstration of B. Coli in Water Examination. E. M. Meyer, Cincinnati.—p. 237.
27 Simple Method for Staining Capsules of Bacteria. F. M. Huntoon, New York.—p. 241.
28 Curious Accident Due to Fermentation Caused by B. Pneumoniae. J. P. Simonds, Chicago.—p. 245.
29 Fallacy of Refined Readings of Gas Percentages in Fermentation of Lactose-Peptone Bile and Lactose Broth. W. W. Browne and B. Ackman, New York.—p. 249.
30 Reaction of Paratyphoids, Alpha and Beta, in Litmus Milk. P. B. Hadley, Rhode Island.—p. 263.
31 Study of Diphtheroid Group of Organisms with Special Reference to Its Relation to Streptococci. R. R. Mellon.—p. 269. To be continued.
32 Fuchsin Aldehyd Reaction on Endo Medium. G. G. de Bord, Ames, Iowa.—p. 309.

Medical Record, New York

June 9, XCI, No. 23

33 Pathology and Treatment of Narcotic Addiction. C. F. Stokes, Briarcliff Manor.—p. 969.
34 Diagnosis of Tuberculosis in Military Service. G. E. Bushnell.—p. 971.
35 Alcohol in Peace and War. S. Baruch, New York.—p. 981.
36 Gallbladder Disease. A. Ullman and M. B. Levin, Baltimore.—p. 985.
37 Institutional Convalescence of Gastric and Intestinal Ulcer. M. E. Cavallo, White Plains.—p. 987.

New Orleans Medical and Surgical Journal

June, LXIX, No. 12

38 Hypothyroidism; Report of Case. S. C. Jamison, New Orleans.—p. 805.
39 Multiple Cartilaginous Exostoses; Report of Cases. J. T. O'Ferrall, New Orleans.—p. 808.
40 Successfully Treated Fracture of Upper Third of Humerus. L. Sexton, New Orleans.—p. 813.
41 Complete vs. Incomplete Hysterectomy. E. L. King, New Orleans.—p. 820.
42 Medical Units in Field. O. L. Pothier, New Orleans.—p. 825.
43 Camp Sanitation and Training of Sanitary Troops. W. A. Love, New Orleans.—p. 833.
44 Organization of Base Hospital. H. B. Gessner, New Orleans.—p. 842.
45 Pertinent Evidence Relative to Modern Views of Tuberculosis. W. J. Durel, New Orleans.—p. 850.

New York Medical Journal

June 9, CV, No. 23

46 War's Influence on Medicine. C. H. Mayo, Rochester, Minn.—p. 1057.
47 Reconstructive Therapeutics. J. M. Taylor, Philadelphia.—p. 1061.
48 Ambulance Company. W. H. Allen.—p. 1067.
49 Louse Problem. H. C. Hall, Laredo, Texas.—p. 1071.
50 Cases of Ectopic Gestation. A. J. Walscheid and J. C. Taylor, New York.—p. 1075.
51 Hopital Francais de New York, France. A. M. Nodine, New York.—p. 1077.
52 Superficial Adenocarcinoma Corporis Uteri. S. Wiener, New York.—p. 1079.
53 Acidosis in Children: Report of Case. Z. Sharfin, New York.—p. 1081.

Ohio State Medical Journal, Columbus

June, XIII, No. 6

54 Cancer Problem. D. T. Gilliam, Columbus.—p. 394.
55 Evidence of Infectious Nature of Carcinoma. W. B. Wherry, Cincinnati.—p. 396.
56 Malignancy in Genito-Urinary Tract. E. O. Smith, Cincinnati.—p. 397.
57 Cancer of Uterus. A. Crotti, Columbus.—p. 399.
58 Cancer of Larynx. G. W. Crile, Cleveland.—p. 402.
59 Cancer of Breast. J. C. Oliver, Cincinnati.—p. 405.
60 Surgical Treatment of Cancer of Stomach. J. H. Jacobson, Toledo.—p. 407.
61 Pathology of Cancer. P. G. Woolley, Cincinnati.—p. 412.
62 Cancer of Rectum. G. B. Evans, Dayton.—p. 414.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 26, I, No. 2943

1 Military Orthopedic Hospitals. W. C. Mackenzie.—p. 669.
2 *Pathology of Cardiac Dropsy. C. Bolton.—p. 678.
3 *Disinfection of Drinking Water. H. D. Dakin and E. K. Dunham.—p. 682.

2. **Pathology of Cardiac Dropsy.**—The accumulation of fluid in the peritoneal cavity following an incomplete obstruction of the inferior vena cava in the chest, or in uncompensated heart disease, Bolton says, is due to an increased output of lymph from the viscera, more especially the liver. This increased output is constantly occurring at all stages of the disease; an increase in the amount of fluid is due to an increase in the rate of output, and the disappearance of the fluid is due to a gradual falling off of the rate of output. Absorption from the peritoneal cavity by the lymphatics is occurring at all stages at the normal rate, a check being thus placed to an excessive accumulation of the ascitic fluid. The fluid is therefore being continuously renewed, and there is a constant circulation of lymph from the blood into the peritoneal cavity and back again to the blood by the thoracic duct. Increased absorption of tissue fluid is taking place in the abdominal wall and legs, as in the fore part of the body, but it has not been proved that the ascitic fluid is absorbed as such by the capillaries of the parietal peritoneum. There is no evidence to show that the endothelial cells of the peritoneum actively absorb the fluid. The increased lymph flow from the thoracic duct observed at a certain stage in the course of the dropsy is an index of increased lymph production in the abdominal organs, owing to the plethora.

3. **Disinfection of Drinking Water.**—The most suitable disinfectant which Dakin and Dunham have yet found is p-sulphondichloraminobenzoic acid—$Cl_2N.O_2S.C_6H_4.COOH$. A concentration of 1:300,000 is sufficient to sterilize an ordinarily heavily contaminated water in about thirty minutes. Such a concentration could be relied on to remove coli, typhoid or cholera organisms. Special experiments showed that the substance in tablet form was efficacious when acting on water contained in aluminum bottles, although a very trifling action on the metal may be observed if tablets are allowed to remain undisturbed in long contact with the metal.

The concentration of disinfectant is just perceptible to the taste, especially in warm water containing little organic matter, but the water is perfectly palatable. One point of advantage possessed by the present disinfectant over most hypochlorite preparations is the fact that the active chlorin is less rapidly used up, so that the process of disinfection continues for a longer period. Preparations of p-sulphonamidobenzoic acid: Add 250 gm. commercial sodium dichromate to a mixture of 200 c.c. concentrated sulphuric acid and 600 c.c. water contained in 2 liter round flask. Then add 100 gm. crude toluene p-sulphonamid, and heat on a sand bath with reflux condenser for one hour, using a small flame at first, as the reaction is vigorous. On cooling, wash the separated crystals well with cold water, and then dissolve them in hot dilute sodium hydroxid in slight excess. Filter hot, and add excess of hydrochloric acid, and when cold filter off the precipitated acid and wash well with water and dry.

Preparation of p-sulphondichloraminobenzoic acid: 20 gm. of p-sulphonamidobenzoic acid are dissolved in 200 c.c. approximately normal sodium hydroxid (2 mols.), warming if necessary. About 200 gm. of crushed ice are then added and the mixture saturated with a rapid current of chlorin. A white, rather chalky precipitate of the dichloramino acid is at once precipitated. The acid is filtered off, using suction, well washed with cold water and dried in vacuo on a porous plate. The dry substance is practically pure, and may be powdered and preserved apparently indefinitely.

A convenient formula for tablets weighing 100 to 105 mg. is to use sulphondichloraminobenzoic acid 4 per cent., sodium carbonate 4 per cent. (or dried borax 8 per cent.), sodium chlorid (pure) 92 per cent. The acid should be ground up with the dry salt and the sodium carbonate added subsequently. They must not be allowed to dissolve in water and subsequently titrated, as then decomposition occurs. The tablets should be stored in small amber glass bottles. Tablets so prepared of the weight mentioned contain about 4 mg. of the disinfectant, and are suitable for the sterilization of a liter or quart of reasonably heavily contaminated water. In the case of extreme contamination a second tablet may be necessary.

Dublin Journal of Medical Science

February, CXLIII, No. 542

4 Deformity of Feet in Friedreich's Hereditary Ataxia. F. C. Purser.—p. 81.
5 *Case of Tuberculosis of Genital Organs Transmitted from Husband to Wife. S. Sheill.—p. 84.
6 Impressions During Short Period of Active Service with Royal Army Medical Corps. W. I. de Courcy Wheeler.—p. 86.
7 Fibroids and Pregnancy. B. Solomons.—p. 96.
8 Cases of Excision of Elbow for Gunshot Injuries. R. A. Stoney.—p. 99.

5. **Transmission of Tuberculosis of Genital Organs.**—The husband in this case had an enlarged and tender right kidney and deposits were found in the right seminal vesicle and epididymis. The reaction to tuberculin was positive. The kidney was removed very shortly afterward, and it proved to be very markedly tuberculous. The wife consulted the physician at the same time as her husband made his first visit. They were then married just five weeks. Previous to her marriage she enjoyed excellent health. Her complaint was "a tender and painful swelling in the groin," and examination revealed three large and tender lymph glands in that region. Careful examination excluded any syphilitic or gonorrheal infection. By vagina nothing abnormal was found other than some undue tenderness in the broad ligament and ovary on the same side as the enlarged glands. A von Pirquet test proved positive, and a little later she showed a positive reaction to tuberculin injection. She underwent a course of tuberculin injections, during which all signs and symptoms of her disease abated. This is well over a year ago now and she remains apparently cured.

Glasgow Medical Journal

May, LXXXVII, No. 5

9 Modern Developments of Radium and Roentgen-Ray Therapeutics. J. Macintyre.—p. 257.
10 Causes of Still-Birth. J. M. M. Kerr.—p. 283.

Indian Medical Gazette, Calcutta

April, LII, No. 4

11 Abdominal Surgery at Miraj Hospital. W. J. Wanless.—p. 121.
12 Cesarean Section for Dystocia Due to Osteomalacia. E. F. Neve.—p. 127.
13 Pneumonia. Jamal-U-Din.—p. 129.
14 Case of Hernia (with Obstruction) into Lesser Sac of Peritoneum. M. Corry.—p. 130.
15 Case of Multiple Chondromas. M. P. Atwe.—p. 130.

Journal of Laryngology, Rhinology and Otology, London

May, XXXII, No. 5

16 Causation and Prevention of Educational Deafness. M. Yearsley.—p. 145.
17 Vincent's Disease of External Ear Occurring in Course of Chronic Middle Ear Suppuration. R. P. Mathers.—p. 159.

Lancet, London

May 26, I, No. 4891

18 Campaign Against Syphilis. W. Osler.—p. 787.
19 *Blood Change in Gas Poisoning. J. Miller.—p. 793.
20 Trench Fever. H. M. McCrea.—p. 796.
21 *Surgical Uses of Ozone. G. Stoker.—p. 797.
22 Crystallo-Chemical Analysis and Its Use in Medicine. T. V. Barker.—p. 798.
23 Two Cases of Spontaneous Rupture of Spleen. G. G. Turner.—p. 799.
24 *Primary Suture and Union of Operation Wounds of Urinary Bladder. A. R. Thompson.—p. 801.
25 Case of Syphilitic Peripheral Neuritis. H. E. Thorn.—p. 802.
26 Case of Fulminating Meningococcus Septicemia. F. C. Pybus.—p. 803.
27 Difficulties in Administrative Control of Tuberculosis. J. Guy.—p. 812.

19. **Blood Change in Gas Poisoning.**—The blood in forty-four cases of gas poisoning was studied by Miller. He now says that in cases of gas poisoning in which symptoms persist, there is an increase in the number of lymphocytes, relative and absolute, in the circulating blood. In slight cases this may not be beyond the normal limits or in excess of what may be met with from other causes. In any marked case, however, the change is sufficiently striking to be of some importance in cases in which the medical officer is in doubt as to the reliance to be placed on the statements of men complaining of having been gassed. The blood change is elicited by a differential count of the leukocytes, and if the percentage of lymphocytes approaches that of the polymorphonuclear leukocytes, it indicates that the patient is still suffering from the effects of the gassing; that is, provided there is no other complicating disease present which might produce a similar change. The cell which is increased is the ordinary small lymphocyte of the blood. There may be in some cases a diminution in the number of polymorphonuclear leukocytes which will, of course, accentuate the sign, but the increase of lymphocytes is an absolute one. Moreover, it appears in cases with a high leukocyte count. The change is one which develops early, probably within a month of the gassing, and continues for a long time; in cases with persistent symptoms, for at least eighteen months. The change appears to be independent of the kind of gas, and it is shown by patients exhibiting many varieties of symptoms. It is not clear what the change is due to, but Miller suggests that it is probable that chronic inflammatory change in respiratory and gastric mucous membranes is at least a factor.

21. **Surgical Uses of Ozone.**—Stoker analyzes the results obtained in seventy-nine cases treated according to his method. In almost all the cases healing was hastened. It is emphasized that ozone will disclose the presence of (*a*) dead bone; (*b*) foreign bodies; (*c*) septic deposits, and it is useless to suppose ozone can effect healing till these conditions have been dealt with by the surgeon. The usual changes that take place in the discharges are as follows: (1) increase of pus; (2) decrease and disappearance of pus, which (3) is replaced by clear serum, which (4) eventually becomes reddish in color. The length of time for which the ozone is used depends on the size of the surface to be treated. The maximum time is about fifteen minutes.

24. **Primary Suture and Union of Wounds of Urinary Bladder.**—In thirteen cases of suprapubic prostatectomy, removal of a vesical growth, and retrograde catheterism, Thompson made primary suture of the bladder wall and super-

ficial tissues. The method adopted by him is employed after the actual disease is removed and steps are taken to control and prevent hemorrhage. The bladder is filled with gauze sponges saturated with hot boric solution at a temperature of 120 F. After a little time the sponges are removed and liquor hamamelidis, B. P., at a similar temperature is poured into the bladder and allowed to remain there. The quantity used is about 3 ounces. A coudé catheter is then inserted into the bladder via the urethra, especial care being now taken that the wound shall not be contaminated, the wound being covered with cyanid gauze. The point of the catheter is laid carefully in the bladder, about one third up the vertical height of the bladder, and the position of the catheter at this level in its relations to the meatus is carefully noted for future use, as a catheter may slip even when tied apparently securely, and it is important that it should not do so unknown to the surgeon or his assistants.

The bladder wound is then exposed, and sutures are applied as follows: the two ends of the incision in the bladder are secured with Lane's forceps, and the edges slightly everted; fine catgut sutures are then placed through the muscle wall of the bladder, as close to the mucous membrane as possible, but not through it. Each suture is tied immediately after it is passed, but not cut until all are tied, as tension on them helps to steady the bladder. About six or seven sutures are thus inserted, tied and cut. The sutured part is carefully palpated in order that any holes left by suturing may be discovered and closed. The fibrous and outer muscular coats of the bladder are now secured with thicker catgut Lembert sutures, and carefully tied, especial care being taken, as before, with the lower part of the wound. The number of sutures is, as before, six or seven. A small gauze wick is placed in the space of Retzius, after this space has been carefully washed with boric solution. If the peritoneum has been retracted upward it is brought back into its original position on the front of the bladder, or even "encouraged" down a little lower. The abdominal wall is then sewn up with two rows of catgut sutures.

Archives de Médecine des Enfants, Paris

April, XX, No. 4, pp. 169-224

28 *The Chemical Reactions of the Cerebrospinal Fluid in Differentiation of Tuberculous Meningitis. J. Golay.—p. 169.
29 *Meningitis in the Course of Mumps Simulating Severe Meningococcus Cerebrospinal Meningitis. M. Lavergne.—p. 182.
30 *Meningococcus Iridochoroiditis; Three Cases. M. Lavergne.—p. 189.
31 A Case of Meningococcus Iridochoroiditis and of Cyclitis. H. Collette.—p. 194.
32 *Acute Poliomyelitis. J. Comby.—p. 198.

28. **Differential Reactions in the Cerebrospinal Fluid in Children.**—Golay tabulates the findings in fourteen cases of meningitis in children. They show a remarkable uniformity in each of the three groups: the "meningeal states," syphilitic meningitis, and tuberculous meningitis. The cell count had nothing characteristic of either group, varying widely in all, but the albumin content and the chlorid content are extremely instructive. Instead of the normal 0.1 or 0.2 per thousand, the albumin was 1 or 2 gm. per thousand in the tuberculous cases. The chlorid content, on the other hand, was always low in these cases, only 5.5 or 6.5 per thousand, while in other meningeal states or meningitis it kept at the normal figure 7 gm. per thousand or above, 7.5 per thousand.

29. **Mumps Meningitis.**—Lavergne's patient was a boy of 9 and the symptoms of meningitis preceded those on the part of the salivary glands. This suggests the possibility that certain conditions described as "meningeal states" may possibly have been pertussis meningitis with which the inflammation of the parotid glands was too slight to attract attention. In the case reported the clinical picture when the child was first seen was that of acute epidemic meningitis. He had vomited three days before the meningitis symptoms had become manifest. The cerebrospinal fluid was found limpid, but with high albumin content. The temperature was 39 C. but the pulse was 72, full and regular.

30. **Meningococcus Iridochoroiditis.**—The three cases reported emphasize the necessity for watching over the eyes during cerebrospinal meningitis to detect ocular complications in their incipiency. Lavergne insists that at the least suspicion of iridochoroiditis, ophthalmoscopic examination is imperative and, if the diagnosis is positive, then antimeningococcus serum should be injected immediately into the vitreous body. This is the only treatment known to date, he reiterates, that has realized unmistakable benefit. In the three cases here described it came too late to save vision in that eye in one child of 11 months; the second child, 13 months old, died, and the third, 5 years old, was left with much impaired vision in that eye.

32. **Acute Poliomyelitis.**—Comby here gives a translation of the articles read at the recent symposium on poliomyelitis at New York. He remarks in conclusion that acute poliomyelitis has never appeared at Paris in epidemic form. Cases are rare and always sporadic, and the differential diagnosis at first is almost impossible. In nine out of ten cases it is a question of meningitis, and only the outcome classifies the case. In the incomplete forms, influenza, growth or gastric fever are incriminated, and if there does not happen to be any paralysis, the poliomyelitis escapes recognition. There may be coxalgia or dorsal localization of the disease, suggesting Pott's disease, and it may be long before poliomyelitis is retrospectively diagnosed. In every case, prophylactic measures would come too late. But when the disease is epidemic everything grows clear. "American physicians," he adds, "are thus better placed for diagnosing acute poliomyelitis, and the preventive measures they have inaugurated with characteristic decision would be premature and objectless at Paris."

Bulletin de l'Académie de Médecine, Paris

May 8, LXXVII, No. 19, pp. 575-698

33 Decalcification after War Wounds. E. Delorme.—p. 577.
34 Total Laryngectomy; Fifteen Cases. R. J. Moure.—p. 586.
35 *Dangers from Arsenobenzol Treatment in Tabes and General Paralysis. J. Lépine.—p. 588.
36 Treatment of Stiff Joints. (Sur le traitement des enraidissements articulaires de cause fibreuse centrale ou périphérique.) H. Guilleminot.—p. 589.
37 Physical Measures in Treatment of Incipient Muscular Contraction and Fibrous Retraction. H. Guilleminot.—p. 593.
38 *Cerebellar Syndrome after Wound of Inferior Vermis. A. Léri.—p. 596.

35. **Dangers of Salvarsan and Its Substitutes in Treatment of Tabes and General Paralysis.**—Lépine remarks that about twenty years ago tabes began to be less frequent, while the course was milder than had formerly been the average. Vigorous mercurial treatment was evidently a factor in this. On the other hand, it has been his impression during the last three years that tabes is increasing in frequency, in severity, and the interval between the infection and the tabetic symptoms is shorter. He warns further that men with shell shock may present symptoms resembling those of progressive paralysis. He knows of instances in which arsenobenzol was given on this erroneous diagnosis, with disastrous effect. Nothing could be a greater mistake in such cases.

38. **Topography of Cerebellar Functions.**—In Léri's case a bullet was found sticking perpendicularly in the skin, 1.5 cm. below the external occipital prominence and just to the left of the median line. There was evidently only a superficial lesion of the inferior vermis, but the man developed the complete cerebellar syndrome, the symptoms being those of both the Duchenne and the Babinski clinical picture, but affecting the legs exclusively. This suggests the existence in the cortex of the vermis of a center controlling the coordinated movements of the legs. A number of other instructive points in the topography of the cerebellum are brought out by this case.

Le Nourrisson, Paris

March, V, No. 2, pp. 65-128

39 *Adenoid Vegetations in Infants and Their Causes. A. B. Marfan.—p. 65.
40 Historical and Critical Study of Affections of Digestive Apparatus in Infants. A. B. Marfan.—p. 91.
41 Infant Feeding from the Standpoint of Recent Works on Vitamins, Deficiency Diseases and Unbalanced Dietaries. E. Apert.—p. 110.
42 *Lumbar Puncture in Infants. M. Lavergne.—p. 118.

39. **Adenoids in Young Infants.**—Marfan declares that when adenoids develop in infants under 3 months old, inherited syphilis is exclusively responsible for them, and even up to the age of 2 it is a frequent factor. They may thus prove corroboratory evidence of the inherited taint. In the other children, tuberculosis or chronic digestive disturbance or protracted or recurring bronchopneumonia were evidently the main factors. Any chronic infections or intoxications at a certain period of development may entail hyperplasiae of pharyngeal lymphoid tissue, as also rachitis. This explains their frequent coincidence with rachitis. An infant with hypertrophied adenoids is liable to snore during inspiration. The snoring does not stop when the nostrils are pinched together, but the child begins to suffocate if its mouth is forcibly closed. The child with its air passages permanently obstructed is unable to nurse properly, and there may be a slight intermittent or spasmodic cough. The ears should be examined with care, as an unsuspected otitis media may complicate the adenoids. Certain infants lose their hearing in consequence, and it is not discovered that they are growing up deaf mutes until they get to be nearly 2 years old. It is probable that adenoids have been overlooked in many infants with syphilitic coryza. Specific treatment has a favorable action on the adenoids of syphilitic infants. It is more effectual, the younger the child. Under 6 months, the effect may be so pronounced that it may not be necessary to remove the adenoids. He has generally applied mercurial inunctions in treatment, but in three recent cases he gave arsenobenzol with equally favorable results; in one case the adenoids disappeared completely in three weeks.

Marfan warns against thorough operative removal of the adenoids under 4, on account of the danger of recurrence, almost inevitably fatal. But part can be snipped off and give great relief. In one case a fragment the size of a bean was clipped off with forceps. Respiration was much improved but blood oozed for two weeks; a guinea-pig injected with the tissue developed typical tuberculosis. General treatment is necessary and he has given calcium and epinephrin with good results both for the bone and the lymphatic tissues. He gave from 0.10 to 0.25 gm. calcium glycerophosphate with the first feeding of the day. At noon and night, before feeding, he gave 2 or 3 drops of a 1 per thousand solution of epinephrin in a little water. This treatment was given systematically for two weeks in each month. The epinephrin by the mouth may induce diarrhea. With a syphilitic child it may be well to follow the specific treatment with this tonic medication. For children who do not catch cold readily and have no eruptions, he orders a salt bath at 35 C. for six or ten minutes twice aweek, rubbing the skin, after drying, with a woolen glove wet with a little alcohol. Children inclined to ear trouble had better not be sent to the seashore, but sea air is beneficial for others. For local treatment, a few drops of a mixture of 0.5 gm. eucalyptol in 30 gm. fluid petrolatum may be introduced into each nostril two or three times a week. In case of syphilis, a calomel salve can be used. With acute adenoiditis, he instils three times a day 5 or 6 drops of a 1 per cent. solution of colloidal silver.

42. **Lumbar Puncture in Infants.**—Lavergne discusses the reasons why the fluid sometimes does not flow after lumbar puncture in infants. If there is no escape of fluid from a lumbar puncture on a line passing through the iliac crests, the permeability of the needle should be tested. If the fluid does not flow after waiting for fifteen seconds, he advises puncturing again in the space above, leaving the first needle in place. This often starts the flow through the first needle. But if this fails, he punctures at once between the first and second lumbar or twelfth dorsal and first lumbar vertebrae. This has always brought fluid in his experience, and he has never had the least untoward incident from this high rachicentesis.

Policlinico, Rome

May, XXIV, Medical Section No. 5, pp. 189-228

43 War Wounds of the Brain and Spinal Cord. G. Mingazzini.—p. 189. Commenced in No. 4.
44 *Sensory Disturbances in Incipient Typhoid. A. Marina.—p. 204.
45 *Lice in the Epidemiology of Epidemic Meningitis. L. Pizzini.—p. 212.

44. **Sensory Anomalies in Beginning Typhoid.**—In Marina's case the typhoid came on with severe cerebral symptoms, and the young man was left with right hemiparesis, and complete anesthesia of that side, with loss of the sense of position of the limbs and neck but not of the trunk, astereognosis and loss of the sense of direction when the skin was pulled. Pressure on the skin is perceived and correctly located, and this is the only sensory perception left on this right side.

45. **Lice and Meningitis.**—Pizzini writes from Bergamo to call attention to the connection between body lice and the cases of cerebrospinal meningitis in two recent epidemics there. There were seventy-seven cases in all. The nasopharyngeal secretions were always found free from meningococci but they were cultivated from the blood even late into convalescence. The positive blood findings sometimes alternated with two or three negative findings. He describes the experience in a number of cases in detail, and urges in prophylaxis measures to eradicate lice, with isolation of the patient until no further meningococci are found in the blood. In conclusion he warns that the darkness and lack of cleanliness in low-grade moving picture shows facilitate transmission of vermin to the crowds frequenting them.

Riforma Medica, Naples

April 28, XXXIII, No. 7, pp. 449-476

46 *Blood Diseases and the Spleen. A. Ferrannini.—p. 449.
47 Acute Transient Leukemia. G. Costantini.—p. 454.
48 Tetanus Localized in Wounded Limb; Two Cases. E. Colombino.—p. 461.
49 Recurring Abscesses in Neck from Carious Tooth. B. de Vecchis.—p. 463.

46. **The Spleen and Disease of the Blood.**—In the history of what we know of the connection between the spleen and blood diseases, the Italians take a prominent place. Banti proposed splenectomy for splenic anemia as early as 1882, and in the eighties Bizzozero, Foa and others described the reversion of the spleen to the embryonal type as a blood-producing organ. Banti in 1894 described the disease now known by his name, and Rummo later described the other forms of morbid relations between the spleen and liver. Cardarelli's publications on infantile splenic pseudoleukemia date from 1880. Fede insisted on its infectious character, and Pianese in 1905 discovered the Leishman protozoon in children with splenic anemia. Jemma reported that he had found leishmaniosis in 65 children among 7,000 examined at Palermo, while there were only 25 cases of typhoid and 20 of malaria; in 1913 he encountered 102 cases. In 1915 Di Cristina and Caronia applied tartar emetic in this disease as this drug seems to have proved its value with tropical ulcer. The results were extremely favorable, as also with a similar drug (sodium acetyl-p-aminofenilstibiato) which can be injected intramuscularly without local irritation.

Rivista Critica di Clinica Medica, Florence

May 12, XVIII, No. 19, pp. 213-220

50 *Functional Tests of Different Parts of the Heart Separately. (Le reazioni del tono muscolare delle singole cavita cardiache e il loro determinismo fisio-patologico.) C. Minerbi.—p. 213. Commenced in No. 13, p. 145.

50. **Functional Tests of Auricle and Ventricle Separately.**—Minerbi is instructor in medical semeiology at the University of Rome, and he here reviews the various methods by which the functional capacity of the heart and of its component parts can be estimated. He calls attention in particular to the prompt retraction of the sound heart when the precordial region is tapped along certain specified lines. This tapping with twenty strokes of the hammer and plexímeter is followed by retraction of the auricle, atrium or ventricle according as one or the other is nearest to the line of strokes. The outline of the auricle, atrium or ventricle will then be found 1, 2 or even more centimeters inside of the previously drawn outline. In his tests on normal persons, the retraction thus realized often amounted to a total of 4 cm. for the entire heart in the course of three minutes. The retraction is

evidently due to the direct or autonomic excitability of the muscle tissue, independent of the diastole proper. By this means he has learned that the auricle and the atrium can contract independently of each other as well as of the ventricle. Another instructive test is a modification of the Azoulay-Varisco test. The subject reclines horizontally, without a pillow, and the extended legs are slowly raised by an assistant to an angle of 75 or 80 degrees, the subject entirely passive. The pulse, pressure and limits of the heart are then recorded anew. Then the assistant releases the legs, and the subject lowers them very slowly to the bed, taking five or eight seconds for this. It requires considerable muscular effort to keep from dropping the legs, and the pressure, etc., are recorded anew. In his research with 600 applications of these various tests on thirty persons, including both sick and normal subjects, he found that with the Azoulay-Varisco test the sound heart reacted exclusively with pronounced retraction of the auricles. With a weak heart muscle, the auricles became enlarged at once, instead of contracting and with extreme weakness the ventricles also became enlarged. The behavior of the heart under reflex action from the skin is also instructive as he relates in detail, discussing the mechanisms of the various muscular reactions of the heart. They all demonstrate, he says, a delicate and effectual autoregulating mechanism in the heart.

Prensa Medica Argentina, Buenos Aires

April 30, III, No. 33, pp. 353-364

51 *Metastases in Rectum and Ovary of Gastric Carcinoma. M. R. Castex.—p. 353.
52 Histologic Transformation of a Transmissible Tumor in White Rat. A. H. Roffo.—p. 357.
53 Inefficacy of Haptinogenina Difterica in Experimental Diphtheria. R. Kraus and A. Sordelli.—p. 359.
54 Exarticulation of the Shoulder under Local Anesthesia. F. Chiossone.—p. 360.

51. **Metastases of Gastric Cancer.**—Castex once diagnosed a cancer in the stomach by palpation of metastatic bunches in the pouch of Douglas. Payr, Toyosumi and others have reported cases in which metastasis in the rectum was the first sign of a cancer in the stomach. When there is stomach disturbance and symptoms on the part of the genital sphere, there is strong probability of malignant disease of the stomach with metastasis in the ovaries. Metastasis in the rectum or pouch of Douglas is easier to detect. He remarks that no instance is on record of metastasis in the rectum from cancer elsewhere than in the stomach, with the single exception of Schnitzler's case in which the primary cancer was in the pancreas. He reproduces the macroscopic and microscopic findings in a case of pararectal metastasis in the fundus of the pouch of Douglas, and in two with metastasis in both ovaries. In some of the cases on record and in his own experience the metastasis was discovered early enough to permit successful excision of the primary malignant focus.

Brazil-Medico, Rio de Janeiro

April 14, XXXI, No. 15, pp. 121-130

55 Research on Some Helminths in the Paulista Museum. L. Travassos.—p. 121.
56 *Chiggers. (O micuim.) E. von Bassewitz.—p. 122. Commenced in No. 14, p. 115.
57 Methylene Blue in Treatment of Tropical Phagedenic Ulcer. F. Silva.—p. 124.

April 21, No. 16, pp. 131-138

58 Disadvantages of Mugnai's Method of Inguinal Herniotomy. C. Werneck.—p. 131.

56. **Chiggers.**—Bassewitz quotes a traveler's description, dated 1820, of the tormenting itching caused by the minute red insects known as "micuims" in Brazil and as "red lice," "chiggers" or "jiggers" elsewhere. Bassewitz knows a man and his mother who are never affected by the chiggers; both have familial cholemia. He has not been able to demonstrate salivary glands in the insects but is confident that they secrete an irritating fluid which induces afflux of lymph wherever they implant their mouth. This the insect sucks; no corpuscles have been found in them after they have been biting a person. He recommends benzin or an alcoholic tincture of Peruvian balsam for local application. This kills them at once and they can be removed without leaving the head embedded in the skin. A tincture of pyrethrum is also useful both for this and to ward them off. Mentholated petrolatum is recommended also; it has the additional advantage of soothing the intense pruritus which is liable to last for some time after the insects are gone. Among the household remedies much used are rubbing with rum or an alcoholic maceration of tobacco leaves. In dogs and other animals the insects are found mainly around the eyes and in the ears. The nervous irritation from them may induce actual mania or fits in the animals. Chiggers may also cause havoc in the poultry yard, the accumulations of larvae under the wings and around the anus suggesting an eruption with scabs. Bassewitz advises burning over the fields affected, as is done to eradicate ticks in Rocky Mountain districts, saying that this might aid at the same time in eradicating certain other causes for cattle ills.

Russkiy Vrach, Petrograd

XVI, No. 7, pp. 145-168

59 Syphilitic Pemphigus in Adults. V. I. Terebinsky.—p. 145.
60 Influence of Sulphur Saline Waters on General Metabolism. (Machestinskikh istochnikov.) V. I. Slovtsoff and A. N. Tchernevsky.—p. 147. Concluded.
61 Thoracotomy for War Wounds of the Chest; Thirty-Six Cases. V. M. Mintz.—p. 150. Thirty-Two Cases. A. B. Eisenstein. —p. 155.
62 Burns in Children. N. R. Blumenau.—p. 158. To be continued.
63 One Kidney Low in Pelvis. (Dystopia renis congenita.) T. A. Tsieshkovsky.—p. 162.

Finska Läkaresällskapets Handlingar, Helsingfors

November, 1916, LVIII, No. 11, pp. 1583-1753

64 Research on the Flow of Blood from the Left Heart into the Arteries. R. Tigerstedt.—p. 1583.
65 *Influence of Epinephrin on the Leukocyte Blood Picture in Man. H. Castren.—p. 1605.
66 Traumatic Aneurysms; Four Cases. T. Kalima.—p. 1638.
67 Myoma or Adenomyoma in the Posterior Vagina; Three Cases. B. Nyström.—p. 1657.
68 *Ultimate Outcome of Operative Cases of Mammary Cancer. M. Siirala.—p. 1677.

65. **Influence of Epinephrin on the Leukocyte Count.**—Castren investigated the changes in the leukocyte blood picture after injection of epinephrin, in twenty-four persons, including two healthy subjects. The changes were practically identical with those in his own leukocyte blood picture after muscular exercise; they seem to be traceable to a similar causal mechanism in each. In one case of myeloid leukemia with much enlarged spleen, the spleen increased distinctly in size after the injection of the epinephrin, but this extra enlargement was briefly transient.

68. **Fate of Patients with Mammary Cancer after Mammectomy.**—Siirala has been able to trace for several years 94 per cent. of 134 operative cases of cancer of the breast. An inherited predisposition was possible in 16 per cent. and there had been mastitis in 12 per cent.; 21.1 per cent. of the total 134 are apparently permanently cured. In 33.3 per cent. of the cases the operation followed in less than three months after the discovery of the tumor, and 11 of these 33 women are in good health to date. With an interval of six months, only 7 of the 27 are still living; with an interval of a year, only 5 of the 35; two years, only 3 of 21, and over two years, only 2 of 17. Only 18 are still in good health after a five-year interval. Recurrence occurred within the first year in 2; second, 2; third, 4; fourth, 1; and fifth, 2. Of the total 134 operative cases from 1897 to 1910 the cancer was found beyond relief in 12 per cent.

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69 Clinical and Roentgenologic Study of Chronic Habitual Constipation. IV. T. E. H. Thaysen.—p. 605. Continuation.
70 *Determination of Specific Gravity of Organs. (En simpel Metode til Vægtfyldebestemmelse af Organer.) V. Ellermann.—p. 614.

70. **Specific Gravity of Organs.**—The scrap of tissue floating on the surface of a 10 per cent. salt solution in a graduated glass sinks to the bottom when more water is poured in to dilute the saline. The amount of dilution required to bring this about is the index of the specific gravity.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY-JUNE, 1917

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

American Journal of Anatomy. Bi-m. $7.50. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $3. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Insanity. Q. $5. Johns Hopkins Press, Baltimore.
American Journal of the Medical Sciences. M. $5. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Diseases of Women and Children. M. $5. William Wood & Co., 51 Fifth Ave., New York.
American Journal of Orthopedic Surgery. M. $4. 126 Massachusetts Ave., Boston.
American Journal of Physiology. M. $5. Johns Hopkins Medical School, Baltimore.
American Journal of Public Health. M. $3. 126 Massachusetts Ave., Boston.
American Journal of Roentgenology. M. $5. 67 E. 59th St., New York.
American Journal of Syphilis. Q. $5. C. V. Mosby Co., St. Louis.
American Review of Tuberculosis. M. $3. 2419 Greenmount Ave., Baltimore.
Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
Annales de médecine. M. 23 francs. Paris.
Annals of Ophthalmology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
Annals of Surgery. M. $5. J. B. Lippincott Co., 227 S. 6th St., Philadelphia.
Annals of Tropical Medicine and Parasitology. Q. $5. Liverpool.
Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archives of Diagnosis. Q. $2. Rebman Co., 141 W. 36th St., New York.
Archives of Internal Medicine. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.
*Archives de médecine des enfants. M. 18 francs. Paris.
Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.
Archives médicales Belges. M. 18 francs. Paris.
Archives of Ophthalmology. Bi-m. $5. G. P. Putnam's Sons, 2 W. 45th St., New York.
Archives of Pediatrics. M. $3. E. B. Treat & Co., 241 W. 23d St., New York.
Archives of Radiology and Electrotherapy. M. $5. London.
Beiträge zur klinischen Chirurgie. Irregular. Price varies. Tübingen.
Berliner klinische Wochenschrift. W. 24 marks. Berlin.
Boston Medical and Surgical Journal. W. $5. 126 Massachusetts Ave., Boston.
Brazil Medico. W. 20 milreis. Rio de Janeiro.
Bristol Medical and Chirurgical Journal. M. 6s. Bristol.
British Journal of Children's Diseases. Q. $5. London.
British Journal of Ophthalmology. M. 31s. 6d. London.
British Journal of Surgery. Q. $6.50. William Wood & Company, 51 Fifth Ave., New York.
British Journal of Tuberculosis. Q. $1.25. G. E. Stechert & Co., 151 W. 25th St., New York.
British Medical Journal. W. $10. London.
Bulletin de l'Académie de médecine. W. 20 francs. Paris.
Bulletin of the Johns Hopkins Hospital. M. $3. Baltimore.
Bulletin of the Lying-in Hospital of the City of New York. Irregular. $1. 23 E. 93d St., New York.
Bulletin of the Medical and Chirurgical Faculty of Maryland. M. $0.25. 1211 Cathedral St., Baltimore.
California State Journal of Medicine. M. $1. Butler Bldg., San Francisco.
Canadian Medical Association Journal. M. $5. 386 Victoria St., Toronto.
Cleveland Medical Journal. M. $2. 2318 Prospect Ave., Cleveland.
Colorado Medicine. M. $2. Metropolitan Bldg., Denver.
Correspondenz-Blatt für schweizer Aerzte. W. 22 francs. Basel.
Cronica Medica. Semi-m. 6 soles. Lima, Peru.
Delaware State Medical Journal. M. $1. Wilmington.
Deutsche medizinische Wochenschrift. W. 32 marks. Berlin.
Dublin Journal of Medical Science. M. $5.
Edinburgh Medical Journal. M. $6.
*Finska Läkaresällskapets Handlingar. M. Helsingfors.
Gazzetta degli ospedali e delle cliniche. Semi-w. 25 francs. Milan.
Glasgow Medical Journal. M. $5.
Grèce médicale. Semi-m. 12 francs. Athens.
Hospitalstidende. W. 27.5 kronen. Copenhagen.
Hygiea. M. $5. Stockholm.
Illinois Medical Journal. M. $2. 3338 Ogden Ave., Chicago.
Indian Journal of Medical Research. Q. 10s. Calcutta.
Indian Medical Gazette. M. $5. Calcutta.
Journal de chirurgie. M. 44 francs. Paris.
Journal de médecine de Bordeaux. M. 15 francs.
Journal de radiologie et d'electrologie. M. 28 francs. Paris.
Journal of Abnormal Psychology. Bi-m. $4. R. G. Badger, 194 Boylston St., Boston.
Journal of the American Medical Association. W. $5. 535 N. Dearborn St., Chicago.
Journal of the Arkansas Medical Society. M. $1. 810 State Bank Bldg., Little Rock, Ark.
Journal of Bacteriology. Bi-m. $5. Williams & Wilkins Company, Baltimore.
Journal of Biological Chemistry. M. $3. 2419 Greenmount Ave., Baltimore.
Journal of Cancer Research. Q. $5. Williams & Wilkins Company, Baltimore.
Journal of Cutaneous Diseases. M. $5. W. M. Leonard, 101 Tremont St., Boston.
Journal of Experimental Medicine. M. $5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
Journal of the Florida Medical Association. M. $1. 334 St. James Bldg., Jacksonville, Fla.
Journal of Immunology. Bi-m. $5. Williams & Wilkins Company, Baltimore.
Journal of the Indiana State Medical Association. M. $2. 406 W. Berry St., Fort Wayne, Ind.
Journal of Infectious Diseases. M. $5. 629 S. Wood St., Chicago.
Journal of Iowa State Medical Society. M. $2. Des Moines, Ia.
Journal of Kansas Medical Society. M. $2. 303 Commerce Bldg., Topeka, Kan.
Journal of Laboratory and Clinical Medicine. M. $3. C. V. Mosby Company, St. Louis.
Journal of Laryngology, Rhinology and Otology. M. $5. London.
Journal of Maine Medical Association. M. $2. Portland, Maine.
Journal of Medical Association of Georgia. M. $1. Harison Bldg., Augusta, Ga.
Journal of Medical Research. Bi-m. $4. 240 Longwood Ave., Boston.
Journal of Medical Society of New Jersey. M. $2. 12 Cone St., Orange, N. J.
Journal of Michigan State Medical Society. M. $3.50. Power's Theatre Bldg., Grand Rapids, Mich.
Journal of Missouri State Medical Association. M. $2. 3517 Pine St., St. Louis.
Journal of Nervous and Mental Diseases. M. $8. 64 W. 56th St., New York.
Journal of Oklahoma State Medical Association. M. $2. Muskogee.
Journal of Parasitology. Q. $2. Urbana, Ill.
Journal of Pathology and Bacteriology. Q. $5.50. Cambridge, England.
Journal of Pharmacology and Experimental Therapeutics. M. $5. 2419 Greenmount Ave., Baltimore.
Journal of South Carolina Medical Association. M. $2. Greenville, S. C.
Journal of Tennessee State Medical Association. M. $2. Doctor's Bldg., Nashville, Tenn.
Journal of Tropical Medicine and Hygiene. Semi-m. $5. London.
Journal of Urology. Bi-m. $5. Williams & Wilkins Co., Baltimore.
Journal-Lancet. Semi-m. $2. 839 Lumber Exchange, Minneapolis.
Kentucky Medical Journal. M. $2. State and Twelfth Sts., Bowling Green, Ky.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

Lancet. W. $10. London.
Laryngoscope. M. $5. 3858 Westminster Place, St. Louis.
Lyon chirurgical. M. 25 francs.
Lyon médical. M. 15 francs.
Medical Journal of Australia. W. 6 d. Sydney.
Medical Record. W. $5. W. Wood & Co., 51 Fifth Ave., New York.
Medizinische Klinik. W. 32 marks. Berlin.
Mental Hygiene. Q. $2. National Committee for Mental Hygiene, Concord, N. H.
Military Surgeon. M. $3.50. Seventh and B Streets, S. W., Washington, D. C.
Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität Kyushu. Irregular. Price varies. Fukuoka.
Mitteilungen aus der medizinischen Fakultät der Kaiserlichen Universität zu Tokyo. Irregular. Price varies. Tokio.
Modern Hospital. M. $3. Metropolitan Bldg., St. Louis.
Monatsschrift für Kinderheilkunde. M. 30 marks. Berlin.
Münchener medizinische Wochenschrift. W. 32 marks. Munich.
Nebraska State Medical Journal. M. $2.00. 468 Brandeis Bldg., Omaha.
Nederlandsch Tijdschrift voor Geneeskunde. W. 10.50 florins. Amsterdam.
New Mexico Medical Journal. M. $2. P. O. 23, Las Cruces, N. M.
New Orleans Medical and Surgical Journal. M. $2. 1551 Canal St., New Orleans.
New York Medical Journal. W. $5. A. R. Elliott Publishing Co., 66 W. Broadway, New York.
New York State Journal of Medicine. M. $1. 17 W. 43d St., New York.
Norsk Magazin for Lægevidenskaben. M. $5. Christiania.
Northwest Medicine. M. $2. Cobb Bldg., Seattle, Wash.
*Nourrisson. Bi-m. 14 francs. Paris.
Ohio State Medical Journal. M. $2. Physician's Bldg., Columbus, Ohio.
Ophthalmic Record. M. $4. 7 W. Madison St., Chicago.
Ophthalmology. Q. $5. 708 Cobb Bldg., Seattle, Wash.
Paris médical. W. 16 francs.
Pediatria. M. 20 lire. Naples.
Pennsylvania Medical Journal. M. $2. Athens, Pa.
Policlinico. W. 32 lire. Rome.
Practitioner. M. $6.50. London.
Prensa medica Argentina. Semi-m. 25 francs. Buenos Aires.
Presse médicale. Semi-w. 15 francs. Paris.
Praktitcheskiy Vrach. W. 7 rubles. Petrograd.
Progrès médical. W. 12 francs. Paris.
Psychiatric Bulletin. Q. $2. New York State Hospital Commission. Albany.
Public Health Journal. M. $2. York Publishing Co., Lumsden Bldg., Toronto.
Quarterly Journal of Medicine. $6.50. London.
Revista de la Asociacion Medica Argentina. M. Buenos Aires.
Revue de Chirurgie. M. 33 francs. Paris.
Revue médicale de la Suisse romande. M. 14 francs. Geneva.
Rhode Island Medical Journal. M. $2. Providence.
*Riforma medica. W. 35.50 lire. Naples.
Rivista critica di Clinica Medica. W. 16 lire. Florence.
Russkiy Vrach. W. 13 rubles. Petrograd.
Sei-I-Kwai. M. $2. Tokio.
*Semana médica. W. $5. Buenos Aires.
Siglo Medico. W. 20 pesetas. Madrid.
Southern Medical Journal. M. $3. 807 Empire Bldg., Birmingham, Ala.
Southwest Journal of Medicine and Surgery. M. $1. El Reno, Okla.
Southwestern Medicine. M. $2. El Paso, Texas.
Surgery, Gynecology and Obstetrics with International Abstract of Surgery. M. $10. Surgical Publishing Co., 30 N. Michigan Ave., Chicago.
Svenska Läkaresällskapets Handlingar. Q. 7.50 kronor. Stockholm.
Texas State Journal of Medicine. M. $1.50. Western National Bank Bldg., Fort Worth, Tex.
Therapeutische Monatshefte. M. 12 marks. Berlin.
Ugeskrift for Læger. W. 20 kronen. Copenhagen.
United States Naval Medical Bulletin. Q. $1. Washington, D. C.
Upsala Läkareförenings Förhandlingar. Irregular. 10 kronen.
Vermont Medicine. M. $1. Rutland, Vt.
Washington Medical Annals. Bi-m. $1. 2114 18th St., N. W., Washington, D. C.
West Virginia Medical Journal. M. $1.50. Huntington, W. Va.
Wiener klinische Wochenschrift. W. 24 marks. Vienna.
Wisconsin Medical Journal. M. $2. Goldsmith Bldg., Milwaukee.
Zeitschrift für Tuberkulose. Irregular. 22.40 marks. Berlin.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B," "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association."

The name of the author follows the subject entry in brackets. The figures in parentheses refer to the paragraph in the Current Medical Literature Department, the number following to the page in THE JOURNAL.

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SOCIETIES

A.—Association.
Acad.—Academy.
Am.—American.
Coll.—College.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Dist.—District.
Hosp.—Hospital.
Internat.—International.
M.—Medical or Medicine.
Nat.—National.
Phar.—Pharmaceutical.
Phys.—Physician.
Ry.—Railway.
S.—Society.
Surg.—Surgical, Surgeon or Surgery.

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Cong. Am. Phys. & Surgs. of N. A.	W. S. Thayer, Baltimore.....	W. R. Steiner, 4 Trinity St., Hartford, Conn.	Washington, May, 1919
Conf. of St. and Prov. Bds. of N. A.	T. D. Tuttle, Seattle, Wash.....	Eugene R. Kelley, State Health Dept., Boston.	
Med. Association of the Southwest.	E. S. Lain, Oklahoma City, Okla.	Fred H. Clark, El Reno, Okla.....	Kansas City, 1917.
Mississippi Valley Medical Assn....	Channing W. Barrett, Chicago...	Henry Enos Tuley, 705 S. 3d St., Louisville, Ky.	Toledo, Ohio, 1917.
Missouri Valley, Med. Soc. of the..	C. R. Woodson, St. Joseph, Mo..	C. Wood Fassett, 613 Lathrop Bldg., K. C., Mo.	
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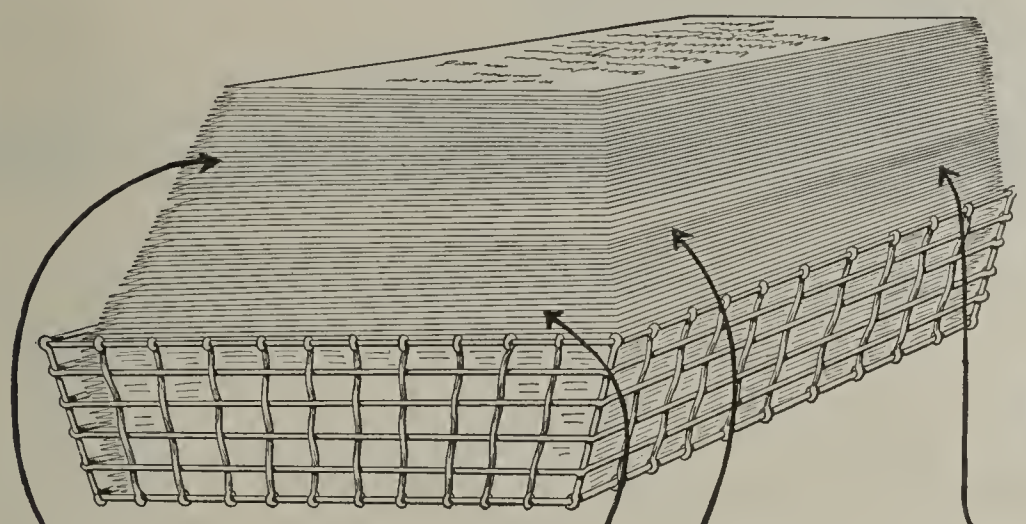
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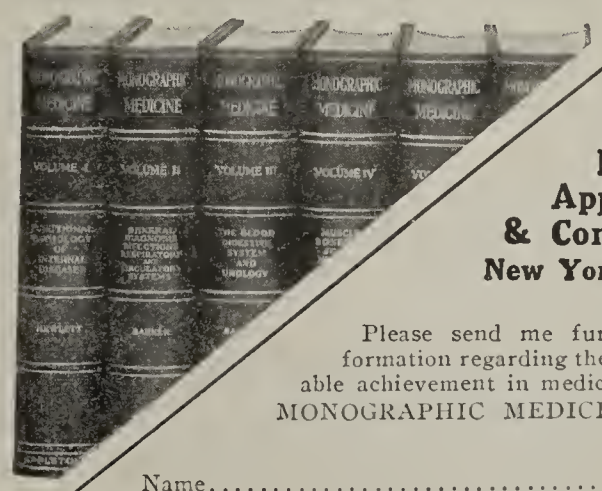
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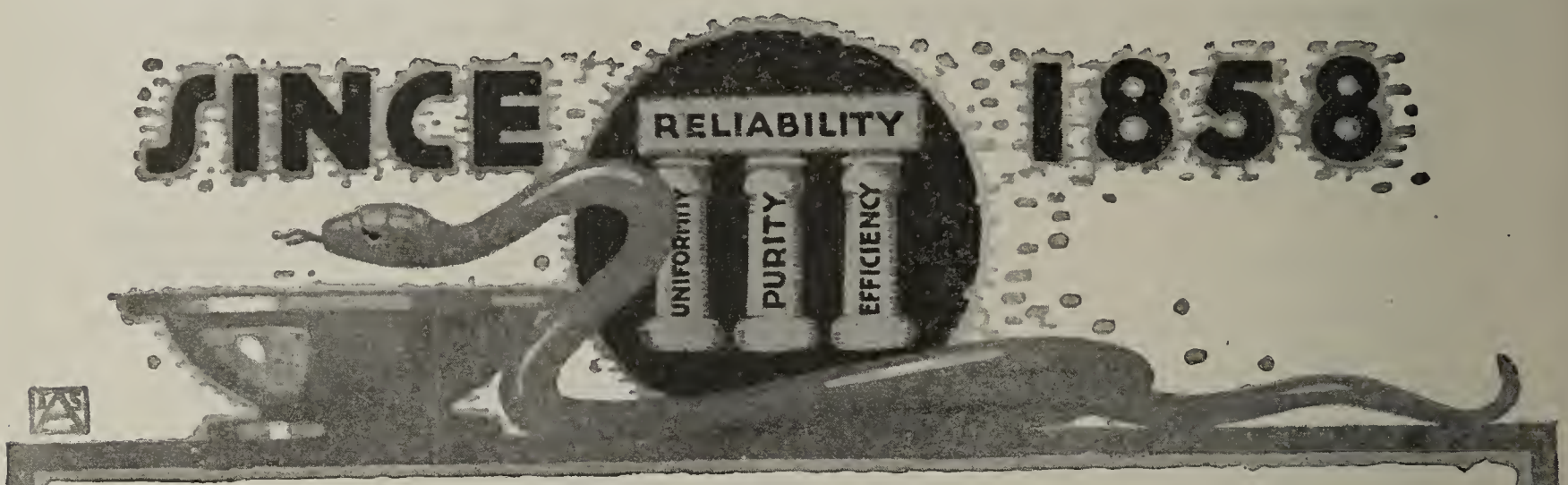
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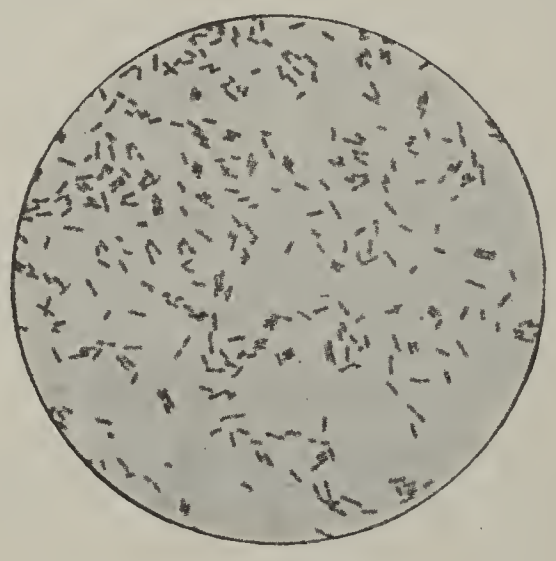
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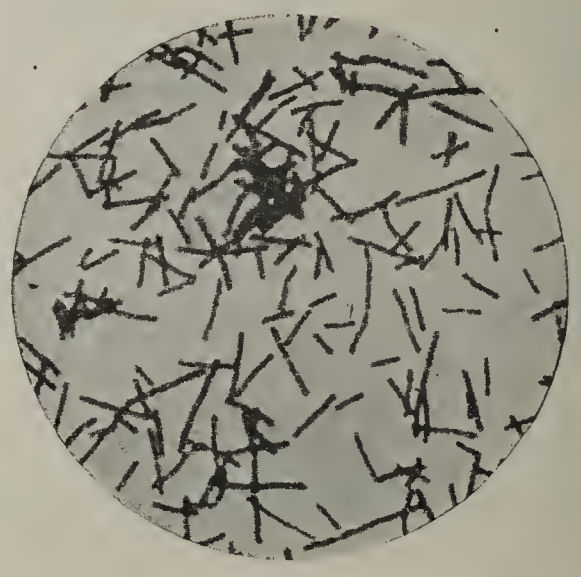
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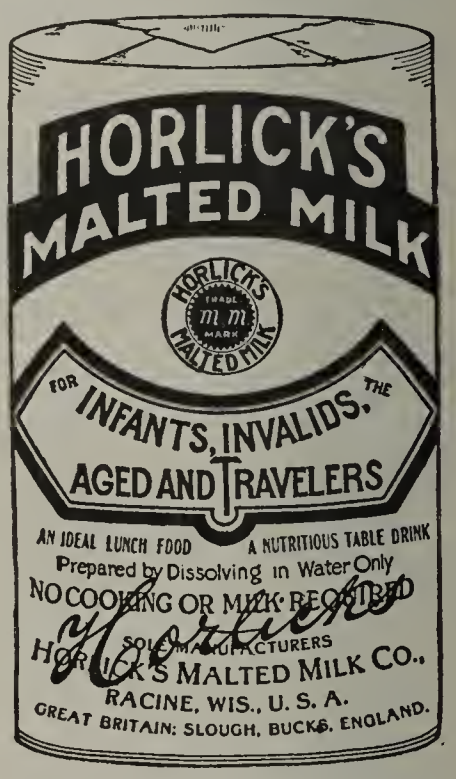
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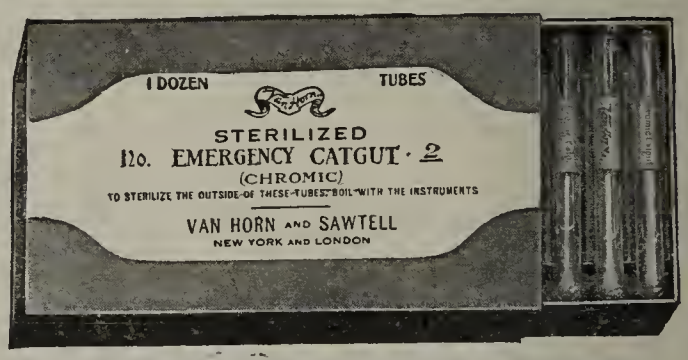
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RESULTS are better when an advertisement receives several consecutive insertions. and to those who remit $6 ($6.25 if answers are to be sent through this office) for four insertions of a 30-word advertisement we will give, *free, two more insertions* provided the first four do not consummate a deal. Notice for free insertions must be received within two weeks from date of last insertion.

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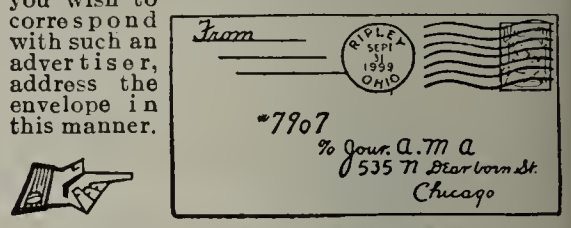
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Automobiles	Educational	Vacation Trips
Auto accessories	Publishers	Typewriters
Carriages	Tr. Sch. for Nurses	Printers
Collections	Nurses Wanted	Salesmen

Miscellaneous Commercial Advts.

SPECIAL NOTE—A fee of 25c. is charged those advertisers who have answers sent % AMA. Letters sent in our care are forwarded promptly.

Frequently, we receive requests to this effect: "Please send me the address and particulars regarding ads. No.——, No.——, and No.——." We are not permitted by advertisers who have their mail sent % AMA to furnish inquirers information of any kind, hence when you wish to correspond with such an advertiser, address the envelope in this manner.



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For current issue, ad. must reach us by 4:30 p. m. Monday.

Journal A.M.A., 535 N. Dearborn St. CHICAGO

N. B.—We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation.

ASSISTANTS WANTED

WANTED—ASSISTANT—EAR, NOSE AND throat; literary degree; Class A medical college; hospital experience; must be able to perform all major ear, nose and throat operations; aged 28 to 35; good health, appearance, personality and habits; salary $2,400 yearly guaranteed, in addition 25 per cent. of the net proceeds will be allowed. Add. 2376 B, % AMA.

WANTED — DERMATOLOGICAL ASSISTant; excellent opportunity for young physician desirous of acquiring a thorough, practical knowledge of dermatology; salary $50 per month to start; must be registered in Missouri; give references. Add. 2393 B, % AMA.

WANTED—COMPETENT WOMAN, MEDIcal graduate for x-ray work, anesthetics and other professional work in a 150-bed hospital; permanent position; regular hours, salary with living included. Add. 2357 B, % AMA.

WANTED—AN ASSISTANT NOT SUBJECT to conscription and a recent graduate in a contract practice and general office work and hospital available. Add. 2384 B, % AMA.

(*Continued on page 22*)

Tonics and Sedatives

Men are not to be measured by inches—not even in the army.

—o—

HE KNEW HIM WELL

My Irish gardener asked: "Did Arthur Balfour come to Chicago with General Geffery? There is a fine old man. I would like to see him again and shake his hand."

"Did you know him?" I asked.

"Shure and didn't I help rotten egg him in Manchester twenty-six years ago last May day?"—Chicago *Tribune.*

—o—

HE GOT IT

"You seem able-bodied and healthy; you ought to be strong enough to work," she remarked scrutinizingly.

"Yes, ma'am, I know. And you seem beautiful enough to be on the stage, but evidently you prefer the simple life."

He got a square meal without any further reference to work.—Memphis *Commercial Appeal.*

—o—

Presumably She Passed to the Beyond

Travelers from over across the plains bring the news of a fatal death at Knowles last Tuesday. One of the daughters of F. E. Isaacca age thirteen years, had a horse to fall on her.—Roswell (N. M.), *Star.*

—o—

His Heart in the Right Place

After two weeks of rambling about his anatomy, Robert Glover's heart is again in the right place, according to announcement made by surgeons at the Grady hospital following an operation performed on the negro, who is 30 years old.

Glover was shot in the left side two weeks ago and he allowed the wound to go practically unattended. Last night when he came to Grady hospital it was found that the bullet had resulted in pushing his heart from the left to the right side.

The operation of restoring it to its proper place was successful and the negro will live. —Atlanta *Constitution.*

—o—

THE WRONG GUESS

In Dublin a zealous policeman caught a cab driver in the act of driving recklessly. The officer stopped him and said:

"What's yer name?"

"Ye'd betther try and find out," said the driver peevishly.

"Sure, and I will," said the policeman, as he went round to the side of the cab where the name ought to have been painted; but the letters had been rubbed off.

"Aha!" cried the officer. "Now ye'll git yersel' into worse disgrace than ever. Yer name seems to be oblitherated."

"You're wrong!" shouted the driver triumphantly. "'Tis O'Sullivan!"

—o—

Some Modern Chemistry

The gas which claimed so many lives in the accident at the Speculator early this morning is what is known as carbon-monoxide. The action of the inhalation of this gas causes what is known as hemoglobin. The carbon takes up the oxygen, carrying it to the different tissues of the body. The result of the inhalation of the gas is a smothering sensation and the inhaler succumbs like a person under an anesthetic.—Butte (Mont.) *Post.*

—o—

Why Doctors Get Gray Young—3

The obstetrical case that's due—but won't come through.

(Continued on next page)

21,000 WASSERMANN TESTS

made in our laboratories assure you that proper technique and care are used in making this test. We make the classical test, and any of the various modifications if desired, without additional charge. We always test for native anti-sheep amboceptor and when found, correct it. This test, blood or spinal fluid..... **$5.00**

Sterile containers for the collection of specimens with instructions sent gratis upon request.

AUTOGENOUS VACCINES - $5.00

We culture all specimens aerobically and anaerobically and isolate the offending organisms. Pipettes for collecting material for autogenous vaccines sent upon request.

EXAMINATION OF PATHOLOGICAL TISSUE - - $5.00

MERCURIAL (GREY) OIL - $1.50

A valuable adjunct in the treatment of syphilis. This Mercurial Oil has been accepted by the Council on Pharmacy and Chemistry and is listed in "New and Nonofficial Remedies."

BACTERIOLOGICAL EXAMINATIONS

of Transudates and Exudates - - - - $2.50

Cultures will be held for vaccine.

Send for Fee List

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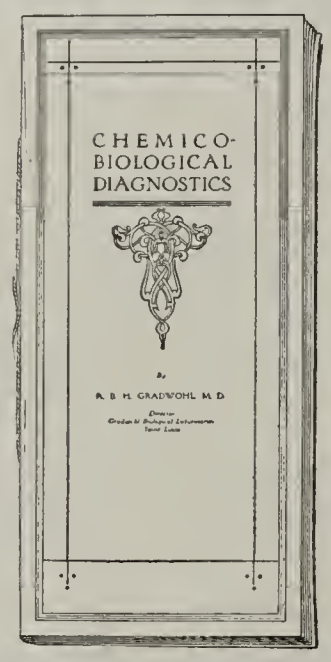
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Name.....

City.....

State.....

TONICS AND SEDATIVES

(*Continued from preceding page*)

SLIGHTLY SUSPICIOUS

Wife—"Wake up, John. Get up, I hear a burglar in the house."

Husband—"Well, let him burgle. It seems to me that ever since I insured my life you keep pushing me into danger."

—o—

UNNECESSARY WARNING

"This seems to be a very dangerous precipice," remarked the tourist. "I wonder that they have not put up a warning-board!"

"Yes," answered the guide, "it is dangerous. They kept a warning-board up for two years, but no one fell over, so it was taken down." —*Harper's Magazine.*

—o—

He'd Better Think It Over

Anton Schleiger left last Monday for Rochester, where he is in consultation with physicians regarding his death.—Owatonna (Minn.) *Press.*

—o—

A LEGITIMATE INQUIRY

In Scotland there is a special day for moving called flitting day. On this particular day an old bachelor desiring to move inquired of a porter as to his rates. The charges did not meet the approval of the parsimonious Scot who decided to do the work himself. Everything went well and he had moved all his effects except a tall, grandfather's clock. This he managed to get on his back and was laboriously walking down the street with it when he was accosted by a friend approaching in the opposite direction who stood staring at him in astonishment. "Sandy! Mon, mon, MON!" he exclaimed. "Why d' ye no buy a watch!"

—o—

He Does for Humanity

The following was received by a Chicago physician from a retired practitioner in Ohio:

Dear Doctor:—

for Some unknown Reason your valued Favor just Reached me this Morning, and wil hasten to answer. the Husband of the Lady you Speak of Wrote me on May 29 giving quite an extensive Description of her Case. and without Seeing her I told him I thought there was no help or her *now*, and advised him to Continue with his home Physician as he would do all in his Pawer to alleviate her Suffering, as her time was Probably verry Short. now Dr. there is no question but you are Correct in every particular. Regarding the Case. and the arm wil Burst open and then the Smel wil be Terrible til Death. in all Candor no Medicine or Medical Skill Can Reach it.

P. S. Now Dear Doctor, I wil add just a few words of explanation. I Treat nothing now but Cancer, and like Growths. I give *no* Medicine, use no Salves, Poultices Knife or other instruments, either before or after Treatment, but use a Liquid thin as Water, which Mingles with the juices Supporting the Cancer or Growth, and entirely Transforms it, and it dries down to a hard Scab, which Nature Removes Same as aney other Scab of like Magnitude, this Combination is my own Production, and only used by Myself, I am now Past 78 years oald. this is my only Means of Support, So are Stil trying to Save lives and do what I can for Humanity, the Cured are my Refferences and Plenty of then, after Exausting all other Means, but there is a Limit and I will not tak a Case I think incurable it is worse than Robery.

—o—

SED JOSH BILLINGS

The cockroach is born on the fust ov May and the fust ov November semi-annually and is reddy for use in fifteen days from date.

(*Continued on page 24*)

(*Continued from page 20*)

WANTED—YOUNG WOMAN PHYSICIAN to act as assistant surgeon during operations and help to take care of surgical cases, help in office and make herself generally useful in private hospital; applicant must be strong, healthy; possess good personality and willing worker; give age, college and year of graduation, reference as to character and ability in first letter; board, room, laundry and salary according to ability. Apply Dr. J. J. Jones, 1012 Delaware Ave., Wilmington, Del. B

WANTED — A GENITO-URINARY SURgeon of large practice in an eastern city wishes to engage à young physician as assistant for his private and hospital practice; hospital material, 50 beds for venereal diseases and 10 for urological surgery; for information write giving particulars as to age and general experience. Add. 2459 B, % AMA.

WANTED—PHYSICIAN, REGISTERED IN Pennsylvania, to act as assistant resident physician at the Western Penitentiary of Pennsylvania; good salary and maintenance; must be able to take charge on or before July 10. Western Penitentiary of Pennsylvania, Medical Department, Pittsburgh, Pa. B

WANTED — A YOUNG WOMAN PHYSIcian to take charge of the drug room and pathological laboratory; salary $720 per year with maintenance; good prospects of promotion in a few months. Add. Dr. A. F. Kilbourne, Supt. State Hospital, Rochester, Minn. B

WANTED—ASSISTANT PHYSICIAN AT Bonnie Burn Sanatorium for Tuberculous Diseases, male or female; sanatorium is located 24 miles from New York City. Add. Superintendent, Scotch Plains, N. J. B

WANTED—RECENT GRADUATE, SINGLE preferred, to take place of physician called into army; work consists of contracts in West Virginia and pays $100 per month, with professional expenses. Add. 2474 B, % AMA.

PHYSICIANS WANTED

WANTED—PHYSICIAN—ABLE TO SPEAK German; town 450 in Iowa; no cash required; married man preferred and one able to give references; sponsorship of surgeon in neighboring city; general practitioner only wanted; equipment and outfit sold on payments; examine this deal immediately. Add. 1232, % F. V. Kniest, Bee Bldg., Omaha, Neb. C

WANTED — RESIDENT PHYSICIANS AT the Pennsylvania State Sanatorium for Tuberculosis at Mount Alto, Pa.; maintenance and annual salary of $800 to $1,200, depending on length of satisfactory service; applicants state age, health, married or single, medical college, year graduation, hospital experience, and enclose professional references first letter to Dr. Samuel G. Dixon, Commissioner of Health, Harrisburg, Pa. C

WANTED—PHYSICIAN — GOOD LOCAtion for physician, hospital, drug store and dentist in new town that is growing fast; large territory; rich dairying country; thickly populated; mixed population; best of advantages; if interested write for further description of country and particulars to the Dresser Junction Improvement Association, Dresser Junction, Wis. C

WANTED—PHYSICIAN—TO TAKE PRACtice of $3,500 and contract work of $80 per month besides, in growing suburb of large city in intermountain state; will release same to one buying household goods, auto and office fixtures for $600. Add. 2381 C, % AMA.

WANTED — RESIDENT PHYSICIAN AT Jewish Sanatorium for tuberculosis out west; write in first letter all particulars as to experience and salary expected. Add. 2462 C, % AMA.

WANTED — PATHOLOGIST FOR 65-BED hospital; only one with long experience and best of references need apply; good salary and permanent position. Write to Montefiore Hospital, Pittsburgh, Pa. C

WANTED—SENIOR PHYSICIAN FOR TUberculosis institution, 150 beds; salary $1,200 per year and maintenance; state sanatorium and x-ray experience. Add. Superintendent, the Jewish Consumptives' Relief Society Sanatorium, Edgewater, Colo. C

(*Continued on page 24*)



A Real "Rest" Vacation

Doctor, some of your patients will be needing a vacation soon—a change of scene, restful diversion and a taste of the outdoor life.

Such patients are cordially invited to Battle Creek where everything is scientifically planned for rest, recreation and health-building—where the patient eats, sleeps and lives in a wholesome and "biologic" way.

The bill of fare at Battle Creek is simple, delicious and appetizing. A corps of twenty trained dietitians are always at hand in the dining halls to assist the patient in selecting foods best adapted to his individual needs.

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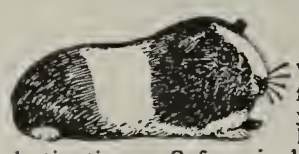
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TONICS AND SEDATIVES

(*Continued from page 22*)

A FAMILY TRAIT

At the annual prize-day of a certain school, the head boy rose to give his recitation.

" 'Friends, Romans, countrymen,' " he vociferated, " 'lend me your ears!' "

"There," commented the mother of a defeated pupil, sneeringly, "that's Mrs. Bigg's boy! He wouldn't be his mother's son if he didn't want to borrow something."—*Tit-Bits.*

—o—

THERE ARE OTHERS

"Don't you love our song, 'The Star-Spangled Banner?' "

"I do," replied Senator Sorghum.

"Then why don't you join in the chorus?"

"My friend, the way for me to show real affection for a song is not to try to sing it."—Washington *Star.*

—o—

SEEIN' IS BELIEVIN'

Pat O'Flaherty, very palbably not a Prohibitionist, was arrested in Arizona recently charged with selling liquor in violation of the prohibition law. But Pat had an impregnable defense. His counsel, in addressing the jury, said:

"Your Honor, gentlemen of the jury, look at the defendant."

A dramatic pause, then:

"Now, gentlemen of the jury, do you honestly think that if the defendant had a quart of whisky he would sell it?"

The verdict, reached in one minute, was "Not guilty."—*Everybody's.*

—o—

A Focus of Infection

Darcy's condition is due to an infested tooth and tansil that resulted in blood poisoning spreading throughout his system. No one is allowed to enter his room at the hospital.—Muncie (Ind.) *Press.*

"The *Press* styles itself as 'The Paper that is terse, clear and readable,' " says Dr. P. C. Barnard of Parker, Ind.

—o—

A MASTER THINKER

A few weeks ago John D. Rockefeller, Jr., addressed a New York City Sunday school. He told of meeting a ragged, hungry-looking little girl in the street on a wintry day, and when he questioned her she told him a pitiful tale of a sick mother and some younger brothers and sisters without food. After giving her a dollar, Rockefeller followed at a safe distance to see what she would do with the money.

"Now children," said Rockefeller, "What do you suppose is the first thing that little girl bought with that dollar?"

Up went the hands, and one child after another ventured a guess, but none proved correct. Finally the last little boy to hold up his hand was asked his answer to the question. "She bought a basket," he piped out.

"Correct," said Rockefeller, "there's a boy who thinks. Now, my son, come up here on the platform and tell us why you think it was a basket." After considerable coaxing the boy reached the platform, but seemed unwilling to talk.

"Go, on," urged Rockefeller, "I want these boys and girls to learn to think, too." The boy still hesitated, so Rockefeller took a silver quarter from his pocket and said, "I'll give you this if you'll tell us what makes you think the ltitle girl bought a basket first."

"Be—e—cause," stammered the youngster at last, "I was over in Hoboken last Sunday and heard you tell the same story."

—o—

One rotten apple spoils the whole barrel—and one mentally bloated autocrat in Europe has already caused the downfall of several others.

(*Continued from page 22*)

INTERNS WANTED

WANTED — INTERN DESIRED, UNION Hospital, Fall River, Mass.; 18 months' mixed service with salary. Apply Dr. George L. Richards, 124 Franklin St., Fall River, Mass. D

WANTED—AN INTERN FOR THE HOUSE of Mercy Hospital, Pittsfield, Mass.; service for one year; 120 beds, medical, surgical and obstetrical; room, board, laundry and $50 per month; references desired. Add. 2416 D, % AMA.

WANTED — INTERN — EXPERIENCED ether anesthetist and up on simple laboratory work; small hospital averaging 20 operations a month; allowance, board, room and $50 per month for graduate ($30 if undergraduate). Add., with references, Dr. James C. Johnston, Supt. All Saints Hospital, McAlester, Okla. D

WANTED—INTERN FOR 125-BED HOSPITAL, principally surgical work; one with knowledge of x-ray and pathology preferred; salary and maintenance. Add. 2424 D, % AMA.

LABORATORY TECHNICIANS WANTED

WANTED—LABORATORY TECHNICIAN—Skilled in tissue work, bacteriological, serological diagnosis, autogenous vaccines, etc.; male or female; steady position with prospect of advancement; state age, experience and salary expected; send references and photo. R. H. Williams, Chairman, General Hospital, 2505 Victoria Ave., Regina, Sask, Canada. V

WANTED — NURSE OR LADY PHYSICIAN for laboratory; must do tissue work, Wassermann, vaccines, etc., and all analyses. Apply 678 Williams Ave., Portland, Ore. V

LOCUM TENENS WANTED

WANTED — LOCUM TENENS TO TAKE charge of my practice for an indefinite period; am located in a rich agricultural section of Illinois and have a modern office and equipment; the man who comes must be married and from an A school; applicant must be willing to buy equipment if location, etc., is satisfactory; send photo and references in first letter. Add. 2418 F, % AMA.

NURSES WANTED

WANTED — GRADUATE NURSE FOR head nurse, general hospital; no insane or contagious diseases; no school in connection; Protestant nurse desired; a desirable position; chances for advance in salary; population 9,000. Add., stating nationality, languages spoken, experience, etc., Dr. Ravins Hospital, Merrill, Wis. T

WANTED—GRADUATE NURSE — LIGHT work; small hospital; vacation on full pay; last nurse remained year and half; nurse also to help in office and in surgical work; little work to do in summer; must stay a year; references former nurse. Add. W. G. Strobel, Welcome, Minn. T

WANTED—GRADUATE NURSE — SUPERintending a small hospital; also work in doctor's office part time; fine opportunity to get experience and special training; has selection of girl to do house work, laundry and cooking; good salary and maintenance. Add. Dr. Ferris Summerbell, Nahma, Mich. T

WANTED—IMMEDIATELY — GRADUATE nurse with executive ability and training as head nurse, for new tuberculosis sanatorium; present capacity 50 white and colored patients; colored help must be able to supervise diets and housekeeping; salary $75 and maintenance to commence. Write or wire full details regarding training and experience and send reference and recent photographs to Dr. Bernard L. Wyatt, Lexington, Ky. T

LOCATIONS WANTED

WANTED — UNOPPOSED LOCATION IN Colorado, Wyoming or Montana; in town with good surrounding country; am graduate medical department Illinois University; had 10 years' successful practice and can give best of references; would remunerate any one for information leading to a good unoccupied location. Add. Postoffice Box 191, Esbon, Kan.

(*Continued on next page*)

WANTED — LOCATION BY VETERINARIAN and pharmacist; JOURNAL readers knowing of good opening for one or both please write explaining fully; farming community most desirable. Add. 2476 E, % AMA.

WANTED—LOCATION — UNOPPOSED— Ohio town 300 to 600, western, southwestern or northwestern part preferred; reward for first information concerning location if taken; state size of town, surrounding territory, fees, business houses, roads, schools, churches. Add. Doctor, 194 W. First Ave., Columbus, Ohio.

WANTED—TO BUY PRACTICE IN NEW Jersey or southern New York; doctor of 8 years' general practice experience, does surgery; speaks Italian and English; practice $4,000 or more; will lease real estate with privileges of buying; must be a bargain and stand investigation. Add. 2323 E, % AMA.

WANTED — UNOPPOSED PRACTICE, $3,000-$4,000 cash, Nevada, Utah, New Mexico preferred; answer, where, elevation, fees, collections, population, growing, stationary, decreasing, community established or new, schools, churches, nationalities, roads, years there, business places, crops, distance competition, price, terms; must bear investigation; I mean business. Do you? Write. Doctor, Littlefield, Texas. F

PARTNERS WANTED

WANTED—PARTNER—UTAH PARTNERship offered; practice $15,000 year; will sell half interest or lease on division of profits; city 10,000; beautiful place and fine educational facilities and many other advantages; very fine physician for partner; state full particulars of your ability as surgeon and physician; finest equipped surgical outfit in Utah; making a sacrifice; delightful climate. Add. 1235, % F. V. Kniest, Bee Bldg., Omaha, Neb. G

WANTED—OHIO—PHYSICIAN — PARTnership basis; hospital connection; no investment; requirements; nonsmoker, nonimbiber; aged 31 to 36; hospital experience; preference for internal medicine, diagnosis, laboratory work, having no desire to do surgery; state civil condition, age, height, weight, religion, school, year, experience; wanted immediately; rare opportunity; fine office. Add. 2475 G, % AMA.

WANTED—PARTNER OR ASSISTANT— New England country village; practice averages to collect over $4,000; can be much increased by younger man; nothing to buy; no equipment needed except automobile; entire maintenance and percentage or maintenance and salary; am getting too old to do business alone; applicant must not be eligible for draft. Add. 2383 G, % AMA.

WANTED—PARTNER—I HAVE A LARGE territory in one of the best sections of southwest Oklahoma; would like an agreeable partner, single man preferred; must be clean and honest. Add. 2439 G, % AMA.

PARTNERSHIP WANTED

WANTED — PARTNERSHIP — COMPEtent physician desires to purchase an interest or control of an established sanitarium for nervous and mental cases; have had successful experience in both sanitarium work and general practice; give full particulars; only high grade proposition will be considered. Add. 2422 H, % AMA.

SITUATIONS WANTED

WANTED — SALARIED POSITION, LOcum tenens, partnership or a good general practice; recent graduate A plus school; one year's hospital and corporation practice; considerable experience with accident cases; good in diagnosis and internal medicine; unmarried; good build; use no alcohol or tobacco; references; west or southwest preferred. Add. 2401 I, % AMA.

WANTED — POSITION AS HEALTH officer or salaried appointment as medical director of life insurance company or physician for corporation or industrial plant; have had unusually competent training and extensive experience; gilt-edge references from national, state and municipal authorities; would consider full or part time proposition with favorable opportunity for private practice. Add. 2409 I, % AMA.

(Continued on next page)

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1 only Electric Light Bath Cabinet, Columbia type, in perfect shape, size, 46 inches high, 44 inches wide and 44 inches long. It is equipped with thirty-one 50 candle power lamps; 7 on each side, 6 in back and 6 on frame, beside the door; 1600 candle power available, inside reflecting surface, polished aluminum over asbestos, body or frame of cabinet weathered oak. We are pleased to offer this cabinet, complete, mechanically perfect.	85.00
3 compressed air motors, complete with pumps, ⅙ H. P., direct current.....each	35.00
1 Schiedel-Portable X-ray Coil, for alternating current	100.00
1 Schiedel Interrupterless Transformer, alternating current	650.00
1 Schiedel Balanced X-ray Tube Stand with protection dome and plate shelf	50.00
1 No. 6 McIntosh Wall Plate, marble base	25.00
2 No. 7 McIntosh Wall Plate, marble base.....each	20.00
1 Helios Therapeutic Arc Lamp, 110 volt, either current	25.00
1 Cologne Electric Vibrator on pedestal, 110 volt current	25.00
1 Hayden Anterior Urethroscope	25.00
1 Bransford Lewis Cystoscope (list $125.00)	75.00
1 Leo Burger Cystoscope (list $50.00)	25.00
1 Cystoscope Set Combination, examining	50.00
1 Bransford-Lewis Ureter Examining Cystoscope	30.00
1 McIntosh Portable High Frequency Machine, complete with electrodes (good as new) list $35.00	25.00
1 Vertical Fluoroscope complete with screen	150.00
1 Fidelity Rotary Convertor, 110 volt D. C. for 110 volt A. C. (list $75.00)	35.00
1 Chloride Silver Combination Battery, very elaborate (list $75.00)	35.00
1 small compressed air tank, two outlets with gauge and small "T" pump	15.00
1 large tank, same specifications	20.00
1 medium sized tank, no gauge	5.00
1 Bacteriological Incubator, double door, size inside 10x12x10, complete with gas burner, rheostat, etc., perfect mechanical shape (price new, $48.00) net cash.	25.00
1 Ferguson combination chair table, all metal, perfect shape, complete with pad.	30.00
Same as above, no pad	25.00
3 Mercurial Sphygmomanometers .....each	5.00
3 W. E. Adjustable bedside tables.....each	3.50
1 Type "A" Pulmotor complete with tank	125.00
Gem Dressing Sterilizer on stand, formally Red Cross, white enamel	30.00
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WANTED—SALARIED POSITION IN OR near town with good school; Virginia, Tennessee or Kentucky preferred; any state reciprocating with Virginia; I am married, have two children and am 32 years old; I have had nearly 10 years' experience in contract and private practice and I am at present employed by large company but desire location where there is good school; would consider buying small amount property. Add. 2463 I, % AMA.

WANTED — YOUNG WOMAN, UNIVERsity graduate, now employed as bacteriologist and serologist in large city hospital, desires similar laboratory position; experienced in clinical, bacteriological diagnosis, Wassermann, spinal fluid work, autogenous vaccines, physiological chemistry and animal inoculation; willing to teach nurses bacteriology, chemistry and clinical microscopy; state salary; references. Add. 2470 I, % AMA.

WANTED—POSITION AS ASSISTANT OR locum tenens by physician not subject to conscription; aged 33; 3 years in general practice; 1 year in institution for feebleminded; can do ordinary laboratory work; A1 references; available at once. Add. 2472 I, % AMA.

WANTED—BY PHYSICIAN PRACTICING in the south, position in California, Colorado, New Mexico or North Carolina; graduate Class A college, 1910; good habits; aged 26; three years in large general hospital; references furnished on request; pthisiotherapy or internal medicine preferred. Add. 2263 I, % AMA.

WANTED—CONTRACT WORK, ASSOCIAtion with group of doctors in practice or a good location, preferably in Illinois, by a successful general practitioner; do major surgery; good hospital training; five months' postgraduate work; special laboratory training; highest references; beyond conscription; married; temperate habits; ethical; available soon. Add. 2455 E, % AMA.

WANTED — SALARIED POSITION, CONtract, mining or institutional; place as assistant or otherwise; Class A graduate; aged 25; one year's general hospital experience; good habits and character; best references; not accepted army medical reserve; did not meet full physical standard; ready for work; go anywhere. Add. 2479 I, % AMA.

WANTED — SALARIED POSITION WITH hospital or corporation; aged 34, American citizen, married, School A, 1915; teacher medical school; 3 years' tuberculosis hospital; do routine laboratory and tissue work; knowledge of German, French and Spanish and some law; references; can come at once; west or southwest preferred. Add. 2461 I, % AMA.

WANTED—HOSPITAL SUPERINTENDENT desires to make change July 1; New York and Chicago hospital experience; wife would go as matron; any proposition large or small will be considered where ability, integrity and competency are recognized by directors, supervisors and county commissioners. Add. Superintendent, Box 162, Fort Dodge, Iowa. I

WANTED — POSITION AS INTERN OR assistant in a contagious disease hospital; middle west preferred; graduate of A plus school; three years of general practice and one year postgraduate work in preventive medicine; available for duty middle of July or August 1. Add. 2448 I, % AMA.

WANTED—ASSISTANTSHIP — BY EYE, ear, nose and throat specialist; three years' experience; crack refractionist; want to assist man doing much surgery along this line; salary no object. Add. 2467 I, % AMA.

NURSES LOCATIONS WANTED

NURSES—WRITE F. V. KNIEST, R. P., Omaha, Neb., for permanent position, any kind of work anywhere U. S. or Canada. Established 1904. Gilt-edge references.

WANTED — POSITION — GRADUATE nurse desires position as superintendent of medium sized hospital; excellent credentials; 6 years' experience. Add. 2460 W, % AMA.

WANTED — GRADUATE, REGISTERED, experienced nurse desires institutional position at once; now employed but desires change of location; competent and reliable; pleasing personality; aged 28, single; physicians' and institutional references; capable of superintending small hospital, but would consider any institutional position in or near Pittsburgh, Pa. Add. 2412 W, % AMA.

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WANTED—GRADUATE NURSE DESIRES position; with surgeon or physician or institutional; aged 25, unmarried, good health; graduated 1914; prefer institution where only graduate nurses are employed; ready for position at once; can furnish good references; 6 years' training and experience. Add. 1231, % F. V. Kniest, Bee Bldg., Omaha, Neb. W

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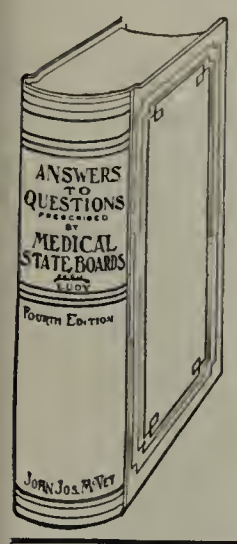
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FOR SALE — GEORGIA — $4,000 CASH practice and introduction goes to physician purchasing my office equipment; cash or terms to responsible party; good town of 2,500 with light competition; this is a golden opportunity for man not eligible for military service; write for complete details. Add. 2452 N, % AMA.

FOR SALE — LOT AND EIGHT-ROOM office and home building, $2,500; one-half cash; opposite courthouse and opposite hotel; garage on lot; would prefer to sell equipment and furniture, McDonald chair, instrument cabinet, glass tables, globe nebulizer, typewriter, Weber pianola, Ford auto, etc., but will remove them if desired; leaving good practice to enter Medical Corps; no time for extended correspondence; use prepaid telegraph, come to Hailey, Idaho, and be convinced that this is opportunity. E. W. Kleinman. N

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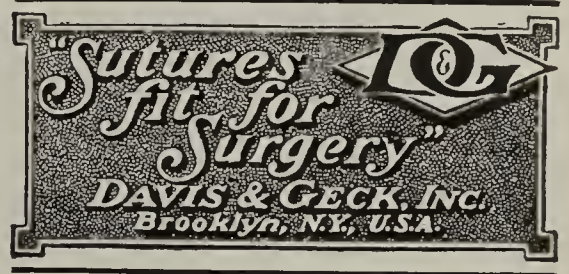
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(*Continued on next page*)

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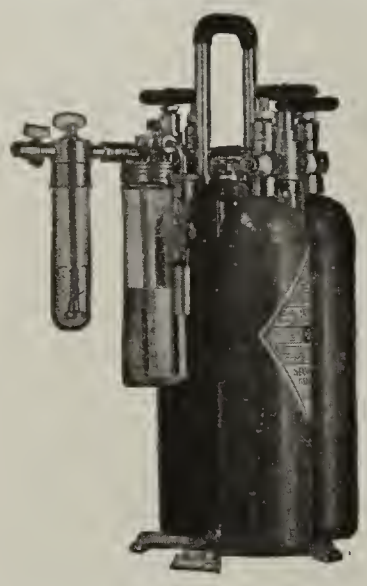
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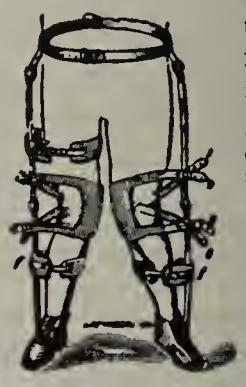
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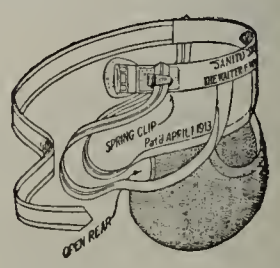
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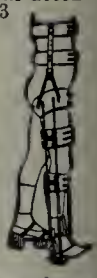
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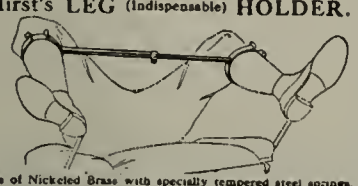
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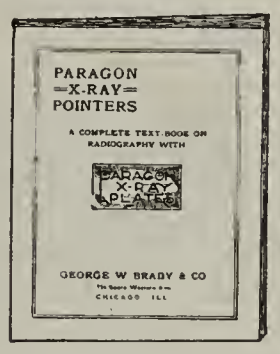
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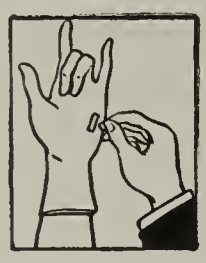
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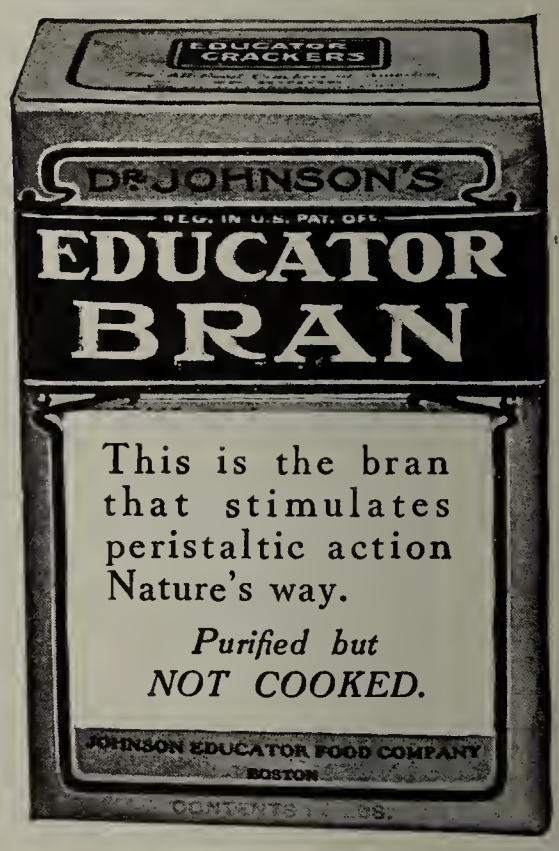
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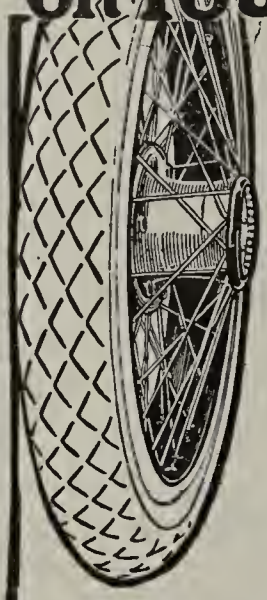
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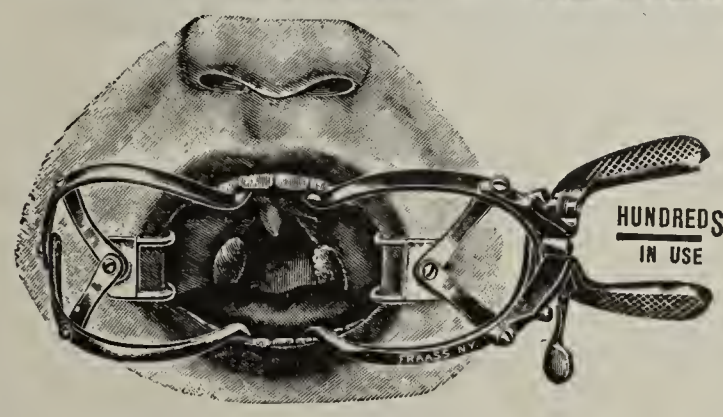
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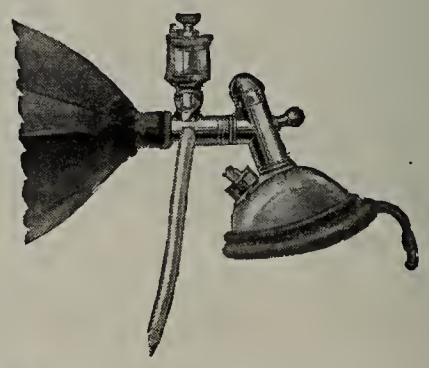
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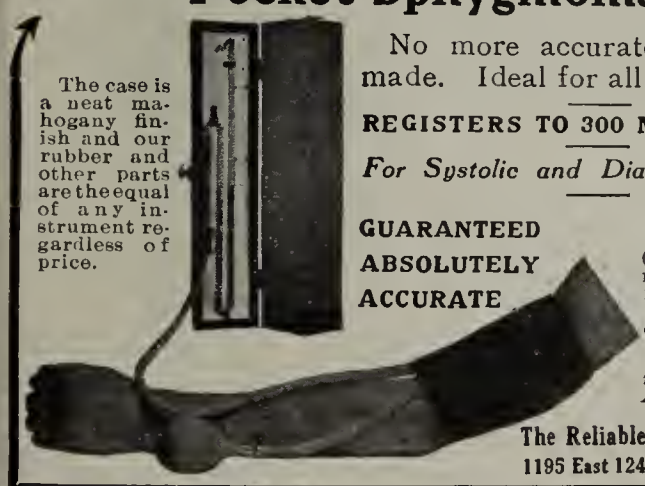
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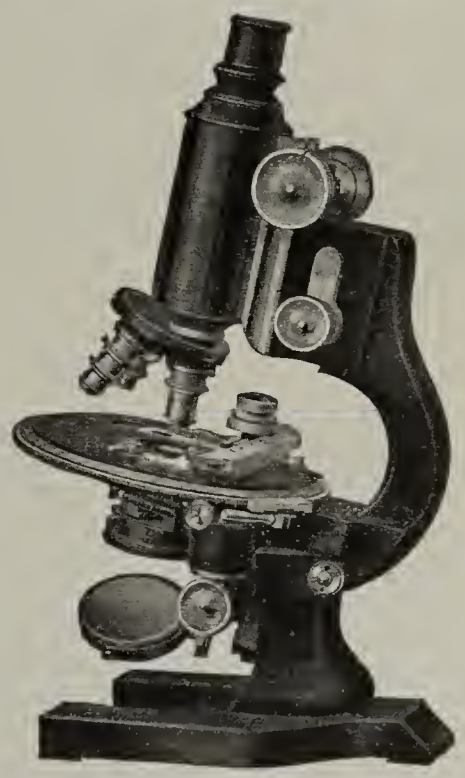
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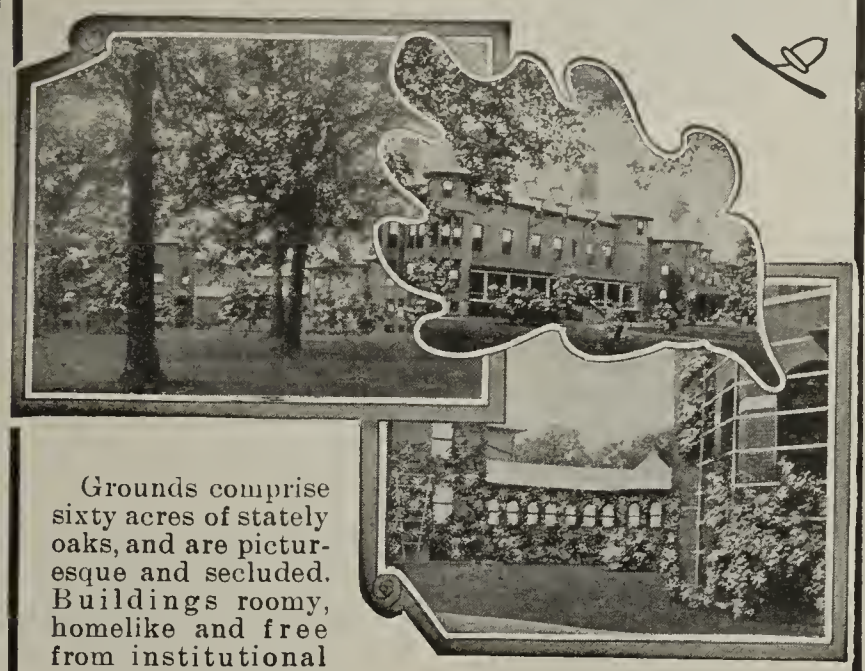
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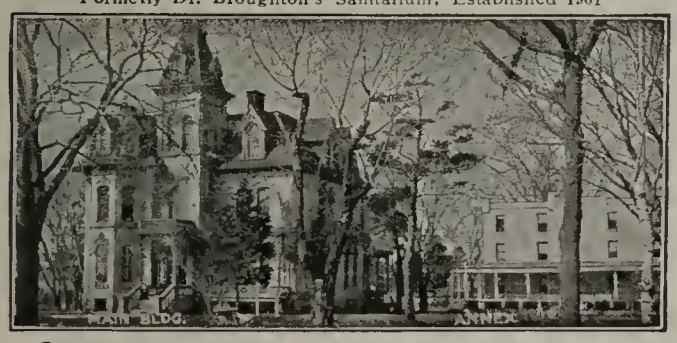
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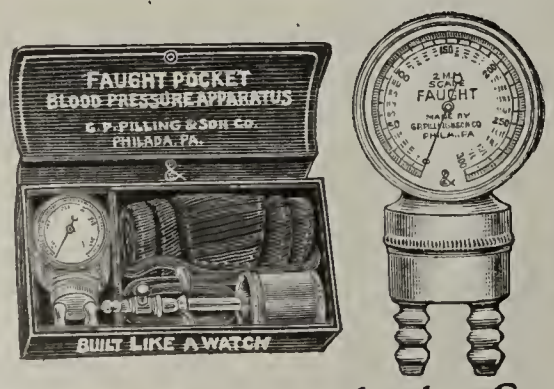
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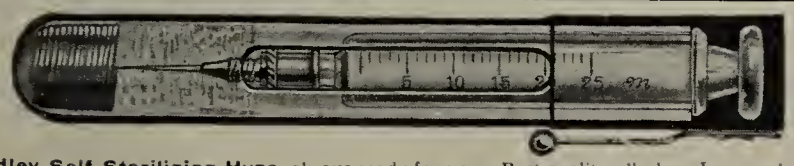
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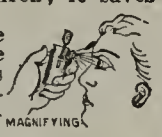
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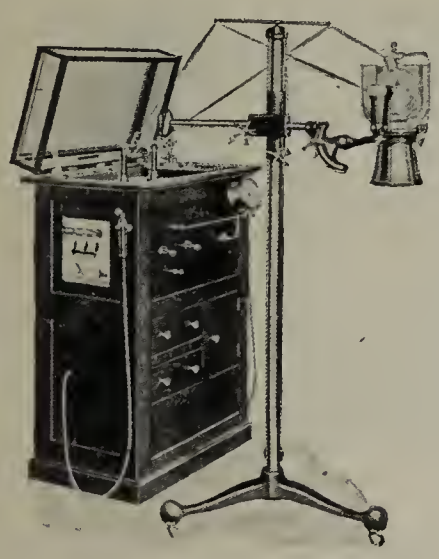
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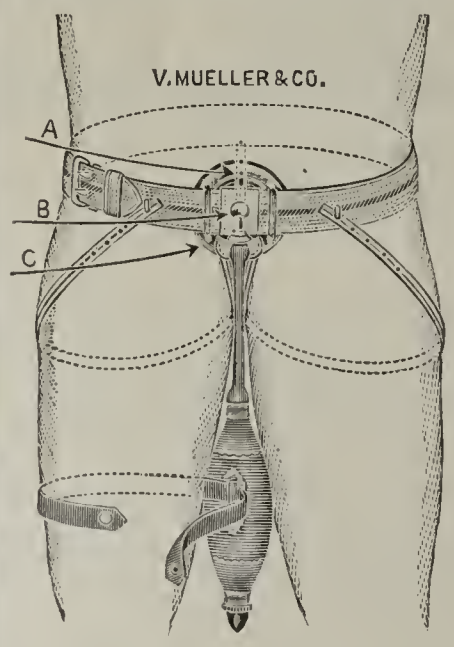
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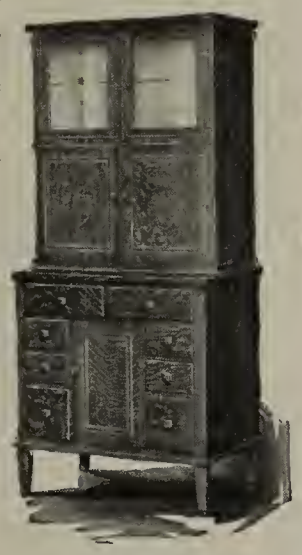
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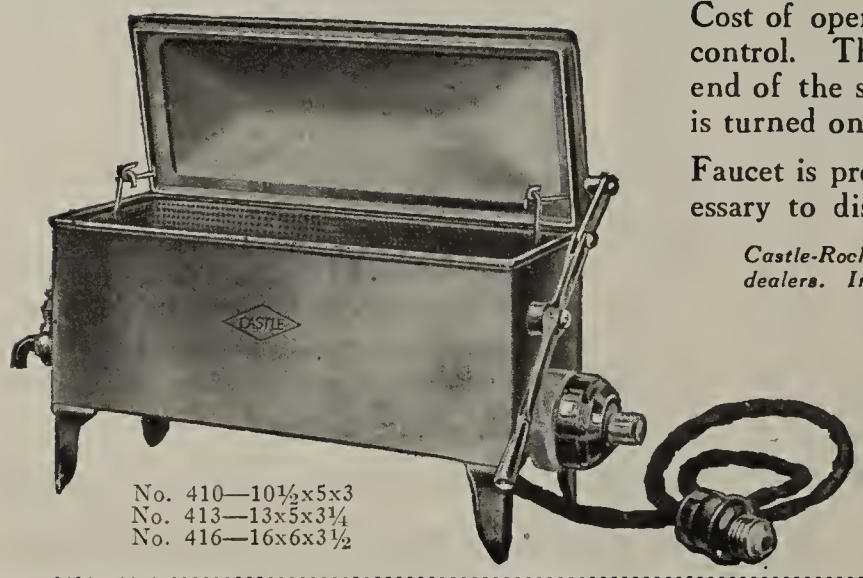
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Castle-Rochester Sterilizers are sold by the leading Surgical Instrument dealers. Information can be secured from your dealer or direct from us.

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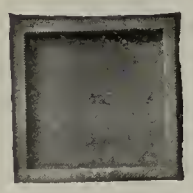
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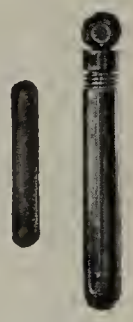
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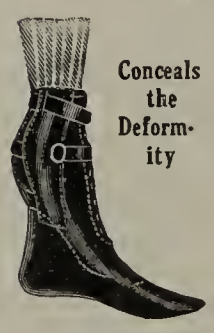


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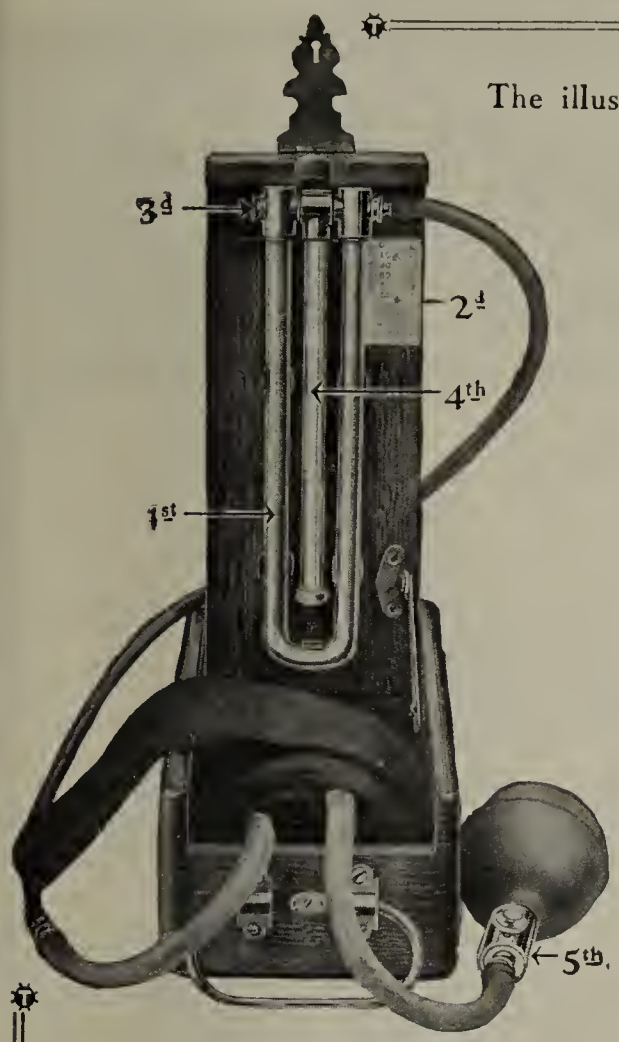
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5th Our improved pressure-release control is embodied in the new TAG-Micrometer Valve. This feature alone (without considering any of the many others) makes the "TAG-Schneider" stand out in a class by itself.

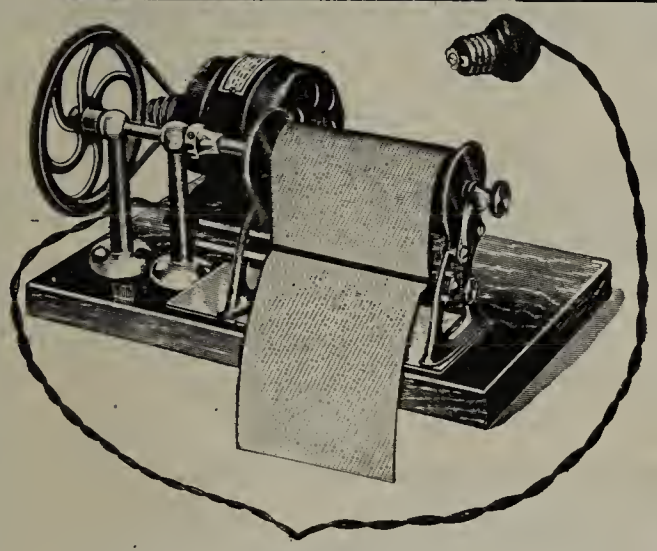
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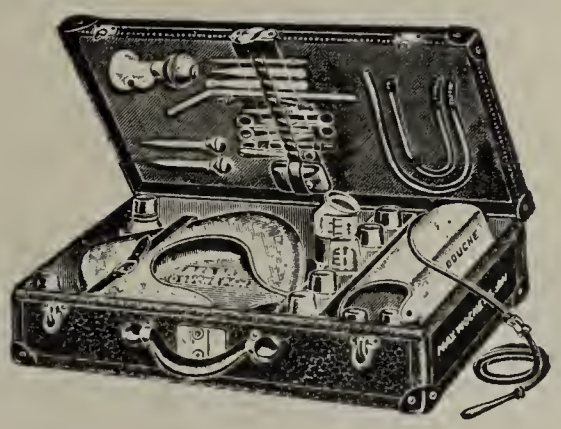
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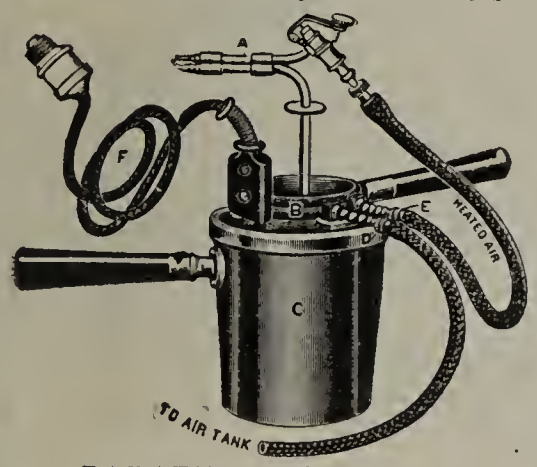
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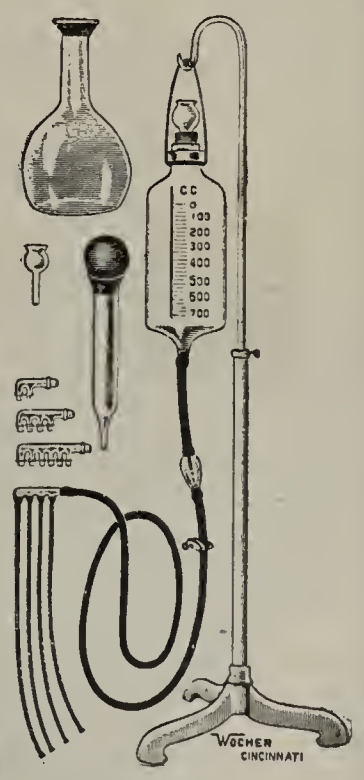
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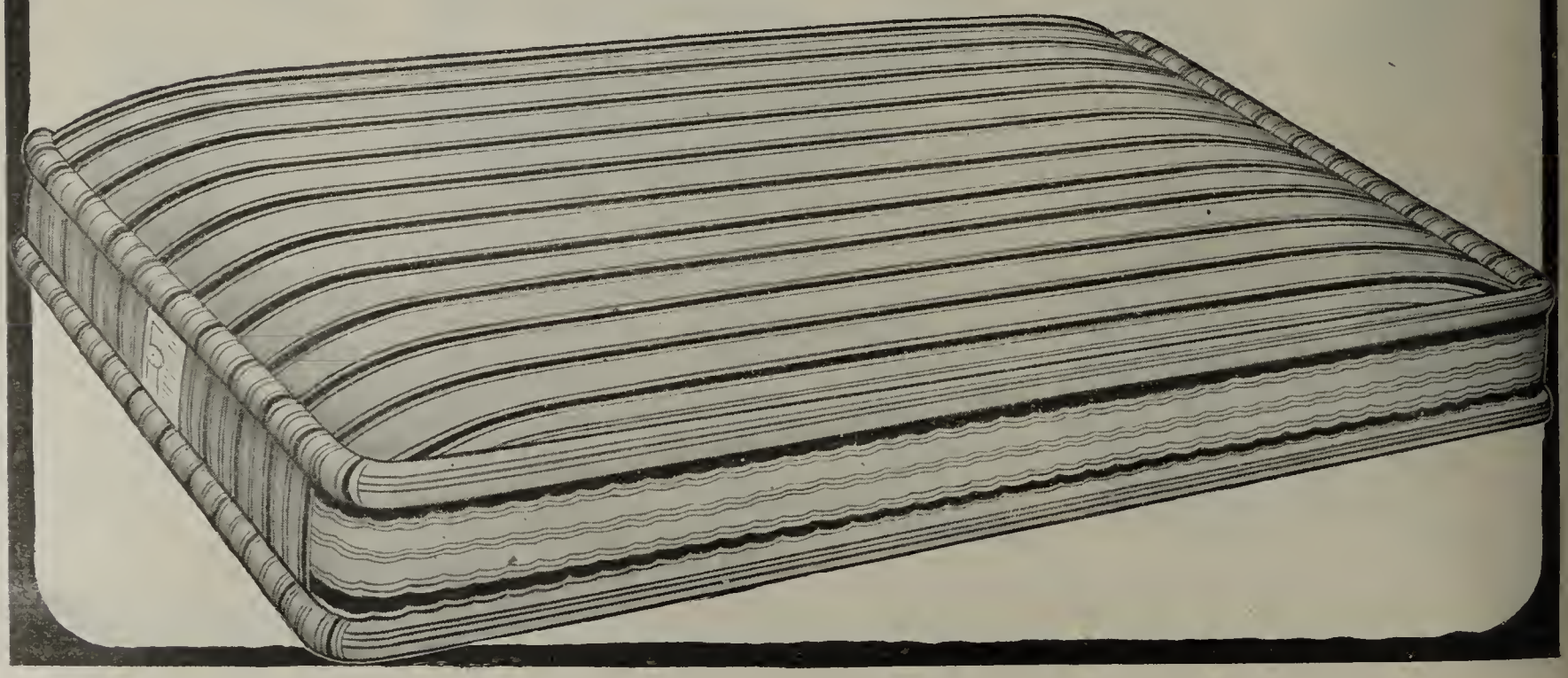
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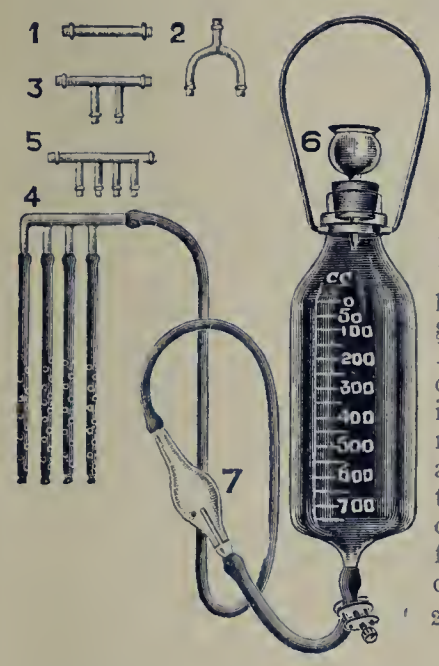
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